





ENCYCLOPÆDIA LONDINENSIS;

OR,

UNIVERSAL DICTIONARY

OF

ARTS, SCIENCES, AND LITERATURE:

COMPREHENDING,

UNDER ONE GENERAL ALPHABETICAL ARRANGEMENT,

ALL THE WORDS AND SUBSTANCE OF

EVERY KIND OF DICTIONARY EXTANT IN THE ENGLISH LANGUAGE.

IN WHICH THE IMPROVED DEPARTMENTS OF

THE MECHANICAL ARTS, THE LIBERAL SCIENCES, THE HIGHER MATHEMATICS, AND THE SEVERAL
BRANCHES OF POLITE LITERATURE,

ARE SELECTED FROM THE

ACTS, MEMOIRS, AND TRANSACTIONS, OF THE MOST EMINENT LITERARY SOCIETIES
IN EUROPE, ASIA, AND AMERICA.

FORMING A COMPREHENSIVE VIEW OF THE RISE, PROGRESS, AND PRESENT STATE, OF HUMAN
LEARNING IN EVERY PART OF THE WORLD.

EMBELLISHED WITH A MOST

MAGNIFICENT SET OF COPPER-PLATE ENGRAVINGS,

ILLUSTRATING, AMONGST OTHER INTERESTING SUBJECTS,

THE MOST CURIOUS, RARE, AND ELEGANT, PRODUCTIONS OF NATURE, IN EVERY PART OF THE UNIVERSE;

AND ENRICHED WITH

PORTRAITS OF EMINENT AND LEARNED PERSONAGES, IN ALL AGES OF THE WORLD.

COMPILED, DIGESTED, AND ARRANGED,

BY JOHN WILKES, OF MILLAND HOUSE, IN THE COUNTY OF SUSSEX, Esquire;

ASSISTED BY EMINENT SCHOLARS OF THE ENGLISH, SCOTCH, AND IRISH, UNIVERSITIES.

VOLUME XIX.

CONTAINING

A comprehensive Treatise on PATHOLOGY;

And a History of PERSIA and PERU to the present Time.

London:

PRINTED FOR THE PROPRIETOR, AT THE ENCYCLOPÆDIA OFFICE, 17, AVE-MARIA-LANE, ST. PAUL'S;
AND SOLD BY ALL THE BOOKSELLERS.



DESCRIPTION OF THE FRONTISPIECE ILLUSTRATING
PATHOLOGY.

APOTHEOSIS OF HIPPOCRATES.

SEATED IN AN ANTIQUE CAR, DRAWN TOWARDS THE TEMPLE OF IMMORTALITY BY CHIRON AND ANOTHER CENTAUR EQUALLY VERSED IN THE ART OF HEALING,—HIPPOCRATES HOLDS IN HIS RIGHT HAND THE PATERA OF HEALTH, AND IN HIS LEFT THE STAFF AND SERPENT OF ÆSCULAPIUS, WHOSE DAUGHTER HYGEIA IS REPRESENTED ABOVE,—STREWING MEDICINAL FLOWERS ON THE HEAD OF THE FIRST PATHOLOGIST IN THE WORLD; WHILST APOLLO, SHOOTING FROM THE CLOUDS AT THE SERPENT PYTHON, AN EMBLEM OF PESTILENCE, SETS FREE FROM THE CAVERN OF THE MONSTER THE VICTIMS OF DISEASE. DEATH AND THE DEMONS OF LINGERING ANGUISH AND EXCRUCIATING PAIN ARE SEEN FLYING OFF; AND NAUSEATING SICKNESS IS EXEMPLIFIED BY AN EMACIATED FIGURE ON THE FOREGROUND.

AE
5
E5622
1810
1.19
CD1R8

ENCYCLOPÆDIA LONDINENSIS;

OR, AN

UNIVERSAL DICTIONARY

OF

ARTS, SCIENCES, and LITERATURE.

P A T H O L O G Y .

PATHOLOGY, *s.* [from the Gr. *παθος*, suffering, and *λογος*, a discourse.] The science or doctrine of diseases.—This tree may naturally be conceived to have been under some disease indisposing it to such fructification. And this, in the *pathology* of plants, may be the disease of superfoliation mentioned by Theophrastus. *Sir T. Browne's Miscell.*—That part of medicine which relates to distempers, with their differences, causes, and effects incident to the human body.

As **PHYSIOLOGY** teaches the nature of the functions of the living body in a state of health; so **PATHOLOGY** relates to the various derangements of these functions which constitute disease. Its objects, therefore, are to ascertain the various symptoms which characterise the different disorders of each organ of the body, and especially the *diagnostic* and *pathognomonic* symptoms, which afford the means of discrimination between diseases that resemble each other; to determine the causes, both predisposing and exciting, by which diseases are induced; to point out the *prognosis*, or the tendency and probable event of each disease, from the changes and combination of the symptoms; and lastly, to teach the *indications of cure*, and the nature and operation of the remedies adapted to the various circumstances and periods of disease.

The study of pathology presupposes an intimate acquaintance with anatomy and physiology; or, in other words, with the structure, laws, and operations, of the animal body in a state of health. An observance of the signs or symptoms which denote a deviation from this state, constitutes the first branch of medicine, or *symptomatology*: an acquaintance with the usual concatenations observed by those signs, *diagnosis*. *Nosology* regards the arrangement of these signs or symptoms; and *ætiology* applies to the cognizance of their causes, whether external or internal. The application of the properties of inanimate matter to the removal of these causes, or signs, is denominated *therapeutics*. The substances used for this latter purpose are termed *materia medica*.

Before entering into any further examination of these subjects, it will be necessary to give a short sketch of the history of this art; in the course of which it will be seen, that its professors have been employed for the most part in endeavouring to explain the phenomena of disease and the operation of remedies according to the principles of some favourite or fashionable study. Thus mechanics, chemistry, and metaphysics, have each in their turn formed the basis of celebrated medical theories: theories long since exploded, but of which the recollection may serve as beacons to warn us from the like errors. It is not, however, for this purpose only that the writings of the ancients merit our regard. The perusal of them enlarges the field of our experience: we often find in them,

remarks which serve to explain anomalies in disease, and descriptions which their beautiful and forcible language renders more interesting, and imprints more firmly on our minds. They likewise furnish hints for the further prosecution of inquiry, by showing the various lights in which the same circumstances have been viewed by different men; and the long chain of facts they display to our view enables us in some measure to appreciate the effects of climate, diet, and even manners, on the constitution of our species. It may be remarked moreover, that scarcely any system of medicine has been framed, however absurd, which has not contributed, by the spirit of investigation it excited, and by the new stock of facts its establishment necessarily developed, to advance the progress of the art.

RISE AND PROGRESS OF MEDICINE.

THE origin of the medical art is involved in great obscurity: yet, its antiquity is undoubtedly great, since, from its intimate relation with the life of man, the discovery of it must have been coeval with that of the most simple mechanical arts.

The little we know of the earliest history of our race, leads to the supposition, that surgery was the first branch of medicine cultivated. While mankind subsisted principally by hunting or fishing, they must, of necessity, have been subjected to a variety of accidents; fractures, luxations, &c. must have been frequent among them, and to cure or alleviate those obvious maladies must have been their first care. It is impossible to conjecture what means were pursued for the attainment of this end, yet, it is natural to suppose, they were, for a long period, very inefficient, and that the knowledge acquired in this state of society was very confined. It is probable, however, that anatomy was not wholly neglected in this barbarous age. The frequent slaughter of wild beasts, and the various purposes of food, raiment, &c. to which their different parts were appropriated, must have led to a curious acquaintance with the structure of those animals; and thus laid the foundation of comparative anatomy, an acquisition by no means useless in chirurgical operations. Engaged, too, in perpetual hostility, the savage probably regarded the examination of human bodies with little or none of that horror which has proved so inimical to the study of anatomy in more civilized times; and indeed, (if we may judge from the accounts handed to us by the ancients,) he seems to have felt a brutal pleasure in mangleing and deforming the persons of his deceased enemies. Thus Homer relates of the Greeks over the body of Hector, that, *Οὐδ' ἀγα οἱ τις ἀνοῦτητι γέ παρεσθη*.

It was in times when more refined habits of life obtained, and in situations where gentler pursuits occupied

the attention of mankind, that the application of remedies to the cure of internal maladies took its rise. The tending of flocks and herds, which then became a very general employment, must have induced habits of leisure and contemplation extremely favourable to the acquisition of experimental knowledge: we may suppose that the pastors observed the effects of certain plants on their flocks; and by a natural and easy transition were induced to administer the same substances in ailments of their own bodies: a supposition which the facts related by Herodotus and others seem to confirm. The above-mentioned author observes, that Melampus discovered the *melampodium*, or black hellebore, to be possessed of a purgative property from having observed its effect on goats which had browsed in pastures where this herb was indigenous and frequent. Again, we are informed, that the first use of enemas was taught mankind by the Ibis, a bird which is reported to have the power of introducing its bill into the anus, and injecting thereby a quantity of water up the intestines. Pliny likewise mentions a circumstance to which he attributed the introduction of phlebotomy; viz. that the Hippopotamus has a custom, whenever it becomes large and unwieldy, of opening a vein in its leg by means of a sharp reed which grows on the banks of the Nile. The accuracy of the two latter relations may be questioned; yet probably they had their origin in facts, though tradition and the lapse of time had altered or exaggerated them. However this may be, there can be little doubt, but that in this branch of medicine, as in anatomy, the phenomena displayed in the brute creation furnished man with useful hints, and contributed, in a few instances, to introduce medical herbs to his notice. The consideration of the more or less salubrious qualities of his own food led to the introduction of certain regimen, or system of diet, which in these times, with the occasional use of a few simple cathartics, was probably sufficient for the cure of most internal complaints; and these observations, naturally communicated from father to son, from one generation to another, and established by long and multiplied experiments, at length laid the basis of materia medica and therapeutics. This empirical practice, however, being often found to fail in affording the expected relief, a minute attention was paid to the concomitant circumstances under which previous cures had been effected, and they were imitated accordingly. Thus one plant was directed to be gathered in the night, another when the moon was on the wane, &c. accompanied with absurd and superstitious incantations.

With respect to the *modus operandi* of these remedies, their first employers must have been totally uninformed, in consequence of their ignorance of natural philosophy; to divine agency therefore they referred the effects of medicinal herbs, rather than to any innate virtue in the substances themselves. To this agency likewise they ascribed the occurrence of disease, or the restoration of health; an idea which appears in some measure connected with that branch of heathen mythology which attributed to every member of the body its guardian genius.

Up to this period every man was more or less a physician, and contributed his individual stock of experience to the general good; but, when the increasing wants and number of the human race compelled them to adopt the forms of political government, and they established the military ruler or chieftain on the one hand, and the priest, druid, or brahmin, on the other, the practice of medicine fell exclusively into the hands of those who executed the sacerdotal function. They seized with avidity the exercise of an art, the unknown or uncertain origin of which favoured the illusion that it was derived immediately from the gods: an art which, clothed in superstition, and venerable from its antiquity, lent them increased influence over the vulgar, and was indeed hardly less useful for that purpose than the sacred or legislative offices which they likewise assumed. They taught that pestilence or disease was inflicted by the angel of the enraged gods,

and easily found means to persuade the sufferers that such dire visitations were only to be removed through the medium of priestly intercession, joined with sacrifices and offerings.

From that passage in Genesis in which it is said, that "Joseph commanded his *servants* the physicians to embalm his father," (Gen. 1. 2.) the writer of the article MEDICINE in the Encyclopædia Britannica concludes that the first physicians of the *Egyptians* were not priests; because, in that age, the Egyptian priests were in such high favour, that they retained their liberty, when, through a public calamity, all the rest of the people were made slaves to the prince. This, however, we do not think a valid objection; for we cannot doubt that every rank of persons, priests as well as others, might, under an absolute monarchy, be very properly styled *servants* of the prince, and also of his prime minister.

The same writer seems more founded in his conjecture that the physicians of the *Jews* were originally distinct from their priests; for we read that, when king Asa was diseased in his feet, "he fought not to the Lord, but to the physicians." (2 Chron. xvi. 12.) Now, seeking to the priests, had they been the physicians, would have been the same thing as seeking to the Lord; and hence it is supposed, that among the Jews the medical art was looked upon as a mere human invention; and it was thought that the Deity never cured diseases by making people acquainted with the virtues of this or that herb, but only by his miraculous power. That the same opinion prevailed among the nations who were neighbours to the Jews, is also probable from what we read of Ahaziah king of Judah, who, having sent messengers to inquire of Baalzebub, god of Ekron, concerning his disease, did not desire any remedy from him or his priests, but simply to know whether he should recover or not. (2 Kings i. 2.)

We shall now quote a few verses from a book of Scripture (Apocrypha), written "in the latter times, after the people had been led away captive, and called home again, and almost after all the prophets." In this book physicians are spoken of with a much greater degree of respect, but not as if they were priests. "My son, in thy sickness be not negligent: but pray unto the Lord, and he will make thee whole. Leave off from sin, and order thine hands aright, and cleanse thy heart from all wickedness. Give a sweet favour, and a memorial of fine flour; and make a fat offering. *Then* give place to the physician, for the Lord hath created him: let him not go from thee, for thou hast need of him. *There is a time when in their hands there is good success.* For they shall also pray unto the Lord, that he would prosper that which they give for ease and remedy to prolong life. *He that sinneth before his Maker, let him fall into the hand of the physician.* Ecclesiasticus xxxviii. 15.

"What seems most probable on this subject therefore is, that religion and medicine came to be mixed together only in consequence of that degeneracy into ignorance and superstition which took place among all nations. The Egyptians, we know, came at last to be sunk in the most ridiculous and absurd superstition; and then, indeed, it is not wonderful that we should find their priests commencing physicians, and mingling charms, incantations, &c. with their remedies. That this was the case, long after the days of Joseph, we are very certain; and indeed it seems as natural for ignorance and barbarism to combine religion with physic, as it is for a civilized and enlightened people to keep them separate. Hence we see, that among all *modern* barbarians their priests or conjurers are their only physicians." Ency. Brit. vol. xiii.

However this may be, the union of medicine and religion continued for many centuries; but, whatever discoveries may have been made, the mystery attendant on most sacred institutions has prevented communication of them to posterity. Nevertheless this union was not perhaps so prejudicial to the interests of science as many have supposed.

posed. Constant sacrifice and the frequent habit of inspecting the "*spirantia extra*" of the victims, must have materially advanced the progress of comparative anatomy; and the written records first adopted by the priests at least prevented established facts from falling into oblivion, even if further experience in the cure of disease was but slowly attained.

The *Egyptians* ascribed the invention of medicine to Thoth, (the *Hermes Trismegistus* of the Greeks,) to whom divine honours were paid; and they reported that he was the founder of all useful knowledge. But there is some confusion in this account; for, on some occasions, this discovery was attributed to Isis or Osiris, while at other times Apis and Serapis laid claim to the merit of it. It should be recollected, however, that these deities were not like Thoth, mortals who had divine honours paid to them after their decease, but embodied or personified agents, by means of which the philosophers of the time endeavoured to explain all the laws and operations of matter. They were not likely therefore to be commemorated as the inventors of medicine, although they were undoubtedly invoked as presiding over health. Athotis, one of the Egyptian kings, left writings on anatomy, a science in which the nation could hardly have been deficient, on account of the frequent opportunities they enjoyed of acquiring it while engaged in embalming the bodies of the dead. But the other branches of medicine remained a long time stationary, fettered by absurd regulations. In the first place, the chief-priests confined themselves entirely to the exercise of magic rites and prophecies, which they considered the higher branch of the art, and left the exhibition of remedies to the *psalophori*, or image-bearers. Secondly, the priests of every denomination were compelled to follow implicitly the medical precepts of the sacred records contained in the six hermetical books; for, if they deviated from these established rules, or introduced new modes of practice, their temerity was punished with death, whether their measures were successful or not; thus precluding all idea of improvement. We know very little of the details of their practice, as they concealed them with mystic ceremonies; but that they did not interfere much with the operations of nature may be inferred from a circumstance mentioned by Aristotle, viz. that they did not adopt active treatment till after the fourth day of the disease. They had, however, a comprehensive system of diet; for they excluded fish, pork, and such other aliments as they considered injurious to health. They were also acquainted with a few valuable remedies, among which may be enumerated squills, which they administered to dropsical patients, and iron, which they used as a tonic in cachectic diseases; but they were lamentably deficient in surgery, since they were unable to cure a common luxation of the foot, which Darius the son of Hytaspes met with in hunting.

We pass briefly over the history of this science among the *Jews*, because we find little recorded on the subject except miraculous cures, which cannot properly be said to apply to natural medicine. Indeed the Jews seem to have been wholly ignorant of the art of physic until their introduction into Egypt, when they found its principles established.

The alleviation of human infirmity, as recorded in Scripture, forms a subject rather to exercise the faith of the theologian than to engage the attention of the pathologist. It is true, Moses has arranged a code of medicinal and dietetic maxims, and has described several varieties of leprosy with the minuteness of a practical physician; but it does not appear that he attributed much to the virtue of medicines in those complaints. Indeed the administration of remedies could hardly seem necessary to a people who were informed by a direct revelation from the Lord, that, if they would diligently hearken unto his voice, and do that which was right in his sight, he would put none of those diseases on them with which

he had afflicted the Egyptians. To the tribe of Levi was appropriated the administration of the sacred remedies. Solomon was celebrated for his knowledge of plants and animals; and he composed a treatise on the cure of diseases which was destroyed by Ezekias, lest it should cause the sacred remedies, rendered more efficacious by the sacrifices of the priests, to fall into disuse. Isaiah the prophet was likewise famed for medical knowledge: he restored Ezekias to life by applying to his wounds cataplasms of figs. Soon after this period the Jews were dispersed in Media and Assyria, and submitted to the yoke of Babylon.

It is supposed that medicine was cultivated at a very early period among the *Hindoo*s. Of this there can be little doubt. Whether this people were originally derived from the Egyptians, or the Egyptians from them, the similitude in arts, manners, and religion, clearly indicates that the one nation arose from the other. Accordingly we find the art stood in former times nearly on the same footing in Hindoostan as it stood in Egypt. The brahmins held the two offices of priests and physicians; and, as among the Egyptians, allotted a few diseases only to the notice of each individual among themselves.

In *China*, the progress of this art seems to have followed a retrograde course. For this we are at a loss to account: certain it is, however, that the authority of the Chinese on medical subjects was formerly held in much greater estimation than it is at present. The Jesuits have informed us, that the kings of China paid particular attention to the encouragement of medicine; and that Europeans were wont to put greater confidence in the physicians of this country than in those of any other. Moreover this science was taught in their public schools, in conjunction with astronomy. These schools no longer exist: the Chinese physicians implicitly follow the directions of the medical code of Hoang-Ti, written, as they assert, 4000 years ago; and their knowledge is so small and inaccurate, that the emperor Cam-hi commanded Parenhi to translate the anatomical treatise of Dionis into the Tartarian language.

In *GREECE*, medicine was prosecuted with greater ardour, and its collateral science anatomy was investigated more fully, than had been the case in any country before. The Greeks, like the Egyptians, ascribed the introduction of this art to divine revelation: their Apollo and Minerva answered to the Isis and Osiris of the latter nation; and Orpheus, the priest, poet, and physician, usurped the place of Thoth; and the fable of his bringing his wife Eurydice from Hell probably applies to his skill in diseases. But the priority has been given by some to Melampus, who was a physician of great celebrity at Pylos. He cured the daughters of Pratos king of Argos, who were afflicted with leprosy and madness; and he removed likewise the impotence of Iphiclus, by which cure he also saved his own life.

The next on record is the centaur Chiron, who was preceptor to most of the warriors and great men of his age, but with the greatest success to Æsculapius, or Asclepias, a king of Thessaly (and reputed son of Apollo), who made so great proficiency, that the fable says Jupiter was obliged to remove him from the earth to preserve his brother Pluto's kingdom from depopulation. His sons, Podalirius and Machaon, received from their father the art of healing, which they exercised with success at the siege of Troy, and transmitted to their descendants the Asclepiades. At first, the Asclepiades promulgated their doctrines as priests in the temples of the god of health; but, as schisms arose among the different sects, each temple became in time a distinct medical school. Thus the school of Ceredos and Cos were founded, in which for some time the descendants of Æsculapius alone were permitted to practise: but it was afterwards judged necessary to admit a limited number of pupils from other families, who bound themselves by oath to observe the rules

rules of the Asclepiades. From the school of Cos arose Hippocrates, the fourteenth in descent from Æsculapius.

But the study of medicine was not confined to this family; it formed part of the education of kings and heroes. Hercules received from Chiron, in earlier times, the rudiments of medicine. Aristæus, king of Arcadia, was likewise a scholar of the centaurs: to him we owe the introduction of the herb *syphium*, supposed by some to be assafœtida. Jason, Telamon, Theseus and Peleus, Ulysses, Diomed, Hippolytus, and Achilles, were proficient in this art. Achilles is said indeed to have first used verdigris for the purpose of cleaning foul ulcers. But all of them were inferior to the accomplished, the injured, Palamedes; by the excellent rules of diet and exercise to which he submitted the soldiers, he prevented the plague from entering the Grecian camp after it had carried its ravages over most of the cities of the Hellespont and even Troy itself.

Æsculapius flourished about 50 years before the Trojan war; and we have seen that his two sons distinguished themselves in that war both by their valour and by their skill in curing wounds. This indeed is the whole of the medical skill attributed to them by Homer; for, in the plague which broke out in the Grecian camp, he does not mention their being at all consulted. Nay, what is still more strange, though he sometimes mentions his heroes having their bones broken, he never takes notice of their being reduced or cured by any other than supernatural means; as in the case of Æneas, whose thigh-bone was broken by a stone cast at him by Diomed. The methods which these two famous surgeons used in curing the wounds of their fellow-soldiers, seems to have been the extracting or cutting out the darts which inflicted them, and applying emollient fomentations or styptics to them when necessary: and to these they undoubtedly attributed much more virtue than they could possibly possess; as appears from the following lines, where Homer describes Eurypylus as wounded and under the hands of Patroclus, who would certainly practise according to the directions of the surgeons of that time:

Patroclus cut the forky steel away;
Then in his hand a bitter root he bruise'd,
The wound he wash'd, the styptic juice infus'd.
The closing flesh that instant ceas'd to glow;
The wound to torture, and the blood to flow. *Iliad xi.*

The philosophers of Greece, by adapting their speculations to the elucidation of this science, lent it material aid. Pythagoras visited Egypt and India, collected the therapeutic and dietetic maxims of those nations, and introduced them into his own country: unfortunately, in so doing, he forgot the difference of climate and habits, and endeavoured to apply the vegetable regimen too strictly. He attended diligently to the study of the animal economy; and he founded the school of Crotona, whence arose Alcmaeon, an anatomist of great repute. With respect to the knowledge this latter personage possessed of the human structure, it admits of doubt; but his skill in comparative anatomy is well attested by Aristotle, Diogenes, and Plutarch: with him too originated the first theory of sleep; he supposed, that, when the blood flows in the larger vessels only, sleep is induced; but, when it returns in the smaller ones, waking occurs. Empedocles, the distinguished philosopher, was another ornament of the Pythagorean sect.

Besides these philosophers, and the Asclepiades, there were, at this period, other persons who devoted themselves to the profession of physic, and who occasionally were remunerated by a fixed salary. Thus Democetes of Crotona was retained at the court of the Samian tyrant Polycrates, with an allowance of two talents yearly: being afterwards taken prisoner, and carried as a slave into Persia, he acquired great repute by curing Darius of a sprained foot, after the Egyptian physicians had failed; and also by his successful treatment of a tumour of the

breast, under which Atossa, the daughter of Cyrus, and wife of Darius, had laboured for a considerable time. (Herodot. iii. 133.) Such practitioners, from their wandering lives, were sometimes designated by the name of *περιδουραται*. Of this class, one of the most conspicuous was Acron of Agrigentum, the contemporary and rival of Empedocles, respecting whom Pliny has fallen into a strange error, in describing him as the founder of the empiric sect "under the sanction of Empedocles." According to Diogenes, he was the author of some books on medicine and dietetics, written in the Doric dialect; and he signalized himself at Athens, in the time of the great plague, by introducing the practice of fumigations, and thus affording relief to many. (Plut. de Isid. et Osir.) The *gymnasia* of ancient Greece seem also to have contributed to the improvement of the art. It belonged to the gymnasiarch, or *palaestrophylax*, to regulate the diet of the youths who were trained in these seminaries; the *γυμνασται* were presumed to be conversant with diseases; and it was the business of the *αλειπται* to perform venesection, to dress wounds, fractures, &c. They were sometimes called physicians. It was in these seminaries that the gymnastic system of medicine originated, under the auspices of Iccus of Tarentum, and Herodicus of Selymbria.

About this time, and contemporary with Hippocrates, flourished Democritus of Abdera, who made the first public dissection on record: he applied himself to this task for the purpose of ascertaining the nature and course of the bile; and dissected with so much assiduity, that the Abderites suspected him of insanity, and accordingly sent for Hippocrates (as it is reported) to cure him: but the latter, so far from finding him mad, discovered that he was extremely wise, as he expresses himself in a letter to his friend Damagetus.

As we are now arrived at an era in which the history of pathology will assume, as it were, a tangible shape, we shall divide our large field of information into three sections; the first reaching to the decline of the art during the dark ages; the second from that time to the end of the sixteenth century; and the third, to the present time.

I. From the TIME of HIPPOCRATES to the DARK AGES.

HIPPOCRATES has justly been styled the Father of Medicine, since his writings are the most ancient expressly on this subject which have been preserved. His transcendent merit alone would, however, secure to him that title. He has left behind him useful hints on almost every branch of medicine; and has investigated some of them with an exactness which has left us little to desire. On anatomy, though probably he did not himself make dissections, he has compiled all the information extant in his time; and his theory of medicine, though long since exploded, merits, in comparison with the hypothetical and extravagant notions that had preceded it, much encomium. It was certainly more comprehensible, and more explanatory of known facts, than the doctrine of Pythagoras, which accounted for every thing by the science of numbers; or than that of Empedocles, which referred all phenomena to the agency of an ethereal spirit. It is, however, the *practical* part of medicine that Hippocrates has so much elucidated. We discard his theory of Nature, his concoctions and inspissations; but in his account of diseases, in the accurate histories he has afforded us of signs or symptoms, their relations and effects, he stands unrivalled. His *prognostics*, too, have comparatively been little improved in the present day: indeed he carried them to so great a degree of perfection, that he and his pupils were regarded by the vulgar as prophets. It should be likewise recorded of him, that he endeavoured to divest the art he professed of all that mystery and superstition in which he found it enveloped, and that he gave the first outline of a subject of great importance, *medical ethics*. His authority has been revered for ages, and his maxims have been received as dogmas, not only in the schools, but in the courts of law. We need not

not therefore be surpris'd that many men of inferior celebrity should have endeavoured to render their works popular by ascribing them to this famous physician. Accordingly we find many writings extant bearing his name, which are evidently spurious. It should be remarked however, that these writings are nearly of the same date as his genuine compositions, and contain the prevalent doctrines of his time.

The pathology of Hippocrates was founded on the assumption, that a principle exists in the animal, tending to the preservation of health, and the removal of disease. To this principle, which he denominates *Nature*, he appears to have attributed some degree of intelligence, and even in one place applies to it the epithet of *just*. "The manner in which Nature acts, or commands her subervient power to act, is by attracting what is good and agreeable to each species, and by retaining, preparing, and changing, it; and on the other side in rejecting whatever is superfluous or hurtful, after she has separated it from the good." This is the foundation of the doctrine of depuration, concoction, and crisis, in fevers, so much insisted upon by Hippocrates and many other physicians. He supposes also, that every thing has an inclination to be joined to what agrees with it, and to remove from every thing contrary to it; and likewise that there is an affinity between the several parts of the body, by which they mutually sympathise with each other.

Hippocrates referred the production of most diseases to diet and air; to the former of which he attached so much importance, that he composed several books concerning it: yet in another part of his works he gives the judicious maxim, that while in health we should by no means attach ourselves to nice and delicate habits of living, or live with too much regularity; because those who have once begun to live by rule, become disordered if they depart in the least from it. In the choice of situation with regard to the purity of air, he was particularly careful; and noted especially the winds, the times of the solstices and equinoxes, &c. He likewise took into consideration the effects produced by sleep, watching, exercise, &c. and attached great importance to certain humours, particularly blood and bile. His classification of diseases was arranged according to the circumstances of their danger, duration, or locality: thus some diseases were mortal, dangerous, or curable; others acute or chronic; and again others were divided into endemical, epidemical, and sporadic. Hereditary diseases he likewise noticed.

We are obliged to Hippocrates for the remark, that there are certain *stages* in every distemper; a point of great practical importance. He generally noticed four; the beginning, the augmentation, the height, and the decline. In mortal diseases, death took place instead of the decline; on which account this latter was reckoned by Hippocrates to be worthy of particular investigation. He conceived that during this stage a *crisis* took place; i. e. that the mortified matter which produced the disease was by some means separated from the body; but this separation never occurred until the humour was sufficiently *concocted*; that is to say, brought into a fit state for expulsion from the body, by the efforts of Nature. Moreover, this author supposed, that, as every fruit has a limited time to ripen in, so *concoction* could not be accomplished unless within a certain period. He took much pains to establish *critical days*, or the times when these concoctions and crises should take place; and he deemed them most favourable when they occurred on odd days.

In noting the signs and characters of disease, Hippocrates was extremely minute, and that chiefly with a view to foretelling the event of the malady. He observed the altered appearance of every feature of the face, the complexion; the dim, fierce, sparkling, or other expression, of the eyes. He paid attention to the posture and attitude of the sufferer: he remarked the debility which generally attends the continued supine position; and he noticed the picking of the bed-clothes, the uneasy and

tremulous motions, and likewise the *subfultus tendinum*, which denote death in patients affected with fevers.

Hippocrates paid particular attention to the respiration, the different states of which assisted him in forming his prognosis. He examined the urine with great care; but, as his remarks on it chiefly regarded his *humoral* hypothesis, they are now of little interest. He noticed, however, that the crisis of fever was often brought about when the urine became very abundant, and the thick appearance of it denoted disease of the bladder; he was in the habit of comparing the appearance of this evacuation with that of the tongue. The faces too were investigated, in relation to their odour, consistence, and colour, by this author. But he has recorded more important facts concerning the expectoration which arises in pulmonary complaints: he says that, when it is mixed with blood (in chronic cases), when it is entirely wanting, or when it is so copious as to cause rattling in the throat, it denotes extreme danger; but that, when it is mixed with purulent matter, it indicates consumption, and terminates in death. Concerning perspiration, Hippocrates has recorded the beneficial effects derived from its occurrence in fevers; when it is general, it often produces the crisis: but he has well remarked the danger of cold and partial sweats.

It has been doubted whether this celebrated physician understood any thing about the pulse. It has been supposed that the passages found in his works apply only to the pulsation which is felt in an inflamed part. But his knowledge must have extended further than this on the subject; because he talks of slow and tremulous pulses; and in his *Causæ Prænotiones* he remarks, that the sensible pulsation of the artery in the elbow indicates delirium, or the presence of violent anger.

Exercise was not neglected by Hippocrates; but he justly blames his preceptor Herodicus for recommending it to those afflicted with fevers or inflammatory affections. Indeed the latter physician was so fond of gymnastics, that he made his patients walk from Athens to Megara, a distance of twenty-five miles, and return as soon as they had touched the walls of the city. Yet Hippocrates justly appreciated the advantage of exercise in chronic diseases; and even tells us that "we must sometimes push the timorous out of bed, and rouse up the lazy."

Hippocrates gave many general rules of importance in regard to the establishment of health, among which are the important ones of keeping up, in most cases, a regular discharge; to deplete the plethoric by low living, and to avoid sudden exposure to increased or diminished temperature.

The therapeutical maxims of Hippocrates were few and simple, and all founded on his theory of Nature curing diseases; inasmuch that all that could be done was to remove such things as were injurious to the agency of that principle, or to assist it in its operations when it was deficient. He asserted, in the first place, "That contraries, or opposites, are the remedies for each other;" and this maxim he explains by an aphorism; in which he says, that evacuations cure those distempers which come from repletion, and repletion those that are caused by evacuation: so heat is destroyed by cold, and cold by heat, &c. In the second place, he asserted that physic is an addition of what is wanting, and a subtraction or retrenchment of what is superfluous: an axiom which is thus explained, that there are some juices or humours, which in particular cases ought to be evacuated, or driven out of the body, or dried up; and some others which ought to be restored to the body, or caused to be produced there again. As to the method to be taken for this addition or retrenchment, he gives this general caution, "That you ought to be careful how you fill up, or evacuate, all at once, or too quickly, or too much; and that it is equally dangerous to heat or cool again on a sudden; or, rather, you ought not to do it: every thing that runs to an excess being an enemy to nature." In the fourth place, he allowed that we ought sometimes to dilate,

dilate, and sometimes to lock up; to dilate, or open the passages by which the humours are voided naturally, when they are not sufficiently opened, or when they are closed; and, on the contrary, to lock up or straiten the passages that are relaxed, when the juices that pass there ought not to pass, or when they pass in too great quantity. He adds, that we ought sometimes to smooth, and sometimes to make rough; sometimes to harden, and sometimes to soften again; sometimes to make more fine or supple; sometimes to thicken; sometimes to rouse up, and at other times to stupify or take away the sense; all in relation to the solid parts of the body, or to the humours. He gives also this farther lesson, That we ought to have regard to the course the humours take, from whence they come and whither they go; and in consequence of that, when they go where they ought not, that we make them take a turn-about, or carry them another way, almost like the turning the course of a river; or, upon other occasions, that we endeavour, if possible, to recal, or make the same humours return back again; drawing upward such as have a tendency downward, and drawing downward such as tend upward. We ought also to carry off, by convenient ways, that which is necessary to be carried off; and not let the humours once evacuated, enter into the vessels again. Hippocrates gives also the following instruction; "That, when we do any thing according to reason, though the success be not answerable, we ought not easily, or too hastily, to alter the manner of acting, as long as the reasons for it are yet good." But, as this maxim might sometimes prove deceitful, he gives the following as a corrector to it: "We ought (says he) to mind with a great deal of attention what gives ease, and what creates pain; what is easily supported, and what cannot be endured. We ought not to do any thing rashly; but ought often to pause, or wait, without doing any thing: by this way, if you do the patient no good, you will at least do him no hurt."

These are the principal and most general maxims of the practice of Hippocrates, and which proceed upon the supposition laid down at the beginning, viz. that Nature cures diseases. We next proceed to consider particularly the remedies employed by him, which will serve to give us further instructions concerning his practice.

Diet was the first, the principal, and often the only, remedy made use of by this great physician to answer most of the intentions above mentioned; by means of it he opposed the moist to dry, hot to cold, &c. and what he looked upon to be the most considerable point was, that thus he supported Nature, and assisted her to overcome the malady. The dietetic part of medicine was so much the invention of Hippocrates himself, that he was very desirous to be accounted the author of it; and, the better to make it appear that it was a new remedy in his days, he says expressly, that the ancients had written almost nothing concerning the diet of the sick, having omitted this point, though it was one of the most essential parts of the art.

There were many diseases for which he judged the *bath* was a proper remedy; and he takes notice of all the circumstances that are necessary in order to cause the patient to receive benefit from it, among which the following are the principal. The patient that bathes himself must remain still and quiet in his place, without speaking, while the assistants throw water over his head or are wiping him dry; for which last purpose he desired them to keep sponges, instead of that instrument called by the ancients *strigil*, which served to rub off from the skin the dirt and nastiness left upon it by the unguents and oils with which they anointed themselves. He must also take care not to catch cold; and must not bathe immediately after eating or drinking, nor eat or drink immediately after coming out of the bath. Regard must also be had whether the patient has been accustomed to bathe while in health, and whether he has been benefited or hurt by it.

Lastly, he must abstain from the bath when the body is too open, or too coftive, or when he is too weak; or if he has an inclination to vomit, a great loss of appetite, or bleeds at the nose.

When he found that diet, exercise, and bathing, were not sufficient to save nature of a burden of corrupted humours, he was obliged to make use of other means; of which vomiting, bleeding, and purging, were the chief.

Vomits were a favourite remedy with Hippocrates. He prescribed them to people in health, by way of preventatives, directing them to be taken once or twice a-month in the winter and the spring. The most simple of these was a decoction of hyssop, with the addition of a little vinegar and salt. With regard to the sick, he sometimes advised them to the same, when his intentions were only to cleanse the stomach. But, when he had a mind to recal the humours, as he termed it, from the inmost recesses of the body, he made use of brisker remedies. Among these was white hellebore; and this indeed he most frequently used to excite vomiting. He gave this root particularly to melancholy and mad people; and from the great use made of it in these cases by Hippocrates and other ancient physicians, the phrase, *to have need of hellebore*, became a proverbial expression for being out of one's senses. He gave it also in defluxions, which come, according to him, from the brain, and throw themselves on the nostrils or ears, or fill the mouth with saliva, or that cause stubborn pains in the head, and a weariness or an extraordinary heaviness, or a weakness of the knees, or a swelling all over the body. He gave it to consumptive persons in broth of lentils, to such as were afflicted with the dropsy called *leucophlegmatia*, and in other chronical disorders. But we do not find that he made use of it in acute distempers, except in the cholera morbus, where he says he prescribed it with benefit. Some took this medicine fasting; but most took it after supper, as was commonly practised with regard to vomits taken by way of prevention. The reason why he gave this medicine most commonly after eating was, that by mixing with the aliment, its acrimony might be somewhat abated, and it might operate with less violence on the membranes of the stomach.

In the distemper called *empyema* (or a collection of matter in the breast), he made use of a very rough medicine. He commanded the patient to draw in his tongue as much as he was able; and, when that was done, he endeavoured to put into the hollow of the lungs a liquor that irritated the part, which, raising a violent cough, forced the lungs to discharge the purulent matter contained in them. The materials that he used for this purpose were of different sorts; sometimes he took the root of arum, which he ordered to be boiled with a little salt in a sufficient quantity of water and oil; dissolving a little honey in it. At other times, when he intended to purge more strongly, he took the flowers of copper and hellebore; after that he shook the patient violently by the shoulders, the better to loosen the pus. This remedy, according to Galen, he received from the Cnidian physicians; and it has never been used by succeeding ones, probably because the patients could not suffer it.

Blood-letting was another method of evacuation pretty much used by Hippocrates; and in inflammatory affections he practised it in a large and decided manner; for he sometimes opened the veins of both arms, and kept them running till the patient fainted. The principal maladies in which he had recourse to bleeding were inflammations of the liver, spleen, lungs, or other viscera; quinsy, pleurisy, and pain in the head; but in some instances of chronic disease, as dropsy and jaundice, he likewise performed this operation. In fevers he disapproved of venesection, because he conceived those diseases were produced by certain humours which could not be expelled by that means: it must, however, be understood, that he did not extend this rule to symptomatic fevers, but rather to those which were not preceded by signs of local

local inflammation. Indeed, in his writings, the term *fever* is only applied to that class which we call *idiopathic*; and there seems good reason to suppose, that, in the commencement of a fever arising out of visceral inflammation, he bled very copiously. He likewise performed cupping with scarificators; and occasionally used the femicupium, which he supposed would draw the humours from the affected part by means of *attraction*.

As most of the purgatives in use in the time of Hippocrates were very violent in their operation, often producing sickness, he prescribed them with great caution. He did not give them to pregnant women, old people, or children; nor during the dog-days. He used them more frequently in chronic than acute diseases, and chiefly with a view to the expulsion of some particular humour; to each of these humours he applied a separate kind of purgative; hence the distinction of those substances into hydragogues, cholagogues, &c. now justly exploded. Hippocrates likewise used errhines, which he said relieved pain in the head by drawing the phlegm from the brain; sudorifics and diuretics, which were likewise for the purpose of evacuating some peccant humour, and narcotics, or, as he called them, hypnotics, to produce sleep. But of these last he was very sparing. To medicines which experience had proved to be efficacious, but of which the operation was inexplicable by this humoral pathology, he applied the term *specifics*. He used fomentations, in which different herbs were boiled, either by direct application or in the form of vapour. Nor did he neglect cataplasms, ointments, caustics, and collyria; all of which he prepared himself, or caused to be made by his servants under his own immediate inspection. The pharmaceutical distinctions of medicines into mixtures, powders, and pills, were observed in this time, and likewise something analogous to our lozenge was used; it was called a *lambutivæ*, was of a soft consistence, and was retained in the patient's mouth until slowly dissolved. The practice of Hippocrates was beneficial to himself; for it is generally understood that he reached the age of a hundred years, and died about 360 years before the birth of Christ.

Soon after the death of Hippocrates, the professors of medicine became divided into two sects; the Dogmatists and the Empirics.

The sect of the DOGMATISTS was founded by Thessalus and Draco the sons, and Polybus the son-in-law, of Hippocrates. Their leading tenets are recorded in the book "On the Nature of Man," which has falsely been attributed to Hippocrates. Aristotle conjectures that it was written by Polybus. The Dogmatists were sometimes called *logici*, or logicians, from their using the rules of logic and reason in the subjects of their profession. They set out with the rule, that, "when experience fails, reason may suffice." Unfortunately, however, they took little pains to consult experience, but were perpetually occupied with endeavouring to trace disease to its secret and remote causes.

The system of the EMPIRICS, as the term imports, was founded altogether upon *experience*: and those who belonged to this sect have remarked, that there are three modes by which we learn, from experience, to distinguish what is advantageous and what is prejudicial, in regard to our health. 1. The first of these, and the most simple, arises from *accident*. A person, for example, having a violent pain in the head, happens to fall, and divides a vessel in the forehead; and it is observed that, having lost blood, his pain is relieved. Under the same mode, they include the experience which is acquired by observing the spontaneous operations of the constitution, where no remedy has been applied, as in the following case: a person labouring under a fever, finds his disease mitigated, after a hemorrhagy from the nose, a profuse perspiration, or a diarrhœa. 2. The second mode of gaining experience is, that in which something is done by *design*, with a view to ascertain what will be the success of it; as, for instance, when a person, having been bitten

by a serpent, or other venomous creature, applies to the bite the first herb that he finds; or when a man attempts to alleviate the symptoms of an acute and burning fever, by drinking as copiously as he is able of cold water; or when a person tries a remedy, suggested to him by a dream, as was frequently done in heathenish times. 3. The third mode of experimenting is, that which the empirics termed *imitative*; which is pursued in cases, when, after having remarked the effects resulting from *accident*, or the spontaneous actions of the system, on the one hand, or from *design* on the other, we make an attempt to accomplish a similar result by imitating that which was done on those occasions.

This last sort of experience, they contend, is that which peculiarly constitutes the art of medicine, when it has been frequently repeated. They call that *observation* (*τηρησις*), or *autopsia*, (*αυτοψια*), which each individual sees himself; and use the term *history* or *record*, (*ιστοριζα*), for such observation, when committed to writing; that is, the *autopsia*, or personal experience, consists of the observations which each person has made, by his attention to the progress of a disease, whether in regard to its symptoms and changes, or to the remedies employed; while the *record* is a sort of narration or register of all that was observed by those individuals; which register being completed, (i. e. including all the diseases incident to mankind, and the remedies administered for their alleviation,) the art of medicine would be established with a considerable degree of certainty. But, as new diseases sometimes occur, in regard to which neither our personal experience, nor the observations of others, can furnish us with any assistance; and we meet with disorders in particular situations, where the means of relief, sanctioned by experience elsewhere, are not within our reach; we must necessarily have recourse to some other expedient in order to alleviate the sufferings of the patient. The empirics were provided against this particular difficulty, in what they termed a *substitution* of similar means, (*transitus ad simile*, as the Latins have translated it.) This was a new experiment, which they instituted, after having compared one disease with another; or one part of the body with another, of similar structure; or, lastly, one remedy, the nature of which was ascertained by experiment, with another which resembled it. "They tried, for example, in *herpetic* eruptions the remedies which had relieved *erysipelas*; and, in the diseases of the *arms*, they employed the expedients which had been practised in those of the *legs*; &c. &c." *Observation*, then, *record*, and the *substitution* of similar means, were the three fundamental resources of the art of medicine, according to the empirics: and these were denominated, by Glaucias and others, "the tripod of medicine."

There is obviously a great deal of good sense and sound philosophy in this doctrine of empiricism. It points out the true mode of investigating the phenomena of nature by unwearied experiment; the mode which Bacon laboured to inculcate, which Newton successfully pursued, and which has led the philosophers of later times to the development of that fund of natural knowledge in the sciences of electricity, chemistry, mechanical, and every branch of natural philosophy, by which modern inquiry is distinguished. Compared with this species of investigation, how futile are the speculations, misnamed philosophy in the schools, relative to elements and essences, which had no existence except in the imagination of the disputants.

At first much rancour and animosity subsisted between these two parties; but, in process of time, their practice was found to coincide in many material points; for, though the dogmatists were much addicted to hypothesis, they could not fail to make clinical observations when engaged in practice; and the empirics did not entirely confine themselves to their professed mode of acquiring knowledge, but occasionally indulged in that passion for theory and generalization which is so common in a philosophic

phic age. It is evident, then, that both the dogmatic and empiric physicians appealed to experience, and that neither excluded altogether the dictates of reason and reflection. The principal difference in their tenets appears to have consisted in this: that the empirics reasoned only from the facts ascertained by observation, without attempting to explain their essential and inscrutable nature by hypotheses; and that the latter speculated upon the mode and nature of every phenomenon in the animal body, and took these speculations as the basis of their reasoning: an error in the investigation of nature, which, as we have before said, was so well exposed by lord Bacon in modern times; and which was practically illustrated in the triumph of Newton's empirical doctrines, over the dogmatical hypotheses of Des Cartes.

The empirical sect had not enjoyed great influence or dissemination till Serapion of Alexandria, in the year before Christ 280, took up and defended their doctrines with great spirit: hence some have called him the founder of the sect. His works are lost; but what has been transmitted of his opinion by other authors, tends to prove that he followed the practice of Hippocrates with great fidelity, though he severely criticised his reasonings.

It is chiefly to the industry of the ancient empirics that we are indebted for the introduction, or rather for the full knowledge, of sedative and narcotic remedies; on the liberal use of which probably depended the superior reputation acquired by some of them over their more cautious antagonists. Of this superiority, a singular instance occurs in the many existing testimonies to the fame of Heraclides of Tarentum. Celsus Aurelianus calls him "Empiricorum Princeps;" and Galen speaks of him in very high terms. He so far deviated from the practice of the strict empirics, that he searched after the causes of disease with almost as much pertinacity as the dogmatists; by no means however neglecting the practical observations which were taught in the empirical school. This union of theory and practice led him to many useful results, more particularly in respect to acute and dangerous diseases, his treatment of which appears to have been extremely judicious. He seems to have made a more liberal use of active medicaments, especially of the narcotic class, than his predecessors, having been the first to introduce opium into use as a medicine; and was very industrious in his investigation of animal, vegetable, and mineral, substances, with a view to enrich the catalogue of the materia medica. To the books which he wrote upon this subject, he gave the name of the individuals to whom he dedicated them, according to Galen; entitling one "Astydamas," and another "Antiochis." He likewise wrote on the subject of diet, and the regimen to be observed in diseases, in which abstinence seems to have been pushed to a great extent.

It is easy to see, however, that the direction of medical inquiry, given by the empirical physicians, to the discovery of the qualities of medicinal substances, or drugs, would in all probability lead to many abuses and evils. Experiment of this sort being much easier, at least when carelessly made, than that unremitting and accurate observation of the phenomena of diseases which alone can constitute the scientific physician, the ignorant and idle would content themselves with pharmaceutical experiments, and neglect the task of pathological investigation; and selfish craft and dishonesty would soon learn to impose on the credulity of the people, in the administration of secret remedies, when the use of a particular drug, and not the general treatment of a disease, was supposed to be the essence of medicine. Hence it actually happened, even in the early ages of physic, that these ignorant and illiberal pretenders to panaceas, and infallible remedies, who did not know one disease from another by its symptoms, appeared in Egypt, Greece, and Arabia, and were much complained of by their more rational contemporaries. In all succeeding ages, the race of these illiterate

pretenders has been multiplied, under the abused name of empirics, by which we now understand those persons who sell or administer a particular drug, or compound, as a remedy for a given disorder, without any consideration as to the variations of that disorder, in its different stages, or degrees of violence, or as it occurs in different constitutions, climates, or seasons, or in persons of different age, sex, strength, &c. Such a practice implies a total ignorance of the nature of the human constitution, both in health and disease; and therefore is generally found to be the resort of the illiterate and selfish, not to say dishonest, part of mankind.

After the death of Heraclides, the study of the materia medica took a new direction, in consequence of the attention that was paid to the subject of poisons and their antidotes, by the kings of Pergamus and Pontus. The antidote which was invented by the latter is well known, though its efficacy has never been proved. Even Serenus, who is in general sufficiently credulous, seems to have had no very high opinion of its virtues:

Antidotus vero multis Mithridatica fertur
Confociata modis, sed Magnus scrinia regis
Cum caperet victor, vilem deprehendit in illis
Synthesin, et vulgata fatis medicamina risit.

Nicander of Colophon, who was the contemporary of Attalus king of Pergamus, acquired great fame as a grammarian, a poet, and a physician. He endeavoured with the worst success to clothe medicine in flowing numbers. His only pieces extant are the Alexipharmica and Theriaca, which contain observations concerning poison and their antidotes, which (as we have said) became a very favourite pursuit about his time. See NICANDER, vol. xvii. p. 45.

At the time that the sons of Hippocrates founded the dogmatic sect; Eudoxus of Cnidos framed a system of medicine founded on the philosophy of Pythagoras, and the practice of the Egyptians. It was therefore principally directed to the dietetic part of medicine. He was followed by his pupil Chryseippus, of whose practice we have nothing memorable to relate, but that he regarded cabbage as a very important remedy, and was very averse to the operation of bleeding or the exhibition of purgatives. He was the preceptor of the renowned Erasistratus. Diocles of Carystus was about this period a practitioner of repute; though placed by the Biographia Literaria as low as A. D. 500. an error of 800 years! He applied himself to comparative anatomy with some success, and invented an instrument, which was called after him *Diocleus graphiceus*, for the extraction of arrow-heads. His contemporary Praxagoras rendered important services to medicine; he first discovered the difference between arteries and veins, described the cotyledons of the human uterus, and explained the phenomenon of the pulse, a subject which had been very imperfectly understood by Hippocrates himself. It is remarked, however, by Galen, that his information was not so correct, but that he involved himself in many disputes and contradictions. This physician was very fond of emetics: he administered them in the iliac passion, and in doses so large and so frequently repeated, that the stools were ejected by the mouth. His surgical treatment of the same disease shows him to have been a bold and skilful operator: Aurelian says, that he directs an incision to be made through the belly and intestines, the indurated feces to be removed, and the bowels then sowed up.

The progress of this art now became advanced by the labours of men not exactly interested in its practice. Aristotle, who, from the unbounded liberality of his patron Alexander, possessed opportunities of dissecting animals on a most extended scale, acquired a mass of information which we read with instruction and admiration even in the present age. Nor were his metaphysical doctrines without their influence on the philosophy of medicine; they continued to influence it (sometimes unfavourably)

favourably) for ages. The beautiful system of ethics, likewise, to which Zeno and Epicurus gave birth, were not developed without a subsequent change in this science. The tenets of Epicurus and Pyrrho were adopted by the empirical sect, while the dogmatists attached themselves to the stoical system, particularly the dietetic method. For, we must remark, that, foreign as these subjects may appear to the practice of physic, yet its higher branches cannot be successfully studied without occasional reference to every branch of philosophy, whether moral or physical.

The establishment of the *Alexandrian School* forms an important epoch in the history of medicine. But we have to regret that the destruction of its splendid library, by the hands of barbarous conquerors, has left us little to relate concerning its doctrines or its practice. We have little hesitation, however, in saying, that the advancement of medicine must have been very great in a situation where it derived assistance from long cultivation of its principles in Greece, Egypt, and India, a situation too where science in general was patronised with so much earnestness by illustrious kings. Moreover this city of Alexandria, on account of the connexion it held with all the world as a commercial emporium, must have been frequently visited by foreigners whose diet, clothing, habits of life, not to mention a free communication of their own medical rules, must have illustrated the speculations of the Alexandrian physicians in a very luminous manner. The long series of facts collected by the Egyptian priests was here treasured up; the observations of the Hebrews, who, long dispersed over the plains of Assyria and Media, had united their own medical doctrines with the tenets of Zoroaster and Ham, were examined; while the Greeks, uniting the useful part of this desultory and obscure information with the sound practice of their ancestor Hippocrates, with the anatomical knowledge they were rapidly acquiring, and with their own profound philosophy, advanced the progress of the healing art in an unexampled manner.

Erasistratus and Herophilus were the first physicians of note in this school. The former flourished about the time of Seleucus, B. C. 270. His attention was directed for the most part to surgery and anatomy; but, that his medical tact was of no mean description, we have ample proof in the story told of his discovering the love of Antiochus for Stratonice, whom Seleucus his father had then lately married. He made this discovery from observing, that the colour of the prince changed, and his pulse quickened, when Stratonice entered the room, and that no such effects followed the presence of any other woman. Erasistratus was likewise confirmed in this opinion, because he was unable to trace elsewhere the cause of the prince's extreme illness; for it should be remarked, that Erasistratus held the same opinion as the dogmatists, that a disease could not be cured without a knowledge of its cause. The same incident likewise shows the high rank which the physicians held in those days; since, by the influence of Erasistratus, Seleucus was persuaded not only to give up his wife, but also part of his kingdom, to Antiochus.

Erasistratus supposed that inflammation was produced by the coagulation of blood in the small arterial vessels. In his practice he was fond of simple remedies, more especially of *succory*; and he even descended to describe the best mode of boiling it. He taught that medicines did not operate on the bowels by attraction, as had been supposed; and that the humours which they discharged were not the same in the body as they appeared after their evacuation, but were altered by the action of those remedies. To purging, however, he had an objection, and supplied the want of it by clysters. Emetics were frequently prescribed by him; and he recommended abstinence in a great degree. Venesection he disapproved of for some very foolish reasons; among which, it may be sufficient to mention, 1st. That we cannot see the vein; 2dly. That we may

cut the artery; 3dly. That we do not know how much to take. His attachment to his theory of inflammation was the principal theory, however, why he objected to bleeding, because it did not appear to him, that the abstraction of blood was likely to relieve the coagulation of that fluid in its vessels.

Some very barbarous acts are related of this physician; for instance, that he sometimes cut open the bodies of patients afflicted with complaints of the liver, and applied remedies immediately to the substance of that organ. Yet he objected to the operation of *paracentesis*, or tapping, because he conceived that, the water being evacuated, the surrounding viscera would press upon the liver, and produce fatal consequences. He had a notion, that death changed the structure of the body, as well as the relation of its parts. In this opinion he was strongly supported by Herophilus; and we turn with horror from the contemplation of 600 victims whom these barbarians are reported to have dissected alive, and blush that such a record should be found in the annals of medicine. Yet the refined Celsus, after enumerating the advantages which accrued from this atrocious deed, excuses the cruelty of it by observing, that "It cannot be justly deemed cruel to put a few guilty individuals to torture, with a view to ascertain means of relief for all the innocent among mankind in all succeeding ages."

Herophilus added, to the anatomical researches in which he assisted his contemporary, an intimate acquaintance with pharmacy. He made use of a great number of medicines, both simple and compound. In his works, we find the first mention of a disease which he calls *passy of the heart*; it produced sudden death, and it has been supposed that this must answer to what we now call *angina pectoris*.

About this period, according to Celsus, the practitioners of medicine were formed into three divisions: 1. Those who attended to diet, regimen, and domestic management, who were particularly careful to distinguish the causes and symptoms of diseases, and were of the first rank. 2dly. Those who administered remedies, in the preparation of which they affected to be particularly careful. And, lastly, those who performed the operations of surgery. Anterior to this time, the preparation of medicine among the Greek physicians was entrusted to their *Επιμουργοι*, or students, as well as the surgical department, though the latter was often executed by the physicians themselves. The combination of the three branches continued, however, for ages, in a few instances, among the Greeks, the Romans, and the Arabians.

The ROMANS, as Pliny assures us, had continued without physicians, if not without physic, during a period of 600 years. The few manual operations which were found indispensably necessary were performed by their slaves or freedmen; and instances are not wanting, in which their skill was rewarded by the honour of citizenship. On the occasion of a destructive epidemic, in the year 463 A.U.C. however, they sent a deputation to the temple of Æsculapius at Epidaurus. Instead of an oracle, they received one of the sacred serpents; and, following the indication of its springing from the ship upon the island of the Tiber, they there founded a temple to the god of medicine, and established his worship on the same footing as at Epidaurus. Shortly afterwards, a temple was dedicated to the Grecian Hygeia, and the worship of Isis and Serapis was borrowed from the Egyptians: but, besides these, the Romans afterwards erected fanes in honour of medical deities peculiar to themselves. A prevalent dread of certain maladies caused them to offer up prayers to the deities who were supposed to inflict them. Hence they worshipped *Febris* on the Palatine Mount, and *Mephitis* at Cremona. They had likewise a goddess *Ossipaga*, who presided over the growth of bones, and *Carna*, who took care of the viscera, and to whom they offered bacon and bean-broth, as being nutritious articles of diet. The first person who practised medicine at Rome in a regular man-

ner, was one Archagathus, a Greek, B. C. 219. The Roman senate at first seemed to give him much encouragement, and even bought a shop for him, and presented him with the freedom of the city. But his frequent use of the knife, and of the actual cautery, soon brought him into disrepute. The populace were loud in their clamours against his cruelty, attached to him the name of *Carnifex*, Butcher, and eventually banished him from Rome.

Asclepiades, of Prusa in Bythynia, was the next physician of note who appeared at Rome after Archagathus, but separated from him "longo intervallo." He had studied at Alexandria and Athens, and came to Rome, in the 654th year A.U.C. or 100 years before the Christian era, as a teacher of rhetoric; but, not finding that profession sufficiently lucrative, he suddenly turned physician; and, by his consummate address, in a short time brought himself into great notice. The prototype of all succeeding quacks, Asclepiades affected to condemn every thing that had been done before him—"omnia abdicavit; totamque medicinam, ad causam revocando, conjecturam fecit." He ridiculed Hippocrates for his patient observation of nature, and called his system "a meditation on death." His fame, however, would have been incomplete, if he had not introduced a system of his own. Accordingly, taking for the basis of it the philosophy of Epicurus and Heraclides of Pontus, he attempted to explain all the functions of the human body, and all the operations of health and disease, by means of *corpuscles* and *pores*. He asserted, that matter considered in itself was of an unchangeable nature; and that all perceptible bodies were composed of a number of smaller ones, between which there were interperfed an infinity of small spaces totally void of all matter. He thought that the soul itself was composed of these small bodies. He laughed at the principle called *Nature* by Hippocrates, and also at the imaginary faculties said by him to be subservient to her; and still more at what he called *Attraction*. This last principle Asclepiades denied in every instance, even in that of the loadstone and steel, imagining that this phenomenon proceeded from a concurrence of corpuscles, and a particular disposition or modification of their pores. He also maintained, that nothing happened or was produced without some cause; and that what was called *nature* was in reality no more than *matter* and *motion*. From this last principle he inferred that Hippocrates knew not what he said when he spoke of Nature as an intelligent being, and ascribed qualities of different kinds to her. For the same reason he ridiculed the doctrine of Hippocrates with regard to crises; and asserted that the termination of diseases might be as well accounted for from mere matter and motion. He maintained, that we were deceived if we imagined that Nature always did good; since it was evident that she often did a great deal of harm. As for the days particularly fixed upon by Hippocrates for crises, or those on which we usually observe a change either for the better or the worse, Asclepiades denied that such alterations happened on those days rather than on others. Nay, he asserted that the crisis did not happen at any time of its own accord, or by the particular determination of nature for the cure of the disorder, but that it depended rather on the address and dexterity of the physician; that we ought never to wait till a distemper terminates of its own accord, but that the physician by his care and medicines must hasten on and advance the cure. He accused Hippocrates and other ancient physicians of "attending their patients rather with a view to observe in what manner they died than in order to cure them;" and this under pretence that Nature ought to do all herself, without any assistance.

The practice of Asclepiades was principally gestation, friction, and the use of wine. By various exercises he proposed to render the pores more open, and to make the juices and small bodies, which cause diseases by their retention, pass more freely; and, while the former physicians had not recourse to gestation till towards the end of long-continued disorders, and when the patients, though en-

tirely free from fever, were yet too weak to take sufficient exercise by walking, Asclepiades used gestation from the very beginning of the most burning fevers. He laid it down as a maxim, that one fever was to be cured by another; that the strength of the patient was to be exhausted by making him watch and endure thirst to such a degree, that, for the two first days of the disorder, he would not allow them to cool their mouths with a drop of water. Celsus also observes, that, though Asclepiades treated his patients like a butcher during the first days of the disorder, he indulged them so far afterwards as even to give directions for making their beds in the softest manner. On several occasions Asclepiades used frictions to open the pores. The dropsy was one of the distempers in which this remedy was used; but the most singular attempt was, by this means, to lull phrenetic patients asleep. Though he enjoined exercise so much to the sick, he denied it to those in health; a conduct not a little surprising and extraordinary. He allowed wine freely to patients in fevers, provided the violence of the distemper was somewhat abated. Nor did he forbid it to those who were afflicted with a phreny: nay, he ordered them to drink it till they were intoxicated, pretending by that means to make them sleep; because, he said, wine had a narcotic quality and procured sleep, which he thought absolutely necessary for those who laboured under that disorder. To lethargic patients he used it on purpose to excite them, and rouse their senses: he also forced them to smell strong-scented substances, such as vinegar, castor, and rue, in order to make them sneeze; and applied to their heads cataplasms of mustard made up with vinegar.

Besides these remedies, Asclepiades enjoined his patients abstinence to an extreme degree. For the first three days, according to Celsus, he allowed them no aliment whatever; but on the fourth began to give them victuals. According to Cælius Aurelianus, however, he began to nourish his patients as soon as the accession of the disease was diminished, not waiting till an entire remission; giving to some aliments on the first, to some on the second, to some on the third, and so on to the seventh, day. It seems almost incredible to us, that people should be able to fast till this last-mentioned term; but Celsus assures us, that abstinence till the seventh day was enjoined even by the predecessors of Asclepiades.

The division of diseases into acute and chronic appears to have originated with him. The remedies which he employed (as we have seen) were chiefly dietetical; but he was no enemy to phlebotomy, though he discouraged vomiting and purgation: instead of the latter he recommended clysters. He was a great advocate for the use of cold water externally as well as internally; though he probably ingratiated himself with the Romans more by his free administration of wine in disorders where it had not formerly been allowed. Sprengel supposes him to have been the inventor of the *balnea pensilis*, or shower-bath.

That Asclepiades, notwithstanding his arrogance, was a man of observation and discernment, is evident from his description of diseases; and from the fact, that he always continued to enjoy great reputation among the Roman people, and that his lectures, which, according to Pliny, embraced the three branches of pathology, midwifery, and pharmacy, were very numerously attended. Galen accuses him of humouring the caprices of his patients at the expence of his own better reason and judgment. The principles of this author's pathology gave the first outline of the *methodic* practice of physic, which was more fully developed by Themison and Theſalus, and afterwards by Soranus.

The *METHODICS*, or *METHODISTS*, endeavoured to steer a course unconnected with the Dogmatists or the Empirics. They objected to the former sect, on account of their hypothetical principles; and to the latter, on account of the tedious manner in which they acquired their knowledge. In consequence of this, they began to classify and generalize; and observed, as they conceived;

two states or conditions of body which attended all sorts of complaints. To one of these states they gave the name of *strictum*, which implied a general constriction of the whole body; to the latter, the epithet of *laxum*, by which they meant a corresponding relaxation. Cases, however arose, that were not referrible to either of these classes: consequently, the Methodists were obliged to invent a third, which partook of the properties of both the others. Hence they admitted the contradiction of a state of *relaxed contraction*, an expression of which no conception can be formed.

It has been supposed, however, by M. Cabanis, that this mixed state of *laxum* and *strictum* meant an irregular distribution of vital power, or irregularity of tone. If his idea be correct, this class would comprehend all diseases, without the assistance of the other two; for we know of no disease that is not marked at times by an unequal distribution of vital energies. As to the *practice* of the methodists, it may be observed, that they wholly overlooked the healing powers of the system, and, without regard to the peculiar circumstances of the case, or the nature of the part affected, were solely intent on fulfilling those general indications that were conformable to their theory. It is true, that they paid particular attention to days; not, however, as connected with the doctrine of crises, for which the founders of this sect entertained a marked contempt; but only as affording them a measure of the duration of the disorder, and a guide for the method of treatment. In the first days, they followed the starving system; afterwards they pursued the supposed general indications of constricting, or of relaxing: during the exacerbation of the disease, they endeavoured to moderate the violence of it; during its decline, they supported the powers of the system by nutritive diet. This was their mode of proceeding in all acute diseases: but, in chronic complaints, to which it was less applicable, they had recourse to what they termed the *μετασυντηρησις*, or *re-incorporation*, of which the professed object was to restore the proper relations between the atoms and pores, and for which they prepared the patient by the *απαληψις*, or *resumptive circle*. It was, in fact, little else than their practice in acute diseases reversed: they first sought to strengthen the patient by a generous diet, and then they administered a succession of violent remedies, to subdue the original malady.

Among the disciples of Themison, one Thessalus of Trallis, a man of low birth and coarse manners, made himself conspicuous by the shameless audacity with which he sought to disparage the labours of others, arrogating to himself the title of *Ιατρονικης*, or Conqueror of Physicians, and that, it would appear, without the slightest pretensions to either learning or talents. (Plin. xxix. 1.) He held forth, that he could qualify any one for a physician in the space of six months, and actually succeeded in obtaining a great number of pupils; but they were from among the lowest order of artificers, such as rope-makers, weavers, cooks, butchers, fullers, and such like. These he took with him to visit his patients for the stipulated time; and then he conferred upon them the privilege of practising for themselves. From his time it became the custom for the Roman physicians to visit their patients attended by all their pupils; in allusion to which, we have the epigram of Martial:

*Languebam; sed tu comitatus protinus ad me
Venisti, centum, Symmache, discipulis.
Centum me tegere manus aquilone gelatae:
Non habui febrem, Symmache: nunc habeo!*

I'm ill. I send for Symmachus; he's here,
An hundred pupils following in his rear.
All feel my pulse with hands as cold as snow:
I had no fever then; I have it now.

The methodic school acquired much greater repute from the labours of Soranus and Cælius Aurelianus. The former a native of Ephesus, who had studied at Alex-

andria, and came to Rome during the reign of Trajan; the latter an African by birth. Free from the prejudices which had disgraced his predecessors, Soranus cultivated the study of anatomy, and wrote a book on the female organs of generation, which is still extant, and displays considerable acquaintance with the subject. Many of his observations show that he was possessed of great sagacity and strength of judgment. To Cælius Aurelianus, on the other hand, we are indebted for an account of his doctrines and practice, and for one of the best works on medicine which have come to us from ancient times; written in a barbarous style, but highly deserving of perusal, on account of the accurate description of diseases, and the different methods of treatment, which it contains.

Anatomy and the other auxiliary sciences, though they had been so much neglected by the Methodists, were now receiving important additions from other quarters. Rufus of Ephesus, who lived in the time of the emperor Trajan, applied himself zealously to the dissection of animals, particularly of apes, and described from analogy the different organs of the human body. He traced the nerves from their origin in the brain, and divided them into those of sensation and those of voluntary motion. The heart he believed to be the seat of life, of animal heat, and the cause of pulsation; and he showed the difference of structure and capacity between the right and the left ventricle. The spleen he held to be an useless organ. Marinus, whom Galen calls the restorer of anatomy, and to whose labours he was himself probably indebted for much of his knowledge on the subject, rendered still greater services to the science. He investigated the absorbent system with great care, and discovered the mesenteric glands; he distributed the nerves into seven pairs: the N. palatinus (then called the fourth pair) was first described by him; and he is said to have been the discoverer also of the *par vagum*, which he termed the sixth pair. His numerous writings have all perished.

The study of the materia medica, and of the other branches of natural history, was profecuted with no less vigour; and we owe to the first century of the Christian era the invention of many remedies which are still retained in our pharmaceutical systems. The elder Pliny, second only to Aristotle in the universality of his genius, but surpassing even that great man in his insatiable thirst for knowledge, had collected in his *Historia Mundi* all that the ancients knew of natural science. Dioscorides of Anazarba, devoting himself to botany and materia medica, produced a work which served for a guide in these sciences till a very late period. His descriptions of some of the more valuable drugs, such as myrrh, laudanum, assafœtida, ammoniac, opium, squills, and their different preparations, are entitled to great praise. The efficacy of several remedies, which he recommends, has been admirably confirmed by later experience, such as of the elm-bark in cutaneous diseases, of potash as a caustic, of the male fern against worms, &c. &c. Some of the contemporaries of Dioscorides, as Scribonius Largus, Xenocrates, and Andromachus, cultivated the materia medica, but with less success. To Menecrates, who lived in the reign of Tiberius, and who, according to an inscription in Montfaucon, appears to have been the author of 155 books, we are indebted for the invention of the diachylon-plaster; and Damocrates is well known as the author of several complicated remedies which bear his name. Herennius Philo, of Tarsus, is mentioned by Galen as the inventor of an anodyne composition, called, after him, Philonium, and which consisted of opium, euphorbium, and different aromatics; and Aesclepiades Pharmacion was the introducer of numerous remedies from the animal kingdom, which, though long honoured with a place in our pharmacopœias, have now deservedly fallen into disrepute.

Before quitting this period of medical history, it will be necessary to say a few words respecting two other sects, which

which arose soon after the establishment of the Methodic school: we mean the Eclectic and Pneumatic sects. The founder of the latter, Aristaenus of Cilicia, flourished as a physician at Rome about the middle of the first century, and distinguished himself by his opposition to the tenets of Asclepiades, and his attachment to the Stoical system: he extended the theory of pre-existent germs; treated the doctrine of the pulse with dialectic subtlety, referring its varieties to the exhalation of the *πνευμα* from the heart and arteries; and cultivated several branches of pathology; but was more successful in his dietetic researches, particularly with respect to the influence of the atmosphere.

His pupil Agathinus, endeavouring to reconcile his principles with those of the Methodic and Empiric sects, acquired the name of Episyntetic or Eclectic; and thus established the Eclectic system, on which, however, he does not appear to have conferred much repute by his own labours. That merit was reserved for Archigenes and Aretæus, who, adopting the leading tenets of the Pneumatic theory, gave it a more scientific form, and enriched it by many valuable observations. The former attempted to reform the language of medicine, but without much effect; for even Galen has occasion to complain of the obscurity of his phraseology; he was, besides, too fond of subtleties: but many of his practical observations, which Galen has recorded, are excellent. The merits of Aretæus, as a skilful and attentive observer, and as an elegant describer of disease, are familiar to every one. To Cassius the Iatrosophist, another Eclectic, we are indebted for many valuable pathological remarks concerning the diseases of association, and the sympathies of the nervous system.

On the subject of Aretæus and Archigenes, Dr. Huxham has the following note. "It is pretty surprising that none should take notice of Aretæus Cappadox before Aetius Amidenus, in the fifth century; (he is indeed named in the Euporista attributed to Dioscorides, but few think that piece to be the genuine work of that author.) Neither Galen, Cælius Aurelianus, nor Oribasius, mention him; though so particular in enumerating all the physicians of note, antecedent to, or cotemporary with them. And yet Aretæus seems to have been a very considerable practitioner, and a man of great learning and judgment: he affects a very singular style, using many obsolete words, Homeric and Hippocratic phrases, and the Ionic dialect; which, at the time he wrote in, was almost entirely disused: for, notwithstanding the conceit of Vossius, he undoubtedly did not write till after the time of Nero. All this one would think should have made him remarkable; especially if he practised in or near Rome; which is not improbable, as he advises Roman wines to the sick; particularly the Falernian, Surrentine, Signine, and those of Fundi. But Galen and Aetius quote from Archigenes several passages, which are exactly the same, as to sense, doctrine, method of cure, and manner of expression, with what we find in Aretæus; only the latter gives them the Ionic turn. They both coincide in recommending some particular medicines, which are scarce to be met with in any others, particularly the external use of cantharides; which I think is not to be found in any preceding author, except Celsus. Did Archigenes then borrow from Aretæus, or the latter from the former? It is certain, Archigenes practised at Rome with a very great reputation, was a very celebrated physician and author, and as such is referred to by Juvenal, Galen, Cælius, Oribasius, Aetius, &c. He is strictly criticized by Galen, sometimes censured, sometimes commended, but never reckoned a mere compiler. Aretæus, on the contrary, is mentioned by none but Aetius and Paulus Ægineta; nay, which is not a little to be wondered at, he is not so much as found in Photius's Bibliotheca. This is really strange, and not easily accounted for, and would incline one to think that Aretæus borrowed from Archigenes; or ra-

ther transcribed and new-modelled him, giving him the Hippocratic diction and Ionic dialect. Possibly Aretæus might do by Archigenes something like what Cælius Aurelianus, not long after, did by Soranus: but, if so, he hath vastly much better graced Archigenes than Cælius hath latinized (as he calls it) Soranus. Upon this supposition, we need not wonder at finding the Roman wines recommended in Aretæus, though he might practise and write in Cappadocia, or any where else, at the greatest distance from Rome. Be the matter as it will, in Aretæus we have a most valuable work, a most accurate description of diseases, and in general a very proper and judicious method of cure; and it is greatly to be lamented, that the work comes so maimed to us." Huxham on Fevers, Pref.

During this period, surgery received considerable improvement; particularly from the labours of Heliodorus and of Antyllus. Of the former, who was an eminent surgeon at Rome in the time of Trajan, Nicetas has preserved several practical observations on injuries of the head and diseases of the bones, which evince no mean proficiency in his art. The latter is perhaps still more deserving of notice, as being the first who gives any account of the extraction of the cataract: he recommends this operation to be performed while the cataract is small, being of opinion, that, when enlarged, it cannot be extracted without bringing the humours of the eye along with it. His directions concerning the preparation of plasters and ointments, and concerning the choice of veins in phlebotomy, are very minute. In dangerous cases of *cynanche*, he advises bronchotomy; and in *hernia humoralis* he operated by incision. Philagrius, who lived about the time of Valens, appears to have been the first who attempted to extract a stone from the bladder by the high operation. Aetius has also transmitted to us an account of the surgical practice of one Leonides of Alexandria, whose observations on hernia, scrofula, and glandular swellings, on hydrocele, and on inflammation of the scrotum, show considerable discernment. In cancerous affections of the breast, he resorted to amputation, and the actual cautery; in fistula, his method of operation differed but little from that recommended by Pott.

Having dispatched several names of smaller eminence, we now come to the illustrious *Celsus*, who lived at Rome, as some think, about the reign of Tiberius. His native place is unknown; and many writers have supposed that he was never in practice. Yet his minute descriptions of many pharmaceutical preparations could hardly have been acquired unless he had compounded them with his own hands; nor could his excellent directions in surgery have been penned without some knowledge of the manual operations. In many parts of his works, he follows the Father of Medicine so closely, that he has been called the Latin Hippocrates; though that name is equally applicable to him on account of the purity of his language. (See *CELSUS*, vol. iv.)

In his work on surgery, all the improvements from Hippocrates to his own days are collected; the most minute and trifling diseases are not omitted. An eminent surgeon of the moderns emphatically exhorts every person in that profession "to keep Celsus in his hands by day and by night." He follows Hippocrates, but with much improvement in his chyrurgical directions; especially in the mode of trepanning, in applying splints, bandages, &c. in the manner of extending and fixing fractured limbs and likewise in the medical treatment of the patient. In luxations of the shoulder, he mentions several methods of giving force to the extension, and of replacing the dislocated bone. One method similar to that of Hippocrates was, to suspend the patient by the arm; the fore part of the shoulder, at the same time, resting upon the top of a door, or any other such firm fulcrum. Another method was to lay the patient supine, some assistants retaining the body in a fixed position, and others extending the arm in the contrary direction; the surgeon, in

in the mean time, attempting, by his hands, forcibly to reduce the bone into its former place.

He made the distinction into simple and compound fractures, as it exists in the present day; and his directions in the cure of fractured ribs are extremely judicious. The different species of herniæ are well described by him; and he seems to have used a bandage and compress after the reduction of the bowels, on the same principle as we now use a truss. In some cases, after the return of intestinal ruptures, he diminished the quantity of loose skin, and formed a cicatrix, so as to contract over the part, to render it more rigid and capable of resisting. He describes various diseases of the genital parts, the hydrocele or dropsy of the scrotum, a difficulty of urine, and the manner of drawing off the water by a catheter; the signs of stone in the bladder, and the method of founding or feeling for that stone. Lithotomy was at that time performed by introducing two fingers into the anus; the stone was then pressed forward to the perinæum, and a cut made into the bladder; and by the finger or by a scoop the stone was extracted. He describes the manner of performing this operation on both the sexes, of treating the patient, and the signs of recovery and of danger.

Celsus gives excellent instructions with regard to inflammation in general; and mentions some useful topical applications in ophthalmia. The operations for the cataract (which consisted in depressing the crystalline lens), and for fistula, are likewise described by him; as also the mode of performing the operation of paracentesis. The external application of arsenic as a cure for cancer originated with Celsus. In external gangrene, he cut into the sound flesh; and, when the disease, in spite of every effort, spread, he advised amputation of the member. After cutting to the bone, the flesh was then separated from it, and *drawn back*, in order to save as much flesh as possible to cover the extremity of the bone. He describes the symptoms of that dangerous inflammation the *carbuncle*, and directs immediately to burn or corrode the gangrened part. To promote the suppuration of abscesses, he orders poultices of barley-meal, or of marshmallows, or the seeds of linseed and fenugreek. He also mentions the compositions of several repellent cataplasms. In the *erysipelas*, he applies ceruse, mixed with the juice of Solanum, or nightshade. He is very diffuse in those parts of his works which relate to pharmacy, giving formula for a great many external and internal remedies now deservedly abolished.

Though Celsus followed the practice of Hippocrates in many respects, yet he very much differed from him in others. He particularly ridiculed his doctrine of critical days, which he attributed to an absurd application of the Pythagorean doctrine of numbers; and he differed from that physician in regard also to bleeding; for he held it dangerous to take much blood from patients at once, and rather preferred the abstraction of it at repeated intervals. In regard to abstinence, he seems to have followed Asclepiades, enjoining the sick to endure hunger and thirst during the first days of their illness, and afterwards allowing them plenty of food. He entirely disregarded the indications of the pulse, from having observed that it was accelerated or depressed by many adventitious circumstances, as well as from having found it very different in complaints of a similar nature.

The most considerable of the Roman pathologists, and the last of any great eminence, was GALEN, who flourished about a hundred and thirty years after Celsus, and was physician to the emperor Marcus Aurelius. This great man was considered for many centuries afterwards the most infallible authority in all matters relating to pathology. Impressed at an early age with the important truths contained in the writings of Hippocrates, he viewed with contempt and disgust the jargon and obscurity which enveloped them in the schools of medicine. Accordingly he became himself the expositor of Hippocrates. He repeated and extended his observations, presented his opi-

nions in new lights, and supported his doctrines with all the aids which were derivable from speculative reasoning or the comparison of facts. Yet Galen in some measure fell into the same error of which he accused his predecessors and contemporaries. He observed the naked facts and simple truths related almost without comment by the coarse sage. He applied himself too much to explain, arrange, and systematize, a very small stock of information; and, by endeavouring to illustrate a very uncertain science by means of others not more exact, he permitted his imagination to frame hypotheses in the highest degree gratuitous and assumptive. These observations are fully exemplified by the following sketch of his system.

He first begins with establishing four qualities in the animal body; heat, cold, moisture, and dryness. The peculiar combinations which these qualities undergo, or in other words the changes which may be rung on them, produce eight constitutions, or temperaments; i. e. hot, cold, moist, and dry; hot and moist, cold and moist, hot and dry, and cold and dry. (See GALEN, vol. viii.) *Idiosyncrasy* is that temperament which cannot be referred to any of these qualities, and is therefore supposed to arise from occult causes. With Hippocrates, Galen admitted the operation of Nature; but to this agent he added three other faculties, or, as we should call them, vital properties. The first and most important, he calls the *animal faculty*; it has its seat in the brain, performs the operations of mind, and by means of the nerves distributes the properties of motion and sensation to all parts of the body. The second is called the *natural faculty*; it has its seat in the liver, and is the principal agent in growth, generation, and nutrition. The third, denominated the *vital faculty*, is lodged in the heart, and from thence, by means of the arteries, disseminates heat and vitality through the whole system. These three faculties were acted upon by Nature as a *primum mobile*. Their production was supposed to be owing to the agency of certain *spirits*, or *subtle vapours*, which he likewise divided into three kinds, bearing the names of vital, natural, and animal. Galen admits the existence of the four humours of blood, phlegm, yellow, and black bile, first insisted on by Hippocrates. With that physician he likewise divides the body into three component parts; spirits, humours, and parts, or, as we call them, *solids*. The last-mentioned substances he divides into organical and similar.

It were useless to enter into a detail of the minute distinctions of diseases and their causes in which Galen has indulged. Suffice it to say, that the increase, deficiency, or irregular distribution, of the different humours, qualities, &c. which we have enumerated, was regarded by him as the essential cause of disease; consequently the abstraction of redundant, the reproduction of deficient, or the correction of peccant, humours, formed the principal indications in his pathology. In anatomy and physiology, Galen discovered or arranged many important facts. His assiduous dissections of animals furnished him with many useful observations: he likewise preserved in his writings much of the anatomical knowledge of the Alexandrian school; and has indeed corrected by experiment the errors into which that school had fallen, particularly in regard to the circulation of the blood. Hippocrates had asserted, that all the vessels communicated with each other, and that the blood underwent a kind of flux and reflux to and from the heart, like the ebbing and flowing of the sea; and he mentions the throbbing of the temporal arteries, as an evidence of this fact. The anatomists at Alexandria had adopted a different opinion; as they found the arteries empty, and the veins containing blood, in their dissections, they imagined that the former were tubes for the distribution of *air*, (and gave them that name which they have borne ever since;) and that the veins were the only channels for the blood. The heart of man consisting of two sets of cavities not communicating with each other, and its connexion with the lungs, were to them delusive circumstances, and seemed to favour their opi-

nions. It is true they sometimes found blood in the arteries, and in the left cavities of the heart; but then they believed that the air or spirit had escaped, and that the blood had oozed through the sides of these air-vessels, and supplied its place. Galen refuted this opinion by experiment. He laid bare one of these vessels in a living animal, and by tying it in two places, and opening it between the ligatures, he ascertained that it contained blood and nothing else. He therefore concluded, that both veins and arteries served the same purpose, that of distributing blood for the supply of the body, but that the florid arterial blood contained more air than the purple blood of the veins. We need hardly remark, that Galen did not understand the natural course of the blood, though he had thus made known its containing vessels.

Galen did not apply himself much to the surgical department of the art: however, he occasionally performed the operation of arteriotomy, and opened the jugular veins; and he described with accuracy the different kinds of hernia.

In a history of this kind it seems right to mention the effect of anatomical studies on the mind of Galen. After contemplating the structure of the bones of a skeleton, and their adaptation to their different functions, he breaks out into an apostrophe, which has been much admired, and in which he is said to have exceeded any ancient in pointing out the nature, attributes, and proper worship, of the Deity. "In explaining these things," he says, "I esteem myself as composing a solemn hymn to the author of our bodily frame; and in this I think there is more true piety than in sacrificing to him hecatombs of oxen, or burnt-offerings of the most costly perfumes: for I first endeavour to know him myself, and afterwards to show him to others, to inform them how great is his wisdom, his virtue, his goodness."

Medicine improved very slowly after the time of Galen; his successors were more employed in compiling and commenting on the works of their predecessors, than in endeavouring to extend the bounds of science by original observation. Among the most distinguished of these we may record the names of Oribasius, Aetius, Alexander Trallian, and Paulus Ægineta.

Oribasius flourished about the year 360, and was physician to the emperor Julian. Though commonly reckoned a Sardinian, he was born at Pergamus, and bred up, together with Magnus and Ionicus, in the school of Zeno the Cyprian, who taught then at Sardis, though afterwards he removed to Alexandria, where he became a famous professor. Eunapius represents Oribasius as the greatest scholar and physician of his time, and a very engaging and agreeable man in conversation. He describes him as no less considerable in his interest than in his learning: according to his account, he contributed very much to the advancement of Julian to the empire, who in return made him questor of Constantinople, and who, as appears by one of his letters, had an entire confidence in him. In the succeeding emperor's time, through the envy of his enemies, he fell into disgrace, had all his estates confiscated, was banished, and delivered into the hands of barbarians; amongst whom, in a little time, by his courage and skill, he gained so much love and reverence, that they, seeing what great cures he performed, adored him as a god. At last he was recalled by the Roman emperor, and flourished in reputation and riches at the very time when Eunapius wrote this account, which must be near the year 400.

Oribasius wrote seventy (according to Photius) or (according to Suidas) seventy-two books of collections, which he compiled not only from Galen, but from all the preceding physicians, and his own experience, at the desire of Julian; the fifteen first of which are only remaining, and two others treating of anatomy. Afterwards he made an epitome of this great work, and reduced it into nine books for the use of his son, Eustathius. Paulus mentions this epitome; but it is now lost, as are some

other tracts which Suidas takes notice of. These works, though chiefly compilations, are, by no means without their use to the medical student; for both Oribasius and Aetius have preserved some fragments of antiquity, and those of some value, which are no-where else to be met with; that is, they compiled from the now-lost-works of Galen and others, and added much original matter of their own. We will give only one instance of what is either omitted by Galen, or is lost together with some other of Galen's works; namely, the first description of the salivary glands, which is this: "On each side of the tongue, lie the orifices of the vessels, which discharge the spittle, and into which you may put a probe. These vessels take their rise from the root of the tongue, where the glands are situated. They rise from these glands, in much such a manner as arteries usually do, and convey the salivary liquor, which moistens the tongue, and all the adjacent parts of the mouth." Oribasius, lib. xxiv. c. 8.

Oribasius, either from Apollonius or himself, speaks very fully of the good effects of bleeding by way of scarification, a thing little taken notice of by former writers: and assures us, from his own experience, how successful he had found it in a suppression of the menses, defluxions of the eyes, headache, straitness of breathing, even when the person was extremely old. He tells his own case particularly, when the plague raged in Asia, and he himself was taken ill, that the second day he scarified his leg, and took away two pounds of blood; by which method he entirely recovered, as did several others who used it. Here we may observe, that this was a different method of scarifying from that performed by the help of cupping. The Arabian physicians seem to have had a notion only of the latter practice: but, from this place, as well as from some passages of Galen, it is plain, that the ancients made deep incisions into the skin by the knife; and therefore thought, by the large quantity of blood they could draw off, that this method was equivalent to opening a vein. The Egyptians make use of it to this very day; and Prosper Alpinus describes at large the apparatus: they make first a strait ligature under the ham, then rub the leg, and put it into warm water, and beat it with reeds to make it swell, and so scarify. A process in every particular differing from cupping; and therefore, in the cure of giddiness, Oribasius himself speaks of them as two distinct operations.

We find in this author the first account of a strange and surprising distemper *Λυκανθρωπία*, a species of melancholy and madness, which he describes thus: "The persons affected go out of their houses in the night-time, and in every thing imitate wolves, and wander among the sepulchres of the dead till day-break. You may know them by these symptoms: their looks are pale; their eyes heavy, hollow, dry, without the least moisture of a tear: their tongue exceedingly parched and dry: no spittle in the mouth, extreme thirst; their legs, from the falls and bruises they receive, full of incurable sores and ulcers." Aetius gives the very same description, with some little variation; only calls it *Κυανθρωπία* as well as *Λυκανθρωπία*, and observes it prevails most in February. Aetius takes this passage, as he says, that is, makes a paraphrase of it, from Marcellus Sides, an author who lived under Adrian and M. Antoninus; and who wrote forty-two books concerning distempers, in heroic verse. Paulus has transcribed the same account of this disease word for word. The Greek term used to denote this disease expresses the nature of it very justly; and yet Vanderlinden is so careless a writer, that he makes it a synonymous term for the madness of the wolves themselves. We conceive the disease to have been a species of mania, in which the association of the mind with deceased relatives produced an inclination to wander among the tombs.

Of the epilepsy, Oribasius describes the cure both in the acute and the chronic form; that is, in the fit as well as out of it. When the fit is over, he orders bleeding; and,

and, after four or five days, when the body is a little recruited, purging; three days after, cupping and scarifying. He repeats these evacuations, and sometimes sinapisms, at convenient distances, and in the intervals gives proper nourishment, and uses warm medicines, such as castor, mint, rue, and the cyrenaic juice. Whether this be taken out of Pofidonius, as, by reading Aetius upon the same head, there may be some reason to suspect, we cannot tell; but the method is certainly right, and agreeable to a rational practice. The epitome of what Galen had said upon the same argument, in the next chapter, is by no means so full and circumstantial. These few instances will be sufficient to show, that even this author, though he be chiefly a collector, may furnish us with some new and useful reflections in physic; and he who reads him with this view, may find some other passages of the same kind, not to be met with in the more ancient writers.

Aetius lived very near the end of the fifth or the beginning of the sixth century. He was a native of Amida in Mesopotamia, studied at Alexandria, and was probably a Christian, which perhaps may be the reason why many have confounded him with another of that name, a famous Arian of Antioch, who lived in the time of Julian. In some manuscripts he has the style of Κομης Οψιχιστῆ, *Comes Obsequii*; i. e. the chief officer of those who used to go before the emperor, as his attendants and harbingers. We find in him several particularities relating to the Egyptian pharmacy. He has collected a great multitude of receipts, particularly those which had been much celebrated, or used as nostrums by their inventors. Some of these he seems to mention with no other design than to expose them, and to let us see the extravagant rate people were induced to pay for them: for instance, the collyrium of Danaus, which was sold in Constantinople for one hundred and twenty numismata, and with great difficulty obtained from him; the colical antidote of Nicostratus, called very presumptuously Isotheos, bought for two talents. He seems also to be the first Greek writer among the Christians who gives us any specimen of medicinal spells and charms, so much in vogue with the old Egyptians; such as that of St. Blasius, in removing a bone which sticks in the throat; and another in relation to two fistulae.

The following sample of a remedy for the gout is remarked by Dr. Freind as being the first of its kind in the history of physic. It is an external medicine: he calls it the *grand dryer*: the patient is to use it for a whole year, and observe the following diet besides in each month. He calls the months by the Alexandrian or Egyptian names, but in English, the direction runs thus: "In September to eat and drink milk: in October to eat garlick: in November to abstain from bathing: in December not to eat cabbage: in January to take a glass of pure wine in the morning: in February to eat no bete: in March to mix sweet things both in eatables and drinkables: in April not to eat horse-radish: nor in May the fish called polypus: in June to drink cold water in a morning: in July to avoid venery: and lastly, in August to eat no mallows." This may give us some idea of the quackery of those times.

In the works of Aetius we find many observations omitted by Celsus and Galen, particularly on surgical operations and on difficult parturition. He first took notice of the Dracunculus, or Guinea worm, not known to Galen. It is curious to remark the excessive extent to which the actual and potential cauteries were carried in the time of this practitioner. In a palsy, he says, that he should not at all hesitate to make an eschar either way, and this in several places; one in the nape, where the spinal marrow takes its rise, two on each side of it; three or four on the top of the head, one just in the middle, and three others round it: he adds, that, in this case, if the ulcers continue running a considerable time, he should not doubt of a perfect recovery. He is still more particular when he comes to order this application for an in-

veterate asthma, after all other remedies have been tried in vain. One, he says, should be made on each side, near the middle of the joining of the clavicle, taking care not to touch the wind-pipe: two other little ones are then to be made near the carotids under the chin, one on each side, so that the caustic may penetrate no further than the skin; two others under the breasts, between the third and fourth ribs; and again, two more backwards towards the fifth and sixth ribs. Besides these, there ought to be one in the middle of the thorax, near the beginning of the xiphoid cartilage, over the orifice of the stomach; one on each side between the eighth and ninth ribs; and three others in the back, one in the middle, and the two others just below it, on each side of the vertebrae. Those below the neck ought to be pretty large, not very superficial, not very deep: and all these ulcers should be kept open for a very long time.

Alexander, who flourished in the reign of Justinian, is a more original author than either of the two former. He was surnamed Trallianus, being born at Tralles, a famous city of Lydia, where the Greek language was spoken in great perfection: he lived in the sixth century, some time after Aetius. He was a man of very extensive practice and of great fame, whence he was emphatically called Alexander the *physician*. His therapeutical directions are very full and explicit, and were chiefly the results of experiments made by himself. His practice was remarkable for the judicious introduction of aperient medicines in cases of fever, and the use of bleeding in syncope, a disease which, according to his description, seems to apply to the epilepsy of our own times. But the most valuable part of Alexander's writings was his book on gout, for the cure of which he recommends purging, and particularly with the herb *hermodactylus*, which is supposed to be the *colchicum* lately brought up again and acquiring great reputation in the cure of the same complaint. He is the first author who recommended the use of rhubarb, which he had recourse to in weakness of the liver and in dysentery. Alexander is recommended by Dr. Freind as one of the best practical writers among the ancients, and well worthy the perusal of any modern.

Paulus, the fourth and last of the old Greek writers, was born in the island Ægina, and lived in the seventh century, though placed by Mr. le Clerc as high as the fourth. He was a great traveller, and had opportunities of seeing an extensive practice in different countries. He transcribes a great deal from Alexander and other physicians. His descriptions are short and accurate. He treats particularly of women's disorders; and seems to be the first instance upon record of a professed *man-midwife*, for so he was called by the Arabians; and accordingly he begins his work with the disorders incident to pregnant women. He treats also very fully of surgery, and gives some directions, according to Dr. Freind, not to be found in the more ancient writers. He directs the manner of extracting darts, and of operating for hernia; he describes one species of aneurism; treats of the mode of opening the jugular veins, and also the arteries behind the ear. He likewise described the operation of bronchotomy, and showed the propriety of performing it in cases of suffocation. This operation had been derided by Aurelianus, and some severe objections were started against it by Aretæus. It was first performed by Antyllus, from whom Paulus copied it.

With Paulus closes the period of the Greek *classical physicians*: so we venture to call them; because, if we compare any of the Greek writers on pathology, from the very first of them, Hippocrates, to the time we are now speaking of, with the very best of their contemporaries in any art or profession whatever, they will be found not at all inferior to them either in the disposition of their matter, the clearness of their reasoning, or the propriety of their language. Some of them have even written above the standard of the age they lived in; an incontestible instance of which is Aretæus. Galen, also, was

not the only best physician, but the best scholar and critic, of his time. So great an honour have these authors done to their profession, by being versed in other arts and sciences as well as their own. And the great St. Basil, whom his own continual illness made a physician, and who has a great many allusions and similes taken from that art, was (to use the words of Photius) for the neatness, the propriety, the perspicuity, and fluency, of his style, one of the best writers among the fathers; as St. Luke's Greek comes nearer to the ancient standard than that of the other evangelists.

We cannot omit saying, something of one author more, whom we may reckon one of the *ancients*, though not properly a writer in physic; Nemesius, bishop of Emisa, who wrote a treatise concerning the nature of man, near the end of the fourth century: because his Oxford editor ascribes two discoveries to him, one of which was the most considerable that ever was made in physic. The first is concerning the bile, "which is constituted (as Nemesius says) not only for itself, but for other purposes; for it helps digestion, and contributes to the expulsion of the excrements; and therefore it is in a manner one of the nourishing powers: besides, as a vital faculty, it imparts a sort of heat to the body. And for these reasons it seems to be made for itself; but, because it purges the blood, it seems to be formed for the sake of the blood." Here, says the editor, the system of the bile is plainly and accurately delivered; that very system which Sylvius de le Boe with so much vanity boasted he had invented himself in 1658. And indeed so far is true, that here is the intire foundation of Sylvius's reasoning: and, if this theory be of any use in physic, Nemesius has a very good title to the discovery. But there follows a much more material point; and the same editor contends, that the circulation of the blood, an invention which the 17th century so much boasts of, was known to Nemesius, and described in very plain and significant terms, which are these: "The motion of the pulse takes its rise from the heart, and chiefly from the left ventricle of it: the artery is with great vehemence dilated and contracted, by a sort of constant harmony and order. While it is dilated, it draws the thinner part of the blood from the next veins, the exhalation or vapour of which blood is made the aliment for the vital spirit. But, while it is contracted, it exhales whatever fumes it has through the whole body, and by secret passages. So that the heart throws out whatever is fuliginous through the mouth and the nose by expiration." Upon this single slender proof does he attribute this great discovery of the circulation to Nemesius; and those who have insisted that it was known both to Hippocrates and Galen, have full as good arguments on their side. But it is evident enough, from this very description, and from what the same author says of the liver in the same chapter, that it ministers nourishment to the body by the veins, that Nemesius had no idea of the manner in which the circulation of the blood is really performed.

To resume the thread of our history, we must come now to some other Greek writers of a lower rank and a later date: but, as the greatest part of these contain little that is new, we shall give a very short account of their works, and only be as particular as we can in adjusting their several ages; concerning which all our authors have left us in great confusion; though indeed this is the less to be wondered at, considering that from the time of Agathias, that is, from the year 560, to the reign of Isaac Comnenus in 1060, there is a chasm of five hundred years in the Grecian history; so that we know very little of all that interval, except what some slender account of the reigns of a few emperors, chiefly Mauritius and Heraclius, furnishes us with.

Palladius, called Sophist or Iatrosophist, was bred, as he himself seems to hint, at Alexandria. We place him first among the more modern Greeks, but cannot agree with the *Bibliotheca literaria*, which computes that he flourished

about the year 126. Albinus better places him after Galen, i. e. after the year 200. In fact, he quotes Galen very often, and it may be proved, that he lived not only after Galen, but after Attius and Alexander too, whose words he frequently makes use of. His Commentaries upon Fractures are imperfect; however, what of them remains is enough to let us see that we have no great loss by it. In those upon the Epidemics, he with great perspicuity and exactness, illustrates not only Hippocrates, but several passages of Galen; and observes particularly, that the stone increased much in his time, and was less curable; and he imputes this to the luxury of the age, to much eating, and want of exercise. He is the first author now extant who has treated professedly of urine: and he has very well explained the causes of its colour and consistence; what distempers these respectively indicate, and what prognostics may be drawn from them. There are several passages expressed in the same words, as we may read in a book upon the like subject, falsely ascribed to Galen. He has written in much the same manner concerning the fæces.

Stephen, the Athenian or Alexandrian, called sometimes the one and sometimes the other, from the place either of his birth or his residence, wrote a commentary upon Galen's First Book to Glauco; a book that does not seem to want any comment to make it more intelligible. But there is reason to think, that the chief physical learning of his time consisted in reading upon Galen; and Abi Obeia, the Arabian biographer, tells us of seven Alexandrian physicians, among which Stephanus is one, who digested the works of Galen into sixteen books; which again, according to the different matter, they divided into seven classes: that these were the only books they studied, and that in their turn they made it their whole business to comment upon them and explain them to their auditors. And therefore it is not at all probable that he lived in the third century, as Mr. le Clerc, without any authority, supposes; and, indeed, it is plain, from this very comment of Stephen, that he was much more modern, for he himself mentions very ancient expositors of this particular book of Galen; and, in section 140, concerning a quartan, he seems to allude to a wrong interpretation which Alexander had made of Galen's sense in this place. If this writer be the same with Stephen the chymist (as he is called), his age is easily known, for that author dedicates his work, *de Chrysopeia*, to Heraclius, and this will make his age consistent with what has already been observed. We read of a Stephen too, and an Alexandrian likewise, in this very emperor's reign, who was a famous astrologer, and foretold the great power to which the Saracens should arrive, as they did in some years after. Vanderlinden calls Stephen the last of the old Greek authors, though, if this account of his age be true, it will appear that several others wrote in Greek after that time.

Of these Nonus seems to be in order next, who composed a sort of physic-manual, in which is contained some short account of most distempers and their cure. He inscribes it to Constantine Porphyrogenitus; who, according to Lambecius, was the seventh emperor of that name, the son of Leo, and died in the year 959, and who, as he had some tincture of learning himself, was a great patron of it. But Jer. Martius, who published an edition of this author in Greek and Latin, thinks the Constantine here meant (a Porphyrogenitus as well as the other) was the son of Constantine Ducas, who died in 1067; for this reason, that Ducas, though unlearned enough himself, was an admirer and encourager of letters, and had this saying often in his mouth, "That he had rather be ennobled by learning than by sovereignty." To which of these Constantines Nonus inscribed his work, is not very material; I shall only take notice, that we may collect from Anna Comnena's history, that in the interval between these two emperors, learning was extremely declining, if not quite extinct.

This epitome is little else than a transcript from Aetius, Alexander, and Paulus. And he is so free with the labours of his predecessors, that he even assumes their experience to himself. He gives a particular description of melancholy, and, with the air of a great practitioner, is full of the good effects he had seen himself from the Armenian stone, and therefore prefers it to white hellebore: he talks very sensibly about the bite of a mad dog, and remarks, that when once a hydrophobia comes on, he never, in all his experience, knew one recover; and yet every word in the first case is transcribed from Alexander, and in the latter from Paulus.

Michael Psellus lived not long after Nonus, and inscribed the book which he put together, Concerning the Qualities and Virtues of Aliments, to Constantine the emperor. Lambecius thinks this Constantine is he who is called Monomachus, and who reigned from 1043 to 1055; but if, according to his account, Psellus died in 1078, it is at least as probable it might be Constantine Ducas: and what adds to the probability is, that it appears from Zonaras, he was preceptor to Michael Ducas, that emperor's son. The same Zonaras gives this writer the character of a person wholly unfit to have the tuition of a prince, as being not at all qualified in any sort of letters; but Anna Comnena, who lived a few years after him, on the contrary, extols him as one who was a perfect master of philosophy, one of great natural parts, and of profound learning both in Greek and Chaldaic. The same encomiums are bestowed upon him by Leo Allatius, who (by his dissertation de Psellis) seems to be fond of this very name, and describes him as one of the first rank of writers. However there is nothing to be found in his treatise which can do any author much credit; for it is only a collection from the elder Greek physicians, who themselves collected this part of knowledge chiefly from Galen, as he had done before from Dioscorides. He was persecuted and stripped of every thing by Nicephorus Botoniatas, turned monk, and soon after died, very old. There are many other tracts writ by this author, an account of which we may read at large in Leo Allatius.

And yet, though Psellus was such a compiler as has been mentioned, Simeon of Antioch, writing upon the same subject, but indeed in a very impure style, copied mostly from him, which is the more extraordinary, since the book he transcribed from was then fresh in every one's memory: for Simeon must have been his contemporary, though no doubt younger, because he dedicated this treatise to Michael Ducas called Paripaneus, who resigned the empire in 1078, the very year in which Psellus, as we are informed, died. There are many other works of this Simeon, particularly we owe to him the translation (out of Arabic into Greek) of a very fantastical book. Concerning the Wisdom of the Indians, which Perzoos, a physician, collected at the desire of Chosroes, king of Persia.

Actuarius, the son of Zachary, so called without doubt from the employment he held as chief physician to the emperor, is an author of a better character than those we have just mentioned. He wrote several treatises, in which occur many things worth our reading. He practised at Constantinople, and, as it appears, with some degree of credit; his six books concerning the method of cure being compiled for the use of one of the chief officers at court, the lord chamberlain, who was sent upon an embassy into the North. Fabricius by mistake makes Actuarius himself the ambassador. In these books, though he chiefly follows Galen, and very often Aetius and Paulus, without naming them, yet he makes use of whatever he finds to his purpose, both in the old and modern writers, as well barbarians as Greeks; and, to do him justice, we may find several things in him not to be met with any where else. Thus, for instance, he is the first Greek writer who has mentioned or described the milder sorts of purging

medicines, such as cassia, manna, fenna, myrobalans: the two last he says were brought from foreign parts to his country, i. e. from Syria and Egypt. Senna he describes as a *fruit*, by which, no doubt, he means the same thing as Serapion does by the *vagina*, and Mesue by the *folliculus*, which contains the seed; for neither these authors, nor Actuarius, mention any thing of the leaves; and, though these are chiefly in use now, yet the pods are sometimes made use of too; and, by what we can learn from these writers were probably the only part of senna which was then administered in physic. Another thing which we meet with in no Greek writer before Actuarius, is the mention of distilled liquors, as distilled rose-water, &c. &c.

There are not proofs clear enough to point out to us the time where we might fix the precise age of this writer. He is commonly, but without any good authority, reckoned to have lived in the eleventh century by some, and in the twelfth by others. Lambecius brings him down as low as the beginning of the fourteenth; but from his style we may conclude that he was more ancient; for, if we compare him either with Psellus or Simeon, he will appear to have a much greater purity in his diction; and indeed after 1200, we shall scarce meet with any writer but who has some mixture of modern Greek, or some barbarisms taken from other languages.

We have brought down this section to a much later period than we intended, in order to complete the history, as far as we could ground it upon any good authorities, of the few Greek physicians who appeared after the time of Galen. There has been a prevailing opinion that nothing was done among the ancients towards advancing this art, but what is comprised in the voluminous works of that great man. What gave the first rise to such a notion probably might be this: that because those who succeeded Galen did transcribe a great deal from him, many were inclined to think, without giving themselves the trouble of examining and comparing their writings, that they did nothing else but transcribe. And no editor of these authors has yet taken the least pains to undeceive them in this point, what has been left us by way of comment, being chiefly employed in grammatical or critical remarks, without any view of explaining what relates either to the history or the practice of physic in the time of each respective writer. But we have given some instances, and more might be given, where the physicians we have been speaking of have described distempers which were omitted before; where they have taught a new way of treating old ones; where they have given an account of new medicines, both simple and compound, and where they have made large additions in the practice of surgery. And, if these be any real improvements of the art, it cannot be denied but that physic was still making a progress till the year 600. As to surgery in particular, we may, without derogation to the more ancient writers, affirm, that whoever carefully looks into Aetius and Paulus, will be convinced that a great many improvements have been made in that branch of pathology which are not recited in Galen or any where else. And in general it may be remarked, once for all, that the writers mentioned in this period, till the beginning of the 7th century, and those whose remains they have preserved, were not such collectors (which is commonly the case) as had little knowledge of the subject they undertook to treat of, but were every one of them men of experience and practice. And, if the later Greek writers who succeeded, were persons of a lower character, and made little advancement in the art they professed, it is the less to be wondered at, since, for many centuries, universal ignorance prevailed over all the world; and it could not be expected that physic should make any progress, when all other sciences and all sorts of learning were almost quite extinct, or that it should be exempt from the common calamities of those times.

II. From the DARK AGES to the end of the SIXTEENTH CENTURY.

After the downfall of the Roman empire, and when the inundation of Goths and Vandals had almost completely exterminated literature of every kind in Europe, medicine, though a practical art, shared the same fate with more abstract sciences. Learning in general, banished from the seat of arms, took refuge among the eastern nations, where the arts of peace still continued to be cultivated. The Arabians, from their vicinity to Alexandria, from their intercourse with the sect of Nestorians and with the Greek philosophers, who had been compelled by the persecution of Justinian to take refuge in the Mahometan states, had acquired a taste for literature and the sciences. The knowledge which they possessed of medicine is a subject of curious inquiry. In the anatomical branch, they did little more than translate and paraphrase the Greek writers. The errors which their originals had made in anatomy became sacred; and, if the Arabs have described certain parts of the body with more exactness than Galen, these descriptions were only conjectures, or the consequence of the study of some Greek authors who have not descended to us. The Mahometan laws prohibit dissections, because, in the opinion of the Mussulmans, the soul does not depart from the body at the moment of death: it passes from one member to another till it centers in the breast, where it remains for a considerable time. The examination by the angels, of the deceased person in his tomb, could not be made on a mutilated corpse. The physicians of the Arabs studied, therefore, only skeletons in the cemeteries, and in most surgical cases implicitly followed the ancients.

Chemistry, with the rest of the sciences, being banished from the other parts of the world, also took refuge among the Arabs. Geber in the seventh or eighth, and others in the ninth, century of the Christian æra, wrote several chemical, or rather alchymical, books, in Arabic. In these works of Geber are contained such useful directions concerning the manner of conducting distillation, calcination, sublimation, and other chemical preparations, and such pertinent observations respecting various minerals, as justly seem to entitle him to the character which some have given him of being the father of chemistry, the discoverer of the key to the richest treasures of nature, though he himself modestly confesses that he has done little else than abridge the doctrine of the ancients concerning the transmutation of metals. He mentions several mercurial preparations, such as the corrosive sublimate and red precipitate, nitric acid, muriatic acid, and many other chemical compositions.

The Herbal of Dioscorides was enriched by the Saracens with the addition of two thousand plants, and their knowledge of the vegetable world enabled them to infer in their pharmacopœia several remedies which had been unknown to the Greeks. One great difference between the Grecian and Saracen dispensaries was, that the medicines in the latter were of a milder nature than those in the former: another difference was the common use of sugar in lieu of honey. Dioscorides, speaking of the various species of honey, says, that there is a kind of it in a concrete state, called, *juecharon*, which is found in reeds in India and Arabia Felix: he also describes its medicinal virtues. Galen writes upon it nearly in the same manner; but the history of the artificial preparation of sugar, by boiling or other means, was very imperfectly known. The Saracens appear, however, to have understood the art; for, by a mixture of sugar with other ingredients, they made various medicines with which the ancients were unacquainted.

The caliphs had done much to render the Arabians thus eminently learned. In the seventh century, Almanzor, and his famous successor Harun Al Raschid, patronised several medical schools, founded hospitals and academies, and assiduously cultivated the introduction of Grecian learning. Unfortunately, the Arabian physicians

mixed absurd and mysterious superstitions with the knowledge they thus acquired. The popular taste for the marvellous induced them to resort to every means of imposing on the vulgar. Astrology was introduced, particular positions and appearances of the stars were studied in dangerous cases, and amulets were in the possession of every successful and popular practitioner of medicine.

As discoverers and inventors, the Saracens have few claims to praise, but they formed the link which unites ancient and modern literature; and, since their relative situation with Europe somewhat resembled the relative situation between Egypt and Greece, they are entitled to a portion of our respect and gratitude. When the princes of the west began to emerge from barbarism, they correctly acknowledged the Moors to be the great depositaries of knowledge. Many useful treatises, now lost in the original, for example the fifth, sixth, and seventh, books of the Conic Sections of Apollonius Pergamus, and some of the commentaries of Galen and Hippocrates, were preserved in the language of the Saracens, or Arabians, as they are indifferently called.

Among the most eminent of the Arabian physicians, we may reckon Rhazes, Avicenna, Albucahis, and Avenzoar.

Rhazes, one of the oldest and most distinguished, was born at Rei, in the province of Chorasan, about the year 852. There was a school in his native town, at which he received his early education; but he is said not to have commenced the study of medicine till somewhat late in life, having given up his time much to the cultivation of music. After he was thirty years of age, he removed to Bagdad; and then he turned his attention to philosophy, and afterwards to physic. He became, however, indefatigable in his application; and was continually occupied in observing, reading, and writing, until he obtained the highest reputation; and he was selected out of a hundred eminent physicians, who were then resident at Bagdad, to superintend the celebrated hospital of that city. The historians considered him as the Galen of the Arabians; and, from his long life and constant practice, during which he paid the most assiduous attention to the varieties of disease, he obtained the appellation of *the Experimenter*, or the experienced. He was said also to be profoundly skilled in all the sciences, especially in philosophy, astronomy, and music. He travelled much in pursuit of knowledge, and made frequent journeys into Persia, his native country, and was much consulted by several princes, particularly by Almanzor, the chief of Chorasan, with whom he frequently corresponded, and to whom he dedicated several of his writings. Abi Osbaia enumerated 226 treatises composed by Rhazes, among which the ten books addressed to his patron Almanzor are mentioned, and therefore are doubtless genuine, although Haly Abbas, who has given an account of him and his works, has not noticed them. This work Rhazes designed as a complete body of physic, and it may be deemed the great magazine of all the Arabian medicine: the ninth book, indeed, which treats of the cure of diseases, was in such general estimation for several centuries, that it was the text-book of the public schools, and was commented upon by the most learned professors. Nevertheless, like the rest of the Arabian writings, it contains very little more than the substance of the works of the Greeks, from whom the Arabians borrowed almost all their medical knowledge. They have, indeed, and Rhazes in particular, given the first distinct account of the *small-pox*, a pestilential malady which the Greeks have nowhere accurately described, and which is, therefore, generally inferred to have been unknown among that people. This is questionable; but, at all events, the first specific account of the small-pox is to be found in the works of Rhazes. He was the author, also, of the first treatise ever composed respecting the diseases of children. His book on the affections of the joints is interesting, and contains an account of some remarkable cures, effected chiefly by copious blood-letting. He describes the symptoms of hydrophobia

drophobia very well; and also some diseases peculiar to eastern countries, as the ignis perficus, vena medinenfis, &c. and he first noticed the disease called spina ventosa. Rhazes had the reputation of being a skilful alchemist; the art of chemistry, in fact, originated with the Arabians; and Rhazes is the first, as Dr. Freind has shown, who mentions the use of chemical preparations in medicine. He has a chapter on the qualifications of a physician; and a singular tract on quacks and impostors, in which he has portrayed that class of pretenders to the life; and his detail of their pretensions shows that they were at least as numerous, and ingenious in their contrivances of cheater, as in more recent times. Rhazes lived to the age of eighty, and lost his sight: he died in the year 932. His works that have come down to us, through the medium of translations in Latin, are, 1. A sort of commonplace book, entitled *Continens*, or *Libri Continentes*. 2. A much more perfect work, the *Libri Decem, ad Almanforem*, published at Venice, 1510. 3. Six books of Aphorisms, published under the title of *Liber de Secretis, qui Aphorismorum appellatur*, Bononiæ, 1489. 4. A tract on the small-pox and measles, entitled, *De Pestilentia*. This last was translated by Dr. Mead in 1747, and by Mr. Channing in 1766. As it is a subject so much in dispute, we shall give an extract from the very first chapter. "As to those physicians who affirm, that the most excellent Galen has made no mention of the small-pox, and therefore that he did not know this distemper; surely they have either never read his works at all, or only very cursorily; nay, most of them do not know, whether what he plainly says of it is to be understood of that disease. For Galen, in a certain treatise, says, this drug does good this and that way, and also against the *small-pox*. And in the beginning of the fourteenth book, of pulses, that the blood is putrefied in an extraordinary degree, and that the inflammation runs so high, that it burns the skin; so that the small-pox and pestilent carbuncle are bred in it, and quite consume it. And in the ninth treatise of the book of the Use of the Parts, he observes, that the superfluous parts of aliments, which are not turned into blood, and remain in the members, putrefy, and in time increasing do ferment; whence, at last, are generated the pestilent carbuncle, the small-pox, and confluent inflammations. Lastly, in the fourth part of his Commentary upon the Timæus of Plato, he says, that the ancients gave the name *φλεγμονη* to every thing which produces redness, as the carbuncle and small-pox; and that these diseases are bred in those in whom bile abounds. But, as for those who allege, that he has proposed no remedy or cure, nor explained the nature of this distemper, they indeed say what is true: for he mentions no more than what we have cited. But God knows whether he might not have done it in some other books, which have not yet appeared in Arabic."

Avicenna's *Canon Medicinae*, or General System of Medicine and Surgery, was for many ages celebrated through all the schools of physic. It was principally compiled from the writings of Galen and Rhazes. The latter had, in difficult labours, recommended the fillet to assist in the extraction of the fœtus; and, for the same purpose, Avicenna recommends the forceps. He describes the composition of several cosmetics to polish the skin, and make the hair grow, or fall off. See the article AVICENNA, vol. ii.

Albucasis flourished about a hundred years after Avicenna: the date of his birth is not known, but he died in 1106. He is chiefly eminent as a surgeon; and, although much of what he has left on the subject of his art is copied from Rhazes, from Paulus Æginæta, and other preceding writers; he has many original observations; and by those who love to see the first dawns of improvement in science, his works will be still turned over with pleasure. He insisted on the necessity of a surgeon's being skilled in anatomy, to enable him to operate with success; he also held it to be equally necessary that he should be acquainted with the *materia medica*, or

the properties of the medicines employed in curing diseases; and inveighs against those who undertake for gain the cure of diseases, of the nature and causes of which they are unacquainted. It appears from his writings, that he extracted polypi from the nostrils, performed the operation of bronchotomy, and used a preparation similar to the lapis infernalis, as a caustic. He enumerates a tremendous list of operations, sufficient to fill us with horror. The hot iron and cauteries were favourite remedies of the Arabians; and, in inveterate pains, they reposed, like the Egyptians and eastern Asiatics, great confidence in burning the part. He describes accurately the manner of tapping in ascites; mentions several kinds of instruments for drawing blood; and has left a more ample and correct delineation of surgical instruments than any of the ancients. He gives various obstetrical directions for extracting the fœtus in cases of difficult labour. He mentions the bronchocele, or prominent tumour on the neck, which, he tells us, was most frequent among the female sex. We are also informed by this writer, that the delicacy of the Arabian women did not permit male surgeons to perform lithotomy on females; but, when necessary, it was executed by one of their own sex.

Of Avenzoar nearly all that is known has been communicated under his article. The date of his birth is uncertain; he is said to have lived to the great age of 135 years; but, as he had a son of the same name and profession, it is very probable that the age of both is included in this term. He (or his son) died at Morocco in 1166, or at Seville in 1162. Avenzoar prepared his own medicines, reduced luxated bones, and performed other chirological operations. The work by which he is principally known is a compendium of the practice of medicine; in which some diseases are described not found in other writers. It includes a number of cases, candidly, it should seem, related, as the author does not conceal those in which he was unsuccessful. See AVENZOAR, vol. ii.

Thus we see, that, in consequence of the general decay of learning in the western parts of the world, the Greek writers were entirely neglected, because nobody could read the language; and the Arabians, though principally copiers from them, enjoyed all the reputation that was due to the others. The Arabian physic was introduced into Europe very early, with the most extravagant applause: and not only this, but other branches of their learning, came into repute in the west; inasmuch that in the 11th century, the studies of natural philosophy and the liberal arts were called "the studies of the Saracens." This was owing partly to the crusades undertaken against them by the European princes; and partly to the settlement of the Moors in Spain, and the intercourse they and other Arabians had with the Italians. For, long before the time of the crusades, probably in the middle of the 7th century, there were Hebrew, Arabic, and Latin, professors of physic settled in Italy and Spain. The university of Cordova, which had been founded by Alhakem, became the most celebrated in the world, and maintained its repute for a long course of years. As early as the tenth century, Cordova could boast of the largest library in the west; a library of 250,000 books, and of which the catalogue is said to have filled forty-four volumes. In the twelfth century, there were no less than seventy public libraries in Spain: Cordova had produced 150 authors, Almeria 52, and Murcia 62. At Seville, at Toledo, and at Murcia, academies were also established, which continued to flourish during the whole period of the dominion of the Arabians.

In the tenth century, the rich and maritime city of Salerno, in the Neapolitan territory, arrested the attention of the predatory Mussulmen. Frequently engaged either in war or in negotiation, they became mixed with the Christians, and gradually communicated their literary attainments; and, in the year 802, Charlemagne founded in Salerno a school, which in process of time became the most

most celebrated in the world. About the latter end of the 11th century, Constantine the African introduced into the Salernian school the Grecian authors, as well as the learning which he had obtained from a long residence in Babylon and Bagdad. In the twelfth century, however, this school arrived at its highest fame; and was much frequented by the crusaders in their passage to and from the Holy Land. Among these, Robert, the son of William the Conqueror, had the honour of having the well-known "Regimen Sanitatis Salerni" dedicated to him. In the year 1140, the emperor Frederic II. conferred particular privileges on the school of Salerno, and regulated the course of studies, and the probations which physicians and surgeons should undergo before they were permitted to practise. Many of the ordinances show great judgment. The Salernian school continued accordingly to flourish till the middle of the fourteenth century, when it appears to have begun to decline. "Fuisse Salerni," says Petrarch, "medicinæ fontem fama est; sed nihil est, quod non senio exarescat." Gariopontus, Nicolaus, Ægidius, Enos, and John of Milan, the author of the *Regimen Sanitatis*, are the chief writers whom this school boasts. This school was perhaps, the first that established the form of public examination and admission, and possessed the power of conferring medical licenses and degrees. It recognises most obviously the existence of apothecaries, and enforces the propriety of discriminating the three branches of the medical profession from each other. The physician was under the necessity of producing testimonials that he had been a medical student for seven full years; the surgeon that he had attended to anatomy for at least one; and the apothecary was prohibited from charging more than an established ratio for the medicaments he compounded or employed.

While the eastern nations assiduously cultivated the knowledge of the Greek writers, and while their caliphs and rulers encouraged science by a liberal patronage, a very different part was followed by the Christians. The clergy, actuated by avaricious motives, seized upon the province of the physician; and the most ignorant priests and monks ventured upon the practice of medicine, without any proper study or preparation. At length the evil became too crying to be any longer endured; and the first Lateran council, held in 1123, forbade the regular clergy to visit any longer the sick. The prohibition was repeated, in other terms, by the council of Rheims in 1131, and by the second general Lateran council in 1139; and those monks and canons who applied themselves to physic, "*ordinis sui propositum nullatenus attendentes, pro detestanda pecunia sanitatem pollicentes,*" were threatened with severe penalties; and all bishops, abbots, and priors, who connived at their misconduct, were ordered to be suspended from their ecclesiastical functions. "But the French priests and monks," says Cabanis, "bade defiance to these thundering anathemas; and it was not till three hundred years after, that common sense, and a regard to propriety and the public good, triumphed finally over their artifices. A special bull, procured by the cardinal d'Estouteville, in 1452, which permitted physicians to marry, effected their complete separation from the clergy; and, by this means alone, put a stop to a variety of shameful abuses.

To the honour of our country, however, be it mentioned, that these abuses do not appear to have prevailed to such an extent among us. The clergy did not indeed practise physic, but they were armed with great authority over those who did. In the days when *benefit of clergy* had a saving signification in courts of law, the ministers of religion were regarded with great reverence; and their powers over the practice of medicine are not yet quite extinct. The first control exercised over the practice of physic in England appears to have been ecclesiastical, though the end and purpose of the interference of the church on this occasion, as in most others in those times, as not so much the health of the body as the welfare

of the soul, *ecclesiastically understood*. One of the constitutions of Richard Wetherhed, archbishop of Canterbury anno 1229, in the fourteenth year of the reign of Henry III. runs as follows: "Under pain of anathema, we forbid any physician to give advice for the health of the body which may prove perilous to the soul, which is much more precious than the body. But, when it happens that he is called to a sick man, let him first effectually persuade him to call for the physician of the soul; that, when the sick man has taken spiritual cure, he may, with better effect, proceed to the bodily medicines. Let not the transgressors of this constitution escape the punishment appointed by the council." The punishment here denounced against physicians so offending, was a prohibition from entrance into the church till they had made satisfaction, according to chap. xxii. of the council of Lateran, under Pope Innocent III. from whence this constitution is taken.

It was nearly two centuries after this, namely, in the reign of Henry V. anno 9. that the first statute was enacted relative to practitioners in physic. The preamble to this act, after reciting the mischiefs arising from illiterate practisers, states, "that if no man practised therein but all only conyng men, and approved, sufficiently ylearned in art, filosofye, and fysyk, as it is kept in other londes and roiaumes, ther shuld many man that dyeth for default of help lyve, and no man perish of unconnyng." The petition then goes on to pray, that no person be allowed to practice physic, "but he have long time yused the scoles of fysyk within some universtee, and be graduated in the same."

The next act restraining the practice of physic in London and its immediate vicinity, to persons of approved competency, was passed in the third year of the reign of Henry VIII. seven years prior to the establishment, by charter, of the present College of Physicians. Its title was, "An Act for the appointing of Physicians and Surgeons." It was enacted that no person within the city of London, nor within seven miles of the same, take upon him to exercise and occupy as a physician or surgeon, except he be first examined, approved, and admitted, by the bishop of London, or by the dean of Paul's, for the time being, calling to him or them four doctors of physic, and, for surgery, other expert persons in that faculty. When the Charter of the College of Physicians was granted by the king, it was on the petition of a priest, the cardinal Wolsey, chancellor of England, in conjunction with John Chambre, Thomas Linacre, Ferdinand de Victoria, foreign graduates, the king's physicians, and Nicholas Hallwell, John Francis, and Robert Yaxley, physicians. And the archbishop of Canterbury can, and does to this day, by his diploma, constitute a physician.

To return from this digression.—After Salerno, the universities of Montpellier, Paris, Boulogne, Pavia, Padua, and Ferrara, became the most distinguished seminaries for medical education; but the servile attachment to ancient dogmas which obtained in their schools materially retarded their progress. In 1271, the College of Surgeons at Paris was established by Pitard, a man who, according to Quesnay, was born for the advancement of his art; and surgery was henceforth cultivated with much success in France, as a distinct branch of the profession. Several writers on physic appeared in England; among whom Gilbert has the merit of having furnished the best description of the leprosy of the middle ages; but he trod in the footsteps of the Arabians, and gave into the scholastic style. The same remark applies to his successors, John of St. Giles, Richard of Windermere, Nicolas of Farnham, John of Gaddefden, &c. It was in Italy that medical science was revived in the truest spirit. In the year 1315, Mondini de Luzzi, professor at Bologna, astonished the whole world, to use Vicq d'Azyr's expression, by the public dissection of two human bodies. His example was followed in other universities; but the utility of the practice was in a great degree frustrated by the

the predilection for ancient opinions, which made the anatomists of the age less anxious to discover new facts, than to reconcile the appearances which they observed with the dogmas of Galen and Avicenna. An absurd bull of pope Boniface VIII. forbidding the maceration and preparation of skeletons, also concurred to impede the progress of anatomy; (Blumenbach, Hist. Med. Litterar. p. 99.) but from this time forward, the Italian professors maintained a high repute for anatomical science, and have ranked among the most zealous contributors to our knowledge of the human frame.

Though the crusades had conferred no direct benefits on science, they had given a new impulse to the human mind, by the spirit of commerce which they excited. They were also the occasion of the rapid spreading of leprosy and some other diseases in the West, and of the consequent increase of institutions for the relief of the sick, after the example of the Oriental nations. Several orders of knighthood, as the Templars, the knights of St. John, of St. Lazarus, the Hospitalarii Sancti Spiritus, &c. were founded with this charitable view; the members devoting themselves to the cure of such pilgrims as were afflicted with disease.

In the fifteenth century several new diseases appear to have invaded mankind, or, at least, to have attacked them with a degree of violence that was before unknown. The whooping-cough was epidemic in France in the year 1414: and, according to Mezeray, it attacked all descriptions of persons, even the oldest men. The sweating sickness, which broke out first in the same country, was brought to England by the soldiers of the duke of Richmond (afterwards king Henry VII.) upon his landing at Milford-haven in 1485; and spread itself at London from the 21st of September to the end of October. It returned there five times, and always in summer; first in 1495, then in 1506, afterwards in 1517, when it was so violent that it killed many in the space of three hours, so that numbers of the nobility died, and of the commonalty in several towns often the one-half perished. It appeared the fourth time in 1528, and then proved mortal in six hours; many of the courtiers died of it, and Henry VIII. himself was in danger. In 1529, and only then, it infested the Netherlands and Germany, in which last country it did much mischief. The last return of it was in 1551; and in Westminster it carried off 120 in a day.

At this time also a new disease overran the world, and threatened greater destruction than almost all the old ones put together, both by the violence of its symptoms, and its baffling the most powerful remedies at that time known. This was the venereal disease, which is supposed to have been imported from the West Indies by the companions of Christopher Columbus. Its first remarkable appearance was at the siege of Naples in 1494, from whence it was soon after propagated through Europe, Asia, and Africa. The symptoms with which it made the attack at that time were exceedingly violent, much more so than they are at present; and consequently were utterly unconquerable by the Galenists. At this period, as sea-voyages of considerable duration were more frequent, the scurvy became a more common distemper, and was of course more accurately described. But probably, from supposed analogy to the contagions which at that time were new in Europe, very erroneous ideas were entertained with regard to its being of an infectious nature: and it is not impossible, that, from its being attended also with ulcers, it was on some occasions confounded with syphilitic complaints.

Dreadful as the infliction of these maladies must have been on the suffering world, we have reason to believe that they were not without their use in leading to the improvement of medicine. The physicians of the time, finding the rules of their favourite authors quite inapplicable to the cure of distempers so malignant, naturally began to observe and judge for themselves. Manardi and Leonicoeno (see their respective articles) laboured to

expose the errors of the Arabs, and bring back their followers to the study of Nature and Hippocrates. In this laudable undertaking they were seconded by the German, French, and English, professors; and particularly by the labours of Dodoneus, Schenknius, Forestus, and Platerus.

In the early part of the sixteenth century, Brissot of Poitou revived a subject which had before engaged physicians in violent disputes. According to the Hippocratic mode of treating inflammation, which was to take the blood from the inflamed part as closely as possible, the Greek physicians were wont, in pleurisy, to bleed in the arm of the same side as was affected with pain. Avicenna had objected to this, and recommended venesection in the opposite arm. This produced a great deal of altercation; and in the end a decree of the university of Palermo issued forth which forbade any one to bleed except in the contrary arm; and the professors endeavoured to persuade the emperor Charles V. to second it by an edict. Brissot met with almost as much opposition in reviving the old method as the Salernitans had done in introducing the new one: but at length the dispute was settled in favour of Brissot by the great anatomical discoverers of that century.

The science of anatomy gradually became improved in the hands of Zerbi, Winter, Laguna, and Sylvius; which last taught anatomy at Paris in 1532. But it was reserved for the great and comprehensive mind of Vesalius to throw off the shackles which had so long fettered the progress of anatomy. So far from adopting as infallible dogmas the anatomical relations of Galen, he attached himself particularly to disclosing the errors of that author. He first advised anatomists to inject coloured fluids into the vessels of the body, in order to facilitate the labour of minutely tracing them. Whilst he was a young man at college, he pursued anatomical inquiries with great ardour and assiduity, and published some of his discoveries before he was twenty-five years of age, and seven books on the anatomy of the human body before he was twenty-nine, A. D. 1542. These books contain great discoveries, and, in many circumstances, correct the ancients. But, although they have entitled their author to the gratitude of posterity, they procured to him scarcely any thing but animosity from his contemporaries. The authority of Galen was still held in high veneration; and, when Vesalius exposed his errors, the hatred of all seemed turned against him. People could not bear to be set right by so young a man; and even Sylvius denounced perpetual enmity against him. But, confident in the certainty with which dissection furnished him, he acquired a complete ascendancy over his adversaries: so much so, indeed, that his lectures were sometimes attended by 500 pupils. He pressed Sylvius, his master, so hard, in these controversies, that the latter, rather than admit his favourite Galen was wrong, asserted that "*the structure of the human body had become altered in some particulars since the time of Galen, and that man's nature had degenerated!*" Thus, for instance, the number of the pectoral bones occasioned a dispute, which was carried on with great acrimony between them. Galen had adopted seven in the human skeleton; but Vesalius proved that there were only three, and that his opponent had again been misled by the skeleton of a monkey. But Sylvius objected to this, "that men had been larger and taller in the time of Galen, and had seven pectoral bones, but that, in this dwarfish century, three only could be found." Vesalius asserted, that the bones of the hand are not totally destitute of medullary substance, as Galen had maintained; and Sylvius again endeavoured to refute his assertion, by the absurd argument, "that the bones in former times had been firmer and harder, and consequently required no such substance." Vesalius rejected the large curvature which Galen ascribed to the os humeri, and the os ilium; while Sylvius defended Galen, by asserting, that the bones had become more

straight by the modern mode of dress. He vindicated, in a similar manner, Galen's neglect in describing the cartilages of the extremities of the bones: "In former times," said he, "the bones were more solid, and consequently required no cartilages!"

These prejudices had not passed away from among the French physicians even in the following century; for we find Moliere, in his *Medecin malgré lui* (Mock Doctor), alluding to the absurdity we have just mentioned, of some parts of the viscera having changed their places.

"*Doctor.* Now these vapours of which I am speaking having passed from the left side, which is the seat of the liver, to the right, where the heart is situated, then the lungs, which we call in Latin *armyan*, communicating with the brain, which in Greek we call *nafmus*, by means of the vena cava, which is *cubile* in Hebrew, meets in its way with these vapours, which fill the ventricles of the omoplate; and, since these vapours possess a certain malignity caused by the acridity of the humours engendered in the concavity of the diaphragm, it therefore happens that these vapours—in short, this is precisely the reason why your daughter is dumb.

"*Father.* Nothing in the world can be clearer than this reasoning. Only one difficulty occurs to me; namely the seat of the liver and of the heart. I always thought the heart to have been on the left side, and the liver on the right.

"*Doctor.* Yes; it was so formerly; but we have altered all that, and medicine is now administered in a manner totally new." Mock Doctor, act ii.

Vesalius had great advantages over his predecessors in being able to perpetuate his labours by means of the beautiful representations which Titian and others painted for him. In 1561, Fallopius, in Italy, published his *Observationes Anatomicæ*; he was an indefatigable anatomist, and made great discoveries. About the same time, Eustachius made himself conspicuously eminent by promoting anatomical knowledge. He seemed calculated for subtle investigations; he drew many figures of the human body, and engraved his own plates, the accuracy of which cannot fail of exciting surprise in an anatomist of the present day. When the labours of these eminent men had, as it were, smoothed the path, anatomy was taught with a moderate degree of correctness and minuteness in the different schools of Europe.

But the most important discovery of this science was that of the circulation of the blood. Berengar, who had paid great attention to the structure of the heart, conjectured the right use of the semilunar valves. In 1547, Cannani and Amatus observed the valve at the termination of the vena azygos; but they did not turn the discovery to account; and it was reserved for Fabricius of Aquapendente to prove the presence of valves throughout the whole course of the veins. Five years afterwards, the circulation of the blood through the lungs was imperfectly described by Servetus, who had availed himself of the researches of Berengar and Vesalius. In the year 1571, Cæsalpinus had the merit of stating it more clearly, and even of suggesting the first hint of the greater circulation; but the full honour of the latter discovery must be ascribed to our countryman, Harvey.

This improvement in anatomical knowledge was necessarily accompanied by a corresponding one in surgery. The Italian surgeon, Maggi, corrected the absurd notions that his predecessors had inculcated, viz. that gunshot wounds were connected with combustion, and that gunpowder poisoned the wound. He showed that, since the balls did not set the wadding on fire when they came first from the barrel of the gun, they could not be hot; nor could gunpowder poison a wound, since it was composed of none but harmless materials. Maggi likewise left some useful directions concerning amputation. Ambrose Paré introduced into France the treatment of gunshot wounds established by Maggi. The same practice was likewise adopted by John Baptist. Carcano Leone,

professor at Pavia. Paré was, however, unquestionably the most celebrated surgeon of the 16th century. Besides the improved treatment of gun-shot wounds, which he had the merit of introducing, together with many other peculiar methods in operative surgery, he has rendered essential service to different branches of that science. He treated, for instance, the hydrocele with a seton; as the dangerous consequences of incision were in that age more frequently observed than they are at present. He did not apply the actual cautery to wounded blood-vessels, according to the old practice, but secured them by the ligature. The fracture of the collum ossis femoris, formerly considered as a luxation of that bone, was first ascertained by him with accuracy; he also reprobated the frequent dressing of ulcers, and the application of the trepan to the sutures of the cranium and the temporal bones. He made very judicious remarks on concussions of the brain, of which Henry II. died, and on suppurations of the liver arising from injuries of the head. Wounds of the throat, in which one of the jugular veins, and even the trachea, was cut through, he did not consider as mortal. He successfully treated an injury of the nervus medianus from venesection, and thereby acquired the confidence of Charles IX. who had been subject to that dangerous accident. A person who, from losing a great part of his tongue, had been speechless for a considerable time, accidentally recovered the power of speech, by thrusting a table-spoon into his mouth. Paré ingeniously imitated this method, by contriving an appropriate instrument.

Amatus, or, according to some, his master Aldaretti, had invented the use of bougies; and those instruments now came into very general use, both simple and causticated.

The doctrine of lithotomy was considerably improved in this century, by the invention of two different methods of operating, namely, the *great* and the *high operation*. Germain Colot had undertaken a successful operation for the stone, in the fifteenth century, and probably by the high operation: but it does not appear that learned surgeons had imitated this method, till an obscure practitioner at Cremona, John de Romani, in 1525, began to adopt what is commonly called the high operation: he taught it to Mariano Santo de Berletta, a surgeon at Naples, who described the particulars of it in a separate treatise, published at Venice in 1543, wherein he professes to have been a pupil of Romani. It is probable that previous to this time no other method of operating was practised than that known under the name of the *smaller apparatus*, which can be employed only on children under fourteen years of age. In some rare instances which are related by Benivieni and Christ. de Vega, particularly in women, the stone had been found in the urethra itself, in which cases it could be more easily extracted. But, since that period, the passage was cleared by the application of the gorget, by means of which the forceps could be introduced into the bladder. Mariano Santo made use of the following apparatus: he first employed a curved sound, which he introduced into the urethra so as to direct the point to the left side; he expressly cautioned the operator against the incision into the perinæum, and is therefore unjustly censured for having attempted the incision in the middle. His sound was excavated, and he performed the incision in the direction of the groove; then introduced the sound, and along with it the conductors, and afterwards the gorget, which, according to its original construction, terminated in a blunt point; and lastly, he extracted the stone with the forceps, and removed the remaining particles of it, as well as the gravel or sand, by means of the lithotomical spoon. By the application of the blunt dilator, the parts were necessarily lacerated, and the wound occasioned by this laceration could not be healed without great difficulty. Hence Le Dran endeavoured to improve upon this method, especially by making an incision through the prostate

rate gland and the bladder with his guarded knife (*couteau en rondache*); and the immortal Schmucker of Berlin was uncommonly successful in using the great apparatus for lithotomy in that improved state.

The discovery of the *high operation* was the work of necessity and accident. Peter Franco, of Turrieres in Provence, surgeon at Berne, Laufanne, and Orange, was requested in the year 1560 to perform this operation for lithotomy, at Laufanne, on a child two years of age. He had already begun to operate with the small apparatus, when he found that the stone was of the size of a hen's egg, and consequently too large to be removed in that manner. The child's parents insisted that the operation should nevertheless be finished; and, as the bladder very much projected above the ossa pubis, he determined upon making the incision above these bones. Although he eventually succeeded in this bold attempt, yet he prudently dissuades his brethren from imitating that practice; and indeed the danger to be apprehended from the effusion of the urine into the abdomen is so great, that even the improvements made by Douglas, on the high apparatus of Franco, have not much diminished it. In order to remove the stone from female patients, Franco rejects both the large and smaller apparatus, while he proposes merely the dilatation of the urethra, by means of an instrument invented by himself; after which he extracts the stone with the forceps, without dissecting the parts. He likewise invented a gorgoret, and a forceps, the arms of which expand in the bladder; but the use of these instruments has been superseded by others that are more convenient.

A very painful but curious operation excited great attention during this century, although it had been previously performed. The reader will perhaps smile at an attempt to repair and restore that prominent part of the human face, the nose, when mutilated by accident. Barri, an Italian author, in his "*Italia illustrata*," 1600, considers Vincent Viano as the inventor of this singular practice. However that may be, two Sicilian surgeons of the name of Branca, father and son, had, so early as the latter end of the fifteenth century, acquired celebrity by the successful renovation of noses; an art which became hereditary in the family of the Bojani. But Caspar Tagliacozzi, professor at Bologna, raised this art to such high perfection, as to render it one of the principal branches of surgery: he became so celebrated by his operations, that his contemporaries erected a public monument at Bologna, where he is represented with a nose in his hand. This operation is described in an interesting work, intitled, "*Tagliacot. de Curtor Chirurg.*" fol. Venet. 1597; in which he compares it to the ingrafting of trees, expatiates on the dignity and ornament of the nose, and endeavours to prove that there is not the least danger in cutting out a piece from the biceps muscle of the arm. With respect to the diet to be observed during the operation, he gives ample and rigid instructions, while he maintains that the inoculated nose is possessed of a more acute smell, and that it generally grows much larger and stronger than the organ which had been accidentally lost. We may suppose that this operation became less successful in the hands of other surgeons, and so fell into disuse and contempt, as we find it ridiculed by Butler in the 17th century:

So learned Taliacotius from
The brawny part of porter's bum
Cut supplemental noses, which
Would last as long as parent-breech;
And, when the date of that was out,
Off dropt the sympathetic snout. *Hudibras*, Canto i.

It has, however, been revived in the present day; and has been practised with great success by Mr. Carpue, Mr. Linn, and others.

We might here mention the names of other practitioners who improved and illustrated the useful art of surgery: as

John de Vigo, Jacob Berenger de Carpi, and Mariano Santo de Berletta; the latter of whom abolished the actual cautery in hæmorrhages, and urged the superiority of a proper ligature. The anatomist Fallopius, likewise cultivated surgery with success, as did most of the anatomists of his age; and among them we might enumerate many who have contributed important improvements, would our limits permit.

The obstetric art, that important branch of surgery, began to emerge from its barbarity during the sixteenth century, and to excite the attention of surgeons more than it had hitherto done. There appeared several introductions to midwifery, the greater number of which, however, contained much useless and abstruse reasoning on the generation of man, and the vitality of the embryo in certain months, while they were extremely deficient in well founded and practical rules for facilitating delivery. See the article PARTURITION in the preceding volume.

The military surgeons of ancient times are very little mentioned in history. Perhaps they were not in very great estimation; as seems probable from the persons with whom they are classed in the military code made at Mans by Henry V. where, under the head of the persons subject to the constable and marshal, the *medici* are introduced in the following company: "Whether soldiers, shoemakers, taylors, barbers, physicians, or *washer-women*." See Upton de Re Militari.

The low state of military surgery in France, even so late as the time of Francis I. (contemporary with our Henry VIII.) may be gathered from the following extract from an old and scarce book called *Treasure of Ancient and Modern Times*: "In the year of our Lord 1536, the victorious king Fraunces sent a great army into Piedmont to vitaille Thurin, &c. I was at that time but a young chirurgion, and but little experienced in the art, because I never had as yet seen the curation of wounds made by gun-shot. True it is, I had read John de Vigo, his firste booke of wounds in generall, chap. 8. where he saith, that those wounds made by fiery engines do participate of venosity, because of the powder; and for their curation he commands to cauterize them with the oile of elders, mixed with a little treacle. Yet nevertheless, because I would not be deceived, before I made use of the said boyling oile, knowing that it brought extreme paine to the patient, I observed the method of other chirurgions in the first dressing of such wounds, which was by the application and infusion of the aforesaid oile, as hot as possibly they could suffer it, with tents and setons; wherefore I became emboldened to do as they did. But in the end my oile failed me, so that I was constrained to use, instead thereof, a digestive made of the yolk of an egge, oil of roses, and terebinth. The night following I could hardly sleep at mine ease, fearing lest that, for want of cauterizing, I should find my patients, on whom I had not used the aforesaid oile, dead and empoysoned; which made me rise early in the morning to visit them, where, beyond my expectation, I found them on whom I had used the digestive medicine, to feele but little paine, and their wounds without inflammation or tumour, having rested well all that night; the rest, on whom the aforesaid oile was applied, I found them inclining to feavers, with greate paine, tumour, and inflammation, about their wounds; then I resolved with myselfe, never to burne so cruelly the wounded patients by gun-shot any more. A famous chirurgion at Turin, proposed a balm for gun-shot wounds as follows: Two young whelps, one pound of earth-worms, two pounds of the oile of lilies, six ounces of the terebinth of Venice, and one ounce of aqua vitæ. In my presence he boiled the whelps alive in the said oile, untill the flesh deserted from the bones; afterwards he took the worms, having before killed and purified them in white wine, to purge themselves of the earth which they have always in their bodies; being so prepared, he boiled them also in the said

said oil, till they became dry; this he strained thorow a napkin without any great expression; that doone, hee added thereto the terebinth; and lastly the aqua vitæ; and called God to witnesse that this was his balme, which he used in all wounds made by gun-shoot, and in others which required suppuration; withall praying me not to divulge his secret."

How terrible must have been the state of the military hospitals, and what numbers of men must have fallen a sacrifice to ignorance, who under proper management might have been recovered to the service of their country! But, bad as the surgeons were, some were nevertheless necessary in our armies; and, although the general mode of raising and paying them is not handed down, certainly some regular form of doing it must have existed.

In the wardrobe-account of the pay of the army raised against the Scots, by Henry II. in the 15th year of his reign, many of the Welsh corps have an officer styled *Medicus*; but whether by that term a physician or surgeon is meant, seems doubtful, as the word *medicus* is sometimes used for both a surgeon and an apothecary. None of these physicians or surgeons are charged to the English levies. And to the Welch they seem to bear no regular proportion to the number of private men; a corps of 1907 men having only one, and another of 968 having two; the wages of all, except the two last-named, was 6d. per diem each; those which were raised on the king's land in Cardiganshire had only 4d. each per diem.

In the list of the troops that attended Edward III. to the siege of Calais, only one surgeon is mentioned, who seems to have been part of the retinue of the prince of Wales; and, in the military establishment of the 18th of the said reign, as given in the accounts of Walter Wentwayt, treasurer of the household, there is one surgeon for the king's household-troops; four doctors and one surgeon for the army of North Wales; two doctors and one surgeon for that of South Wales; a supply by no means competent to the number of men to which they were appointed. Supposing the inferior surgeons to have been styled barbers, like the field-shaver of the Germans, it seems reasonable to expect they would somewhere appear on the muster-roll.

Henry V. A. D. 1415, engaged Master Nicholas Colnet, a physician, to serve him for one whole year, in the voyage then to be made either to the duchy of Guyenne or France. Colnet was to bring with him three archers. If the expedition went to Guyenne, he was to have for his own wages forty marks, and twenty marks for each of his archers, for the whole year. If to France, for his own wages 1s. and to each of his archers 6d. a day, with regards. In the same year the king engaged Thomas de Morestede, a surgeon, who contracted to bring with him twelve other surgeons and three archers. Morestede was to be paid as a man at arms, 12d. by the day; and his twelve assistants and three archers, each 6d. with the usual regard. The same conditions were covenanted, in case the campaign lay in Guyenne, that were made with Colnet. Upon a petition, the king granted Morestede one waggon and two sumpter-horses, for the carriage of the baggage and necessaries for himself and the twelve other surgeons. He likewise petitioned for money to buy necessaries for his office, but it was not granted. The next year the king employed Morestede, joining with him William Bredewardyn, with the title of his surgeons, in a commission to impress as many surgeons as they thought necessary for the expedition, with a sufficient number of artificers for making their instruments, to be taken wherever they could be found.

Among the different persons who indented in the 14th of Edward IV. to serve that king in Normandy and France, for one year, are the following physicians and surgeons: Master Jacobus Fryle, king's physician, 2s. per diem, with two servants at 6d. per diem; Master William Hobbis, physician and surgeon of the king's body, 18d.

per diem; seven surgeons at 12d. and five other surgeons every one at 6d. per diem, for their attendance in the said service beyond sea. It is remarkable, that here are just twelve surgeons, the same number that appears to have been employed on the expedition under Henry V.

In the expedition to St. Quintin's in the reign of Philip and Mary, 1557, an army consisting of five hundred heavy armed horse, five hundred light horse, four thousand foot, and two hundred pioneers, with officers and a train of artillery proportionable, there were fifty-seven surgeons, two of them belonging to the suite of the general, one to the lieutenant-general, one to the high marischal, one to the general of the horseman, one to the general of the infantry, and one to the master of the ordnance; all these at the daily pay of 1s. each. The remainder belonged to the corps of horse, light horse, and infantry, in the proportion of one surgeon to an hundred men; the daily pay of a surgeon of heavy horse was 2s. of light horse 1s. 6d. and of infantry 1s. No surgeon is charged for either the ordnance or pioneers.

Besides the king's pay, it seems as if the surgeons of former times, as well as those of late, received a weekly stoppage from the private men. This may be gathered from the following description of the duties of a military surgeon, written in the reign of Queen Elizabeth. "Surgeons shoulde be men of sobrietie, of good conscience, and skillfull in that science, able to heal all soares and woundes, specially to take oute a pellett oute of the same. All captaines must have suche surgeons, and ought to see them to have all their oyles, balmes, salves, and instruments, and necessary stuffe to them belonginge, allowinge and sparinge carriage for the same. That every souldier, at the paye daye, doe give unto the surgeon 2d. as in tymes past hath bene accustomed, to the augmentation of his wages; in consideration whereof, the surgeon oughte readilie to employ his industrie upon the soare and wounded souldiers, not intermedlinge with any other cures to them noysome. Regarde that the surgeon bee truelye paid his wages, and all money due to hym for cures, that bye the same hee maye bee able to provide all suche stuffe as to him is needfull. Such surgeons muste weare their baldricke, whereby they may be knownen in the tyme of slaughter: it is their charter in the field." From this passage it should seem that surgeons formerly wore a distinguishing belt over their shoulders, like that now used by the itinerant farriers, vulgarly styled *low-gelders*, in order to protect their persons whilst administering to the wounded in the field of battle; a precaution now rendered unnecessary by the apparatus of bandages, &c. carried by surgeons attending a party where service is expected, or in a field of battle.

In an estimate made, anno 1620, for an army of twenty-five thousand foot, five thousand horse, and twenty pieces of artillery, proposed by king James to be sent to the Palatinate, a number of surgeons is appointed, but no allowance or provision whatever appears in the estimate for medicines or an hospital, although there is a very minute detail of almost every other necessary store; and this seems the more extraordinary, as many of the most experienced officers of that time were called in to assist in forming the estimate. The medicinal list appointed for this expedition were: "In the general's trayne, two physicians, at 6s. 8d. per diem each; two apothecaries, at 3s. 4d. and two surgeons, each at 6s. 8d. Every regiment of foot consisted of twelve companies of 150 men each, and had one chief surgeon, at 4s. per diem, and another surgeon to each company at 1s. per diem. Among the general officers of horse is one chief surgeon at 4s. a day, probably to superintend the surgeons of troops. To every troop, which was to consist of a hundred men, one surgeon was allotted; his daily pay, 2s. 6d. To the ordnance, pioneers, &c. there was allowed one barber-surgeon, at 2s. per diem; and two under barber-surgeons, at 6d. a-day each."

One reason may be assigned for our ancient armies being

being able to do with so small a number of surgeons; which is, that, immediately after a battle, such of the meaner sort of soldiers, whose wounds seemed to require a considerable time for cure, were by the general dismissed, with a small pecuniary provision to carry them home: this, according to Barnes's History of Edward III. was done immediately after the battle of Poitiers. Perhaps likewise the inferior surgeons, styled *barbers*, were taken from the ranks, and therefore paid and mustered as private men.

The practice of medicine did not keep pace in improvement with anatomy and surgery. In the early part of the 16th century the most conspicuous name we meet with is that of *Paracelsus*. This bold and conceited chemist, who had been greatly neglected in his education, endeavoured to combine the principles of alchemy, medicine, and astrology. He travelled much in search of remedies, which he did not disdain to accept from old women, gipsies, and conjurers. He acquired very great reputation; and on his return to Germany he was appointed professor of surgery to the university of Basle. The pathological doctrines of Paracelsus are very imperfectly understood. It appears, however, that he admitted three component parts of the animal body, salt, mercury, and sulphur. We must not suppose that he carried his notions so far as to conceive that these chemical substances were really existent in our frame. On the contrary, he appears to have merely used the above-mentioned terms to illustrate his meaning by analogy. Thus, *mercury* is supposed to mean the principle of fluidity, *sulphur* that of inflammability, and *salt* solidity. The vital principle of Paracelsus he denominated *Archæus*; it was seated in the stomach, and was the principal agent in digestion; it separated the noxious, and prepared for assimilation the nutritious, parts of our aliment, with a great deal of intelligence, and was the principal agent in the recovery and preservation of health. Paracelsus likewise mentioned a humour as producing disease, though he had abused with so much virulence the humoral pathology of Galen. This humour he called *Tartarus*; it produced rigidity of the solids, viscosity of the fluids, &c. but it should be remarked, that this author did not, like Galen, impute disease to the presence of humour, but humour to disease; for the proximate cause of this *Tartarus* he contended was the irregular action of the *Archæus*, or presiding spirit. He moreover mentioned five remote causes of disease, viz. *ens vitale, ens veneni, ens naturale, ens spirituale, and ens deale*. Divested of chemical jargon and obscurity, the theory of Paracelsus seems to be this. He remarked, with many others before him, the three principles of the animal frame; solidity, fluidity, and contractility or irritability; and he endeavoured to trace their origin in substances which possessed properties bearing to them a remote analogy. In the second place, in tracing the phenomena of disease, he referred to the defective or inordinate energy of the vital power the assimilation of noxious particles of food into the blood: hence a humour which, circulating in all parts, produced the varied phenomena of disease. Paracelsus in his practice used the chemical remedies with some success: he has the merit of first introducing mercury as a cure for the venereal disease, which had before his time been treated with inert quintessences, diet-drinks, guaiacum, &c. He was likewise the first who prescribed opium freely; and he was no friend to that absurd practice, which had come into vogue with the Arabian physicians, of compounding 50 or 60 simples together, under the mistaken notion that all the substances would retain and exert their separate virtues, or that among so great a number something would be found applicable to the case.

Modern pharmacy may be said to commence about the middle of the fifteenth century, at which time it appears to have been in a most deplorable state of empirical barbarity. Though it is probable that, among the earlier practitioners of medicine, remedies were employed in

their most simple forms, the art of compounding a number of simples together into one medicine had, by the time of which we are now speaking, arrived at a pitch of extravagance which has never been exceeded. What carried this ostentation of composition to the highest excess, was the project of framing *antidotes*, which being previously administered, might defend against any poison whatever that should afterwards be taken into the body. To this scheme is owing the multitudinous composition of the celebrated Mithridate and the Theriaca; for such medicines must of course recommend themselves by the number and variety of their ingredients, as they were to contain a proper antidote for every possible species of poison, and more especially as these compositions were to be farther wrought up into little less than universal remedies for all diseases to which the human body is subject.

The first of these antidotes was said to be composed from the result of experiments made separately with all kinds of simple antidotes by the famous king whose name it bears; but, as no records are left us of any of those particular experiments, we may reasonably consider this tale as fabulous. As it is not likely that this medicine or the Theriaca will ever again appear in our Pharmacopœias, we shall, for the amusement of our readers, describe the composition of each, as given in the London Pharmacopœia published in 1746.

The Mithridate is thus composed. "Take of cinnamon 14 drams, of myrrh 11 drams; agaric, spikenard, ginger, saffron, seeds of treacle mustard, or of mithridate mustard, frankincense, Chio turpentine, of each 10 drams; camel's hay, costus, or in its stead zedoary, Indian leaf, or in its stead mace, French lavender, long pepper, seeds of hartwort, juice of the rape of cistus, strained storax, opoponax, strained galbanum, balsam of Gilead, or in its stead expressed oil of nutmegs, Russian castor, of each an ounce; poley-mountain, water-germander, the fruit of the balsam-tree, or in its stead cubebs, white pepper, seeds of the carrot of Crete, bdellium strained, of each seven drams; Celtic nard, gentian-root, leaves of dittany of Crete, red roses, seeds of Macedonian parley, the lesser cardamom-seeds freed from their husks, sweet fennel-seeds, gum Arabic, opium strained, of each five drams; root of the sweet flag, root of wild valerian, anise-feed, sagapenum strained, of each three drams; spignel, St. John's wort, juice of acacia, or in its stead Japan earth, the bellies of scinks, of each two drams and a half; clarified honey, thrice the weight of all the rest. Dissolve the opium first in a little wine, and then mix it with the honey made hot; in the mean time melt together in another vessel the galbanum, storax, turpentine, and the balsam of Gilead, or the expressed oil of nutmeg, continually stirring them round, that they may not burn; and, as soon as these are melted, add to them the hot honey, first by spoonfuls, and afterwards more freely: lastly, when this mixture is nearly cold, add by degrees the rest of the species reduced to powder."

The preparation of the *Theriaca Andromachi*, or Venice treacle, is thus directed. "Take of the troches of squills, half a pound; long pepper, opium strained, dried vipers, of each three ounces; cinnamon, balm of Gilead, or in its stead expressed oil of nutmeg, of each two ounces; agaric, the root of Florentine orris, water-germander, red roses, seeds of nave, extract of liquorice, of each an ounce and a half; spikenard, saffron, ammonium, myrrh, costus, or in its stead zedoary, camel's hay, of each an ounce; the root of cinque-foil, rhubarb, ginger, Indian leaf, or in its stead mace, leaves of dittany of Crete, of horehound, and of calamint, French lavender, black pepper, seeds of Macedonian parley, olibanum, Chio turpentine, root of wild valerian, of each six drams; gentian-root, Celtic nard, spignel, leaves of poley-mountain, of St. John's wort, of ground-pine, tops of creeping-germander with the seed, the fruit of the balsam-tree, or in its stead cubebs, anisefeed, sweet fennel-feed, the lesser cardamom-seeds freed from their husks,

husks, seed of bishop's-weed, of hartwort, of treacle-mustard or mithridate-mustard, juice of the rape of cistus, acacia, or in its stead Japan earth, gum Arabic, storax strained, saganemum strained, Lemnian earth, or in its stead bole-armenic or French bole, green vitriol calcined, of each half an ounce; root of creeping birthwort, or in its stead of the long birthwort, tops of the lesser centaury, seeds of the carrot of Crete, opoponax, galbanum strained, Russia-castor, Jews pitch, or in its stead white amber prepared, root of the sweet flag, of each two drams; of clarified honey thrice the weight of all the rest. The ingredients are to be mixed in the same manner as in the Mithridate." The Theriaca may be considered as a modification of the Mithridate by Andromachus, though we are not informed what were his reasons for the variations, except that by the addition of the viper's flesh the medicine was rendered more useful against the bite of that animal. The Theriaca was in so great repute before the decline of the Roman empire, that even the wife Marcus Aurelius was induced to make a daily use of it, to the great prejudice of his health; for we are told by Galen, that his head was so much affected, that he dozed in the midst of business; and, when on this account he omitted the opium in the composition, he could not sleep at all.

When the alchemists had extended the bounds of their art from the mere drudgery of manufacturing gold and silver to the more noble and philosophic employment of composing an universal elixir that should secure its possessor from disease, and prolong his life to an indefinite period, pharmacy derived from their labours considerable and solid advantages. The experiments instituted by these visionaries with the metals, led to the accidental discovery of some of the most efficacious remedies which we at present employ, especially the preparations of antimony and mercury, and most of what are called the neutral or secondary salts. By calling in the aid of fire, they enabled us to produce in bodies changes which, without the assistance of this powerful agent, we should have been unable to effect. Now, every thing was submitted to digestion, calcination, fermentation, distillation, and sublimation; but, as generally happens in cases of innovation or reform, these new methods of obtaining active remedies were carried to an absurd and ridiculous extent. Finding that the healing powers of many substances were eliminated or increased by the application of heat, they seemed to imagine that the simple medicine could in no case possess any medical virtue till it had been placed upon the fire or kept for some hours in a furnace. Hence the immense number of distilled waters and spirits, essential and empyreumatic oils, with which the old pharmacopœias are crowded, and which seem in many cases to possess no other powers than what they derive from the water or the spirit that forms the bulk of the preparation. Not only plants and minerals, but animals and animal matters of all kinds, were distilled, digested, or calcined. Thus, we find a *water of snails*, a *spirit of millepedes*, an *oil of earth-worms*, &c. &c. The absurd and pompous names by which the preparations were distinguished, are truly ridiculous. *Magisterial balsam*, *Hiera pica*, *Ethiops mineral*, *Ens Veneris*, *Flores Martis*, *Calomelas*, *Aquila alba*, are a few which long retained their seat both in public and private dispensaries. As these preparations were, from their contrivers, denominated *chemical*, the more ancient medicines which were drawn almost entirely from the animal and vegetable kingdoms, were denominated *Galenic*, because chiefly employed by the followers of Galen. Hence the division of medicines into *Galenic* and *Chemical*, a division which obtained for some hundred years, and which only a few years ago was preserved in the sale-catalogues of the London druggists.

The chief follower of Paracelsus was Van Helmont. He made many important chemical discoveries; strongly opposed the Galenic doctrine; and, though often misled in

his speculations by a strong bias to theosophism, he observed Nature very attentively; he pointed out more fully than Paracelsus had done, the influence of the epigastric organs on all the other parts of the system; and he gave some account of the origin of urinary calculi. The nature of inflammation was likewise explained by him, and the pernicious consequences of excessive bleeding well pointed out. Van Helmont had not, however, many adherents at the time he lived. His theory was afterwards taken up by Descartes, who attempted to explain all the phenomena of life according to chemical and mechanical principles. Thus, the circulation of the blood and animal heat were produced, according to him, by the ebullition or fermentation that took place in the heart; digestion was likewise performed by a species of fermentation; and the sensation of hunger proceeded from the acid which was evolved during the process. To explain the nature of secretion, Descartes had recourse to the corpuscular philosophy; comparing the secreting organs to sieves, which allowed only the more minute and homogeneous particles to pass through, while the coarser and heterogeneous bodies were rejected: the round particles were supposed by him to enter into cylindrical tubes; pyramidal particles penetrated by triangular pores, and cubical particles by square pores; and in this way each secretion remained distinct, at least in the healthy state. These ideas were eagerly embraced by the Dutch physicians of the time, and may be considered as forming the groundwork of the chemical and mechanical systems, which divided the medical world at the end of the seventeenth century, notwithstanding the claims to originality which several of their followers have put in.

After the revival of genuine philosophy in the sixteenth century, it might naturally be expected that medical science would immediately avail itself of its light, and partake of its benefit; but this was so far from being the case, that, in the first instance, it proyed a new source of error, and threw fresh impediments in the road which was supposed to be opened to the improvement of rational medicine. The discovery of the circulation of the blood may, indeed, be considered as one of the first fruits of the inquiries into nature begun in that age. But, though this is a fundamental element in the economy of the living body, it throws little or no light on the principles peculiar to life, being purely of a mechanical nature; and, abstractedly considered, hardly admits of any application to the practice of medicine. On the contrary, this discovery, by its perverted application, tended to corrupt and mislead, by a loose adoption of the principles of mechanical philosophy, so well laid down in that age by Galileo and others. Borelli, in investigating the force of the heart by experiment, estimated it at 180,000 pounds; Hales, at 51 pounds; Keil, at 1 pound. The mechanical powers of the stomach were, about the same time, subjected to experimental research by Pitcairn, who gravely gave out that he found this viscus, in the human subject, exerted a force equal to 12,900 pounds, in compressing food in the process of digestion. Others, conceiving that chemical power had the chief share in this function, endeavoured to evince that the change in the food was brought about by means of heat and fermentation. Sounder principles have referred these changes to powers which have nothing in common with the mechanical and chemical powers which characterize inanimate nature.

From the picture that has been exhibited of the innumerable doubts and difficulties which clog the attainment of medical knowledge, and embarrass the application of it to practical purposes, the timid, sceptical, and indolent, may be discouraged from studies apparently so arduous in their prosecution, and so questionable as to the efficiency and utility of their result. But it is not from characters of this description that much good can be expected in any of the useful arts of life. If a like despondency were to pervade mankind in general, there would be an end to all that enterprise and energy which alone can enable them

to act up to their destiny, and follow up those pursuits upon which the perfection of their nature depends. As the senses would have lain dormant for ever had there been no external objects to stimulate them, so the faculties and virtue which characterize rational nature and civilized life could never have been developed, but through the excitement of those pains, wants, difficulties, and dangers, inseparable from human life. By no other arrangement could our duties, our happiness, our mental and bodily perfections, have been bound together in one harmonious and consistent system. Let us compare the art of medicine, under this aspect, with those of navigation and agriculture. Had man been furnished by the Creator with wings, by which he could have traversed all seas and oceans, so as to supersede the use of ships, where would have been that hardihood of character, and all those ingenious devices which have called forth the active energies and deep researches of the human mind? If, contrary to the actual institutions of Providence, the life of man had been sustained by the spontaneous productions of nature, instead of the products of industry, neither the faculties of the mind nor the powers of the body could ever have been developed: man would have been little superior to the brutes; his active and inventive energies would have lain asleep for ever; there would have been no room for the talents exercised in the procuring of food, raiment, and shelter, nor in commercial intercourse; all the mutual and endearing ties and dependences of social and civilized life, all trades, professions, arts, and sciences, whether ministering to accommodation or elegance, constituting man's greatest felicity, whether as objects of pursuit or enjoyment, would have been unknown and untasted. It is obvious that this reasoning, being founded on a general law of nature, must apply equally to medicine. In a probationary existence, it was necessary that man should be tried, not only by pain and sickness, but by the difficulties of remedying them, as exercises of virtue and ingenuity. Why should the road to medical relief lie through fewer and slighter struggles and dangers, than those of navigation and agriculture? But the subject is more concisely and emphatically illustrated by the philosophical poet, than by any amplitude of illustration, or farther multiplicity of words which we could employ:

— Pater ipse colendi (*medendi*),
 Haud facilem esse viam voluit, primusque per artem,
 Movit agros, (*agros*), curis acuens mortalia corda.

We shall conclude our view of the general state of pathology in the sixteenth century, with some account of the violent disputes which prevailed in France, on the prerogatives of the medical art over those of surgery, but particularly on the contested privileges of the surgeons. Although the documents relative to this subject have been partly printed, or have at least not been withheld from the inspection of historians, yet no part of medical history has been conducted with more partiality, and less regard to truth, by both parties. The author of the work entitled "Recherches sur l'Origine et le Progrès de la Chirurgie en France" is guilty of the grossest misrepresentation, though this book has by some been ascribed to Franc. Quesnay. Pasquier, in his "Recherches de la France," fol. Paris, 1620, deserves much more credit; and, therefore, the most important points relative to that extraordinary dispute are here briefly collected from his more authentic statement. And this also will remind the reader of similar disputes in our own country, and about the same time: for, it has been already hinted, that, during great part of the 16th century, surgery was practised indiscriminately by barbers, farriers, and fow-gelders. We know that barbers and surgeons continued for 200 years after to be incorporated in one company, both in London and Paris. In Holland and some parts of Germany, we are told, that, even to this day, barbers exercise the razor and lancet alternately.

The surgeons of Paris had, since the time of Lanfranc,

(1295), formed a distinct body, called the College of St. Côme; and they obtained additional and respectable privileges from Philip the Fair, in 1311, which entitled them to equal rank with the members of the medical faculty; hence they could not bear the idea that barbers should usurp the right of bleeding, applying plasters, and treating external injuries and ulcers. In consequence of this encroachment, the surgeons, in 1425, obtained an act or arrêt of the parliament of Paris, by which the performance of chirological operations was prohibited to the barbers, while they were permitted to dress wounds, and extirpate corns by the knife. But the physicians embraced the cause of the barbers, and instructed them in the practice of surgery, with a view to take revenge on the surgeons, who, it was affirmed, had usurped medical privileges. The complaint of grievances which the surgeons, on this occasion, laid before the faculty, in the years 1491 and 1494, were not attended with any effect; and the members of the faculty were even permitted to deliver anatomical lectures to barbers in the French language. The surgeons again, though in vain, represented to the faculty, that they acted contrary to the laws made by themselves, by permitting their members to instruct barbers in the knowledge of anatomy, and this in their native language. However, no other redress could be obtained, but that of licensing the surgeons to undertake public dissections, and of granting them a certain rank above the barbers, for which they paid sixty solidos annually to the treasurer of the faculty. This event took place in the year 1502; and in 1505 the surgeons renewed their application in the character of scholars or pupils to the faculty, whom they intreated to confirm their privileges; but Helin, the senior of that body, sent them the discouraging answer, that their pretended rights or immunities had been acquired by surreptitious means.

In the same year, the physicians of Paris, as Pasquier expresses himself, "passed the Rubicon," and entered into a formal contract with the barbers, who, on account of their implicit obedience, were patronized in preference to the surgeons. The barbers were consequently, in contempt of the surgeons, pronounced to be "the true scholars of the faculty;" they were matriculated under that name; but a promise was exacted from them, according to which they were not allowed to administer internal medicines, without consulting, in every case, a member of the medical faculty; they farther agreed to undergo an examination, previous to their commencing business as masters. After that period, the barbers were no longer called *Barbitonsfores*, the complaisant faculty having conferred on them the more honourable title of *Chirurgici a Tonstrina*, or *Tonsfores Chirurgici*. A few days after this change, the faculty proceeded to such extremities as to prosecute the surgeons in a court of law, because they had received information, that several surgeons had prescribed internal remedies without the previous advice of a physician.

At that time, probably, no man of genius and activity presided over the College of St. Côme; for no sooner was Stephen Barat elected president of that college, than the situation of affairs was thoroughly changed. In the year 1515, he urged the faculty to exempt the society of surgeons from the oppressive tax they were obliged to pay annually, and not to compel them to attend the lectures given by members of the faculty. As Barat addressed himself to the whole university, and as old Helin, the most zealous antagonist of the surgeons, died in the same year, this remonstrance had the desired effect. The university issued a decree, by which the surgeons of Paris were nominated *Scholastici*, or perpetual scholars of the faculty. But still greater immunities were granted to the surgeons in 1545, by the good offices of William Vassieur, principal surgeon at the court of Francis I. He effected a complete separation of the barbers from the surgeons; and at the same time obtained a decree, in conformity to which every master of the chirological art, if he wished to obtain the privilege

privilege of exercising his profession, was obliged to study the Latin language, logic, and other elementary sciences. By this favourable regulation, the College of Surgeons was at once raised to the rank of a learned school, and obtained at length the right of creating Masters, Bachelors, Licentiates, and Doctors, of Surgery. In consequence of this arrangement, Henry II. granted to the members of the Chirurgical College of St. Louis, all the prerogatives attached to a faculty; and the patent issued on that occasion was registered in the parliamentary laws, under the name of *Lettres d'Oâroi*.

In the year 1551, the medical faculty, under the deanery of John du Hamel, re-commenced the dispute against the surgeons. Although Rudolph le Fort, dean of the College of St. Louis, zealously defended the surgeons, yet du Hamel found the means of procuring a repeal of the decree enacted in 1515; and, contrary to the spirit of that law, the surgeons were again obliged to submit to an examination before the medical faculty. Under Henry III. however, the surgeons once more obtained a confirmation of their privileges, in 1577, by virtue of which they were entitled to confer academical dignities; and, notwithstanding the new opposition of the faculty in 1579, the surgeons, as well as the university of Paris, were in the same year favoured with an indulgence of pope Gregory XIII. while de Thou vindicated the cause of the former, in a spirited and successful manner, against the oppressions of the faculty. The colleges subsequently established by surgeons acquired such a degree of authority, that, in the year 1596, they were empowered to give positive orders to the barbers, in difficult chirurgical cases always to consult a sworn surgeon, and upon no account to undertake the treatment of any other but the slightest external injuries. These privileges and prerogatives of the surgeons of Paris were further confirmed by Henry IV. in 1602, and by Louis XIII. in 1614.

About this time was framed the following oath, which to this day is taken by every physician who takes a degree at the university of Montpellier. "I, _____, before the image of Hippocrates, in presence of the professors of this school, and of my dear fellow-collegians, do swear, in the name of the Supreme Being, to be faithful to the laws of honour and probity in the exercise of medicine. I will give my care gratuitously to the indigent, and will not exact a salary beyond my just demands. Admitted into the interior of families, my eyes shall not see what they ought not to see, nor shall my tongue betray any secrets confided to me; nor shall my profession be made available to corrupt morals, or to favour guilt. Respectful and grateful to my masters, I will endeavour to return to their children the instruction which I have gathered from the fathers. May men grant me their esteem in proportion as I am faithful to this oath; and may I be disgraced among my colleagues when I swerve from it."

III. From the SEVENTEENTH CENTURY to the PRESENT TIME.

The most brilliant discovery of the 17th century was that of the *circulation of the blood*, by our countryman Harvey, who was born in the year 1578. He first opened the discovery in 1616, in his lectures in the Latin language, which are preserved in MS. in the British Museum; but his work, containing the details, was not published till the year 1628, when his "*Exercitatio anatomica de Motu Cordis et Sanguinis in Animalibus*" appeared at Frankfort: and this is the only edition which bears the stamp of Harvey's own authority. This treatise, which Haller has most appropriately styled *aurcum opusculum*, is constructed entirely upon the result of experiment, and contains an excellent arrangement of the subject. The author was now created physician to king Charles I. and demonstrated the circulation before him in a living animal.

The vast importance of this discovery to the whole

science of physiology; the influence which it necessarily exerted on the doctrines of pathology; and the general revolution which arose from this source throughout the whole circle of medical knowledge; will justify us in giving a slight historical sketch of the subject, and in pointing out the opinions held by those anatomists and physiologists who preceded our immortal countryman Harvey. To him, indeed, the glory of this greatest of all physiological discoveries has been assigned by the almost unanimous concurrence of his successors. Some, however, have endeavoured to deprive him of his well-earned fame, by ascribing a knowledge of the circulation to various preceding writers. Mr. Dutens, in the second volume of his "*Recherches sur l'Origine des Decouvertes attribuées aux Modernes*," has brought forward passages from Hippocrates, Plato, Aristotle, Julius Pollux, Apuleius, and others, in order to prove that they knew the course of the blood. After the positive dogmatical assertions with which the author sets out, we are surprised by the weakness and inadequacy of his proofs, and can only account for the inconsistency by supposing him to have been utterly ignorant of the subject. He quotes a few insulated passages which cannot, by the most favourable interpretation, be construed into the semblance of a proof, that the writers in question knew the circulation of the blood. But the only fair and unexceptionable method of determining whether any individual was acquainted with a particular fact, is to consider all that he has said on the subject, and to draw our inferences from the result of this general examination. Such an inquiry will prove most clearly, that a knowledge of the circulation, such as we possess at present, can be ascribed to no one before Harvey; although a part of the subject, viz. the passage of the blood through the lungs, had been described by several persons before the time of that illustrious character.

That the blood moves, has been universally known and admitted, since the science of medicine has assumed a distinct form: how much of its course, and of the laws that regulate its motion, has been ascertained at any given period, is another question. The circulation is so generally known in the present day, and the proofs on which it rests are so obvious and familiar to every tyro in the profession, that we feel surprised how they should so long have escaped the observation of the numerous ingenious and learned characters, whose names adorn the annals of anatomy. We must remember that the course of the blood, taken altogether, forms a subject of considerable intricacy; that the pursuit of anatomy was attended in the early periods of the science with considerable difficulty and danger; and that the unlimited sway which the authority of Galen held over the minds of men for some centuries, precluded all attempts at further investigation.

Hippocrates states that the blood meets with obstacles in its course, which retard or entirely arrest its progress; that it goes from the internal parts towards the surface; and *vice-versâ*, that the blood must flow forwards from the heart, since the valves hinder its return, and that the arteries are distended when their blood is stopped. In speaking of the blood's motion, he compares it to the course of rivers, to the ebbing and flowing of the sea, and even to the revolutions of the planets. He assigns the origin of the arteries to the heart, and that of the veins to the liver; and supposes that there are two opposite motions in the temporal arteries, by which their pulsations are produced. He speaks of four fluids in the body, the blood, water, mucus, and bile, which come from the heart, head, spleen, and liver; all those parts are, however, supplied from one principal source, the stomach. Can we discover any traces of a knowledge of the circulation in this confusion of ideas; and may we not be justly surprised, to find that enlightened men should be so led away by their prejudices, as to allow to Hippocrates the knowledge of a discovery, which no one had perceived in his writings for nearly three thousand years? The observations of the founder of medicine had led
astray

af fray all who followed him to the time of Harvey; but, when the researches of that great man had unfolded the mystery of the circulation, his enemies dared to affirm, that the writings of Hippocrates had furnished the lights which guided him in the path of discovery.

The philosophers who joined the study of medicine to that of the other sciences, seem to have been equally ignorant of the laws which regulate the blood's motion. Thus, Aristotle expressly states that the blood never returns to the heart. The Alexandrian anatomists maintained that the arteries held no blood, but were filled with air; from which circumstance they gave them the name, which they have constantly retained, from *αἴρ*, air, and *τῆρσιν*, to hold. To explain the occurrence of blood in these vessels after death, they supposed the existence of subtle communications with the veins.

The genius of Galen disdained to follow blindly the steps of his predecessors; and he endeavoured at least to discover the truth by experiments and observations on the structure of the body. By these means he ascertained some facts, although he could not succeed in piercing the veil which concealed the secret of the circulation. He seems to have recognized the use of the valves at the two orifices of the ventricles. He proved, by tying an artery with two ligatures, that these vessels contain blood during life; and states that they are filled by the contraction of the heart, in consequence of which they pulsate. These circumstances seem to indicate a considerable advancement in the knowledge of the circulation; but we must mention, in the same spirit of impartiality, the contradictions and uncertainty which prevail in the works of Galen on this subject, and the limits which his labours could not exceed. He still referred, with Hippocrates, the origin of the veins to the liver, and supposed a passage of the blood through the septum of the ventricles, while a small portion entered the pulmonary artery to nourish the lungs: he imagined, lastly, that it might pass reciprocally between the pulmonary artery and veins.

There could be little reason to expect, that in the troubled and barbarous times which followed the age in which Galen flourished, the secret of the circulation should be discovered; still less that it should be explained to physicians by men whose pursuits were foreign to the science of medicine. Yet it has been boldly asserted that Nemesius, bishop of Emesa, knew the course of the blood, as it has been ascertained by the subsequent labours of Harvey. The editor of the Oxford edition of his works, has imbibed the true spirit of a commentator; who discovers in the writings of the ancients, meanings which never were in the contemplation of the authors; and abuses the moderns as plagiarists, for decorating themselves with the discoveries of antiquity. But on what grounds does Nemesius claim the honour of a discovery, denied to so many great geniuses? Because, according to Freind, the bishop states, that the blood passes from the arteries into the veins during sleep. This restriction immediately overturns the claim; which would indeed be destroyed by the kind of motion that he supposes to take place, viz. a reciprocal alternation of undulations, like that of the Euripus. In another passage cited by Dutens, he speaks of the arteries in their dilatation attracting the blood from the veins; but this passage, which we have already quoted at p. 16, sufficiently proves that he knew nothing of the matter; and exemplifies still further the absurdity of a person's attempting to dogmatize, as Dutens has done, on subjects of which, as being foreign to his profession, and difficult of investigation, he cannot reasonably be expected to be a competent judge. "Thus," to use the words of Senac, "a theologian writes on the nature of man; a subject which does not very properly belong to such a writer: on no other testimony than some vague and ridiculous expressions, he gains the credit of knowing the circulation, of which the greatest physicians and anatomists had been hitherto completely ignorant. Thus it is, that interpreters and com-

mentators are misled by a blind zeal for antiquity, and discover hidden meanings in the most simple expressions. How would their boldness and assurance have been augmented, if Nemesius had expressed himself as clearly as an ancient scholiast of Euripides has done, where he says, "that the blood flows through the veins, and that these vessels receive it from the arteries." Should we, however, on this insulated and casual expression, be justified in bestowing on a weigher of words, and measurer of phrases, the honour of a discovery, which had eluded the researches of the greatest philosophers?

The state of darkness and ignorance, in which the human mind languished during the succeeding ages, does not allow us to expect that any writer of that period can dispute with Harvey the honour of the great discovery. About the sixteenth century the curiosity of mankind was again excited to the investigation of this interesting subject. Reason, which had hitherto submitted to the yoke of authority, began to assert her rights; and several physicians were bold enough to examine subjects which Hippocrates and Galen had not been able to develop.

The first ray of light was thrown on the circulation, by a man, whose name cannot be mentioned without exciting feelings of compassion for his unmerited and barbarous treatment, and of indignation at the unrelenting bigotry of his cruel persecutor. Gifted with an ardent and penetrating genius, *Servetus* made a rapid progress, at a very early age, in the sciences of natural philosophy and divinity. Compelled to leave Spain, his native country, he passed into France, and studied medicine at Paris, under Winter d'Andernach, who was professor in the college lately founded by Francis I. He visited different parts of France and Germany, and, after various persecutions on account of his religious opinions, settled in Dauphiny. But Calvin, being too narrow-minded to grant to a rival that freedom of thought and liberty of conscience which he had so successfully exerted in his own person, had him seized and condemned to the flames. Thus, says Portal, "one heretic destroyed another; but the difference was, that an ambitious and designing knave pronounced the condemnation, and one of the finest and most enlightened geniuses of Europe was the lamented victim of this iniquitous sentence."

The passage, which proves Servetus to have been acquainted with the pulmonary circulation, occurs in his work *de Restitutione Christianismi*; which, having been carefully destroyed on account of the heresy which it contains, is now extremely scarce; so that two or three copies only are supposed to exist, and the duke de la Valiere gave the sum of 132l. for one. It states, that the vital spirit is composed of the most subtle parts of the blood, and of the air, which insinuates itself into the lungs; and that the source of this blood is in the right ventricle. "But the communication, that is to say, the passage of the blood, from the right to the left ventricle, does not take place across the middle septum, as persons have generally imagined; it depends on a more singular structure. In the long windings of the lung, this subtle blood is agitated, and prepared by the action of the viscus, and gains a yellow colour. From the *vena arteriosa* (pulmonary artery) it passes into the *arteria venosa* (pulmonary veins) where it becomes mingled with the air that has entered the lungs, and loses its fuliginous excrements. Lastly, it enters the left ventricle, which attracts it in its diastole. Such is the preparation of the blood, from which the vital spirit is formed; this preparation, and this passage from the arterial vein into the venous artery, are evidently proved by the size of the vessels; which would not be so large, nor possess so many branches; nor carry to the lung so great a volume of blood, if it were destined to the nourishment only of the viscus." He adds, that the vital spirit is sent from the left ventricle into all the arteries of the body. This representation proves incontestably that Servetus knew the minor circulation. He laid the foundation of a building,

which had baffled all the efforts of the great geniuses of antiquity. In order to perfect this design, it was only necessary to extend the ideas of the first architect. He indicated the route, through which the blood passes from the right to the left ventricle; it remained to be proved that all the blood takes this passage, and that it returns again to the heart from the arteries through the veins.

The obscure sketch of the circulation, which was furnished by Servetus, appears in a more finished and luminous form in the works of Realdus Columbus. He describes the entrance of the blood into the heart from the vena cava, and its subsequent passage through the lungs into the left ventricle and aorta. He advanced a step farther than Servetus; for he states that the whole blood passes through the lungs, and not the vital spirit only. But he falls into the same error with preceding anatomists on the subject of the liver; supposing that gland to be the source of the blood which nourishes the stomach, spleen, &c. Arantius and Cæsalpinus described more perfectly and clearly than Columbus the passage of the blood through the lungs; which they confirmed by several arguments drawn from the structure of the parts, and particularly from the position and mechanism of the valves. The latter indeed approached very nearly to the grand desideratum, the passage of the blood from the arteries through the veins to the heart. He observes that a vein swells below the ligature; but he did not follow this up to prove the circulation. He says that the blood returns to the heart through the veins during sleep; but he supposed it to move backwards and forwards in the same vessels, like the Euripus. He was misled also in the labyrinth of the liver, where so many physiologists have lost themselves. The arrangement of the arteries and veins in this organ presents such an intricate combination, that we need not wonder at its proving, for so long a time, a source of mistake and illusion. Paul Sarpi, the learned historian of the council of Trent, is one of those to whom the circulation is said to have been known; but the want of all arguments that bear the least conviction on the subject, will justify us in declining any particular consideration of his claim, as well as those of Fabri a Jesuit, of Helvicus Dietericus, and others.

Notwithstanding the labours and writings of the anatomists whose opinions we have thus cursorily examined, the minds of men were still enslaved by those errors, which, having prevailed for so many centuries, had acquired the sanction which time and authority bestow on any opinions, however absurd. The most enlightened physicians were satisfied with the labours of their predecessors; and Harvey alone had sufficient courage and information to canvass these inveterate prejudices, which length of time had consecrated as infallible truths. He observed and described the true course of the blood with a wonderful sagacity and clearness. None of the arguments, which prove the circulation, escaped the researches of this acute observer; so that a modern physiologist, in recounting the proofs of this physiological fact, could add little, if any thing, to what is accumulated in the original work of Harvey. He was not contented with demonstrating the circulation in some parts only; but followed up the subject in all the viscera of the body. He traced the course of the blood through the liver, where every preceding anatomist had discovered nothing but perplexity and confusion. The work of Harvey is, in short, one of those rare and precious productions which embrace a subject in its whole extent, and present it to the mind in so perfect and finished a form, as scarcely to admit a single addition or improvement.

The merits of our countryman, whose fame can never perish while medical science continues to be cultivated, will be exalted to a still higher pitch, when we consider the state of medical knowledge in England at that time. While anatomical schools had been long established in Italy, France, and Germany, and several teachers had rendered their names illustrious by the successful pursuit

of the science, anatomy was still unknown in England, where dissection had hitherto hardly begun. Yet, at this inauspicious period, did Harvey make the discovery, which may be considered as a second and more perfect foundation of the science of medicine; and which amply justifies Haller in ranking him as second to Hippocrates only.

The publication of this grand discovery roused the attention of all Europe. The old professors, accustomed to pay a blind and implicit deference to the authority of Galen, which was now utterly subverted, and, ashamed of confessing that their whole life had been spent in teaching the grossest errors, took up their pens in opposition to the author of these innovations. One party asserted that the discovery was not a new one: that it had been known to several persons, and, indeed, to all antiquity. Such were the assertions of Nardi, Vander Linden, Hartmahn, Almelooven, Barra, Dreincourt, Patin, Falconet, Heister, Regnault, &c. A sufficient refutation of these statements will be found in the historical sketch, which we have already exhibited. Other adversaries of Harvey proceeded in a more rational manner; and attempted to disprove his statements by experiment and reasoning. Primofoled the way in this attack, and he was followed by Emilius Parisanus, John Riolan, Caspar Hoffman, and others. If men of such acknowledged erudition as Riolan and Hoffman were so utterly unacquainted with the circulation as to deny it altogether, may we not safely conclude that the subject is not described in any of the writers who preceded Harvey? Out of all his numerous opponents, this illustrious man answered Riolan only, in his "Secunda et Tertia Exercitatio de Circulatione Sanguinis." The reply was rather extorted by the rank and fame of Riolan, than by the strength of his argument.

If we seek to define exactly the precise share of merit which Harvey may claim in the grand discovery of the circulation, it will be necessary to hold a middle course between the gross and palpable absurdity of those who discover a knowledge of the circulation in the writings of Solomon, Hippocrates, Plato, Aristotle, &c. and the too great partiality of such as would deny all knowledge of the subject to every anatomist who preceded Harvey. It seldom happens, that so extensive and intricate a subject as that which we are now considering, is surveyed and brought to light in all its branches by the labour of an individual; nor has it happened in the present instance. For Servetus, Columbus, Arantius, and Cæsalpinus, were acquainted with the course of the blood through the lungs; and the latter writer has even an obscure hint towards the greater circulation. But no one attempted to prove the latter point by arguments and experiment before the time of Harvey: the expressions of Cæsalpinus, which are by no means clear or satisfactory, had been before the public for half a century without exciting the least investigation, and without suggesting to Fabricius the true office of the valves in the veins. The entire merit of the greater circulation may, therefore, be ascribed to our illustrious countryman; and, if we compare the luminous method and irrefragable proofs which are found in his exposition of the other part of the subject, with the partial and confused statements of preceding authors, his merit will here be only second in degree to that of actual discovery.

The doctrine of the circulation met with some supporters on its first promulgation. Walæus of Leyden exerted himself strenuously on this side, and defended the propositions of Harvey in two excellent letters addressed to Bartholin. Des Cartes also, whose authority at that time carried vast weight with it, took a decided part in the controversy in favour of Harvey, from its commencement. The doctrine was pretty generally admitted throughout Europe before the decease of its proposer.

The nature of the communication between the arteries and veins was left undetermined by Harvey, who decided no point which he could not make the subject of experiment.

experiment. The art of injecting the vessels of the dead body, which has been discovered and carried to great perfection since his time, has shown a continuation of canal joining the two systems of blood-vessels; and the employment of the microscope has completed the proof, by demonstrating the circulation in the transparent parts of frogs, &c. during life. The transfusion of the blood of one animal into the vessels of another, which has been performed with success in many instances, has added another strong proof to the demonstration of the circulation. See the *Histoire de l'Anatomie et de la Chirurgie* of Portal, and the *Bibliotheca Anatomica* of Haller, in the articles concerning the writers whose names are mentioned in this account.

Francis de le Boe, otherwise Sylvius, was born at Hanau in 1614; and became professor of medicine at the university of Leyden in 1658. He will be therefore readily distinguished from James du Bois, who is also called Sylvius, the master and violent adversary of Vesalius, of whom we have sufficiently spoken in the preceding section. Francis Sylvius was a much more distinguished personage: he was also one of the earliest advocates for Harvey's doctrine of the circulation of the blood, and was the principal cause of its reception into the medical school of Leyden. In other respects, however, he was instrumental in retarding the progress of medical science, by the invention of an hypothesis respecting the cause of diseases, which contributed much to excite the attention of the medical world, and to extend his own fame. He ascribed all the morbid actions of the vital system to certain chemical operations; to fermentations, and ebullitions, which he believed gave origin to an excess of acid or of alkali, to the neutralization of which all the efforts of the medical art were of course to be directed: whence he administered volatile alkali, absorbent earths, and cordials, largely, paying little regard to the different stages of a disorder, or the character of prevailing epidemics. The extent to which this doctrine was received and defended in most parts of Europe, founded as it was upon a gratuitous hypothesis, and therefore productive in many cases of much mischief, is surprising, and the interruption which it occasioned to the improvement of medicine was considerable. In fact, the *chemical system* of Sylvius was admitted in almost every country in which chemical science was cultivated: it was in Holland and in Germany however that it was carried to the most extravagant pitch. While one physician was earnestly employed in changing the acid state of the blood, another took great pains to counteract the alkaline properties of the same fluid. While Bontekoe, deducing all morbid phenomena from the viscosity of fluids, eulogized the medical properties of tea, and drenched his patients with fifty cups in succession of that liquor; Van Rustingh prescribed assiduously large quantities of volatile salts in the most inflammatory complaints; believing that the two elements of fire and water composed the substance of all living bodies, and that to restore their balance of power or equilibrium was the only propitium of the medical art.

In our own country the more moderate of these tenets, with some degree of modification, acquired celebrity. Willis, Flower, and others, adopted them, and, multiplying on the acid and alkaline humours of Sylvius, asserted the existence of a great many different humours, viz. mucilaginous, vitriolic, corrosive, &c. each of which they thought had the effect of producing a disorder *sui generis*: and hence they endeavoured to trace the various characters of disease. The phenomena of fever they likewise attempted to explain according to the chemical laws of fermentation and ebullition. And, though Willis probably used these terms merely in an analogical sense, yet many physicians of his time applied them to the human frame in their strict and chemical signification.

With respect to the precise mode by which these actions were thought to bring about the phenomena of health or

disease, the following is a brief summary. Digestion was supposed to be carried on by *fermentation*. If this process was too active, or, on the contrary, too weak, improper or unfermented particles of aliment remained, which, when assimilated and introduced into the blood, produced the same effect on that fluid as certain substances called *ferments* do upon vinous liquors; viz. they produced fermentation. Now, viewing the matter in this light, these chemical pathologists defined *fever* to be a fermentative process which nature instituted for the purpose of throwing off the aforesaid offending humours or caco-chymia. If nature succeeded in performing this task, health was restored; if not, death ensued. Some diseases were however produced by external causes; for instance, infectious and contagious distempers, &c. but then each of those disorders was brought about by means of *humours*, whether derived from the air by means of respiration, or from actual contact.

It is rather remarkable, that these physicians admitted a third cause of production of caco-chymia, which went to overturn their whole system. They expressly stated, that organic disease of any of the viscera engendered a *peccant humour*; hence we naturally infer, that in this case the solid or fibrous structure was the first cause of disease.

In Italy, where mechanical science had made much progress, the chemical doctrine obtained few supporters. Indeed, anterior to the period we are treating of, Sanctorius had, in his exposition of the cutaneous functions, taught physiologists the illustration which the vital derived from the consideration of the mechanical laws. He endeavoured to distinguish the different alimentary matters according to their specific gravity, and referred disease to an obstructed state of the exhalant system: an opinion, however, which this author carried too far, and which was by no means conducive to his successful practice. Nevertheless it has been of great importance to his more enlightened successors.

Sydenham was born about the year 1624. One of the greatest benefits which he conferred upon the science of medicine was that of detaching physicians from this and other hypothetical systems, and of leading them to the only true path, observation and experience. He introduced a great reform into medical practice. Though not entirely free from the humoral hypotheses which were so prevalent in his time, yet he took care to study nature with exactness, and he reported her appearances with fidelity, even when opposed to his own reasonings. Indeed in many parts of his writings he takes occasion to deprecate the practice of his predecessors, because they not only did not sufficiently remark the minute phenomena of disease, but because they actually misrepresented those phenomena for the purpose of corroborating their fanciful theories. Nor did Sydenham admit the chemical explanation of disease which was so strongly insisted on by his contemporaries, and even successors; for he expressly states, that, although he has no objection to the terms *ebullition* and *fermentation*, yet he rather uses them as illustrating certain morbid processes by analogy than in their own commonly-received sense: and indeed he quotes some very judicious arguments tending to disprove the identity of those chemical processes with diseased actions. This author followed very closely the steps of Hippocrates: like him, he was principally intent on observing the minute features of disease, and of referring them to their obvious and immediate causes; like him, he admitted to a great extent the salutary operation of nature, and the deleterious agency of humours; and like him too he paid particular attention to atmospheric changes, and the effects of them on the human body. Indeed the chief merit of Sydenham consisted in writing clearly, fully, and from his own individual observation, the history of diseases. He investigated the minutest changes which occurred in them, whether spontaneously or from the action of remedies, as well as those

arising from temper, age, constitution, or other adventitious circumstances.

A system of therapeutics founded on such a basis could scarcely deviate from the right path; and accordingly the works of this author remain most important studies, whether regarded as indications to the art of diagnosis, or to the cure of disease. His practice was in the most eminent degree successful; and among the remedies he had recourse to we may remark many which are again firmly established after having long fallen into discredit under the inauspicious influence of speculative theorists. Among these, the use of bleeding, and other antiphlogistic methods, in the treatment of continued eruptive fevers, has conducted very materially to the preservation of the lives of our species. We may remark, that in this assumption we are borne out by the fatality which occurred during the exhibition of alexipharmics and hot cordials by the chemists, which the cooling system has very much obviated. The doctrines of Sydenham, notwithstanding the interesting style in which they were written, the fame they acquired for their author, and their consonance with nature, were by no means generally received; and the chemical doctrines continued to be advocated by many till the commencement of the following century.

In proportion as true chemical science advanced, the partiality for chemical explications of the functions of the living system abated; and physicians seem to have discovered, for the first time, that the theory of the humours, even with all the improvements which it derived from the corpuscular philosophy, threw no light whatever on the actions of the solids. A new hypothesis, therefore, was projected; and, as men in avoiding one error are apt to run into the opposite extreme, physiologists now attempted to explain all the phenomena of life according to the mere *mechanical powers* of the organs, and to reduce the laws of the animal economy to the rigid calculations of geometry. They imagined, that they could illustrate every operation of the human body, by comparing it to a system of ropes, levers, and pulleys, united with a number of rigid tubes of different lengths and diameters, containing fluids, which, from variations in the impelling causes, moved with different degrees of velocity. When the fibres of this machine were not sufficiently flexible; when the pulleys and joints of the levers were not kept in sufficient repair; or when the apertures of the pipes were not sufficiently free; the movements were necessarily suspended, or less perfectly performed; and they were only to be brought into proper regulation, according to the practitioners who adopted this fanciful theory, by removing the above-described impediments. The composition of the fluids was supposed to be the result of their motion in the tubes; and in these nothing was attended to but the forces of gravity and cohesion; as in calculating the action of a pump, or other hydraulic engine. "If the chemical school," to use the words of Sprengel, "had degraded the physician to the rank of a brewer or distiller, the disciples of the iatro-mechanical school, on the other hand, were glad to be esteemed as hydraulic engineers; and several of them, in fact, served in the double capacity of engineers and professors of medicine." One of them, Dionis, a professor of surgery at the Jardin du Roi, went so far as to compare the circulatory system to the water-works at Marly, by which the water of the Seine is raised to considerable height, and from thence made to fall again upon the great wheel.

Among the causes which conducted to the establishment of this sect, the discovery of the circulation of the blood is the most prominent. When it was found that the blood flowed in a regular manner, through certain conduits, from the heart, and returned to that organ, by other vessels, from the extremities, physicians set about calculating the mechanical force which they supposed necessary for enabling the heart and arteries to produce this

effect; and, elated with their apparent success, were led by degrees to transfer their calculations to the other functions of the body. Geometry had become the prevailing study of the learned; and societies for the promotion of experimental philosophy were established in the different countries of Europe, among which the Florentine Academy del Cimento took, in some measure, the lead. It was in Italy that mathematics had been most assiduously cultivated; and it was there that the first attempt was made to introduce them into medicine. In the year 1614, Sanctorius published his *Medicina Statica*, in which he endeavoured to show the great influence which the insensible perspiration has upon health, and to calculate with precision all the variations in its quantity, in the different conditions of the body. According to his theory, diseases originated from the noxious particles of the food being retained in the system, in consequence of the stoppage of the transpiration; and, till the latter function was restored to the proper standard, no cure could well take place. Sanctorius distinguished the different alimentary matters according to their specific gravities, and according as they appeared more or less fitted to pass off in the way of insensible perspiration. He even ventured to apply his maxims to the passions of the mind; showing how joy and equanimity favoured the excretions, while sorrow and fear impeded them; how fevers and melancholy arose from the obstructed perspirable matter, where grief was long continued; and how they were to be removed by restoring the suspended exhalation. Among the aphorisms of Sanctorius, there are many sound observations; and medical science is under considerable obligations to him for having directed the attention of physiologists to the functions of the skin, which, till then, had been in a great measure overlooked; but his views, like those of most theorists, were far too partial; and there can be little doubt that, in one respect, they had a most injurious influence, viz. by encouraging physicians in the universal employment of sudorifics, to which they were already too prone; and no one will now subscribe to the judgment of Boerhaave, who says of Sanctorius and his work, "Nullus medicorum, qui ante eum scripserunt; cardinem rei ita adigit; nec ullus liber in re medica ad eam perfectionem scriptus est."

The mechanical philosophers began by calculating the force of the contractile power of the heart necessary to produce the phenomenon of circulation: but in this calculation they proceeded on the erroneous datum, that the resistance opposed by cohesion and gravity was the same in living vessels as in inanimate pipes. Even if this supposition had been true, yet they had no means of measuring the numerous diameters of these vessels, their curves, angles, &c. circumstances indispensably necessary to be known before the above-mentioned calculation could have been made. A more ingenious mode of illustrating the process of circulation was that adopted by Borelli. This author assumed that the power of a muscle was in direct ratio to the size of fibrous portion; hence, taking the deltoid muscle for an example, and having found the force that muscle was capable of exerting, he next proceeded to calculate the force which the contraction of the heart must exert according to its proportionally larger size. This assumption, however, is unfounded; for exercise increases the power of a muscle, without, in every instance, increasing its size: nor does it appear by what means he could precisely insulate the action of the deltoid muscle, seeing that it is inseparably joined with several others which co-operate with its motions. The experiments of Kiel and others, though founded on different assumptions, were not more satisfactory than those of Borelli. At this period, however, geometry was such a favourite pursuit among the learned, that its cultivation rendered the mind almost dissatisfied with every theory which did not bear the test of mathematical demonstration. These calculations therefore,

to which we must allow the merit of ingenuity, became generally received. Mechanical principles were applied to every function of the body: not only the motion of the blood, but the composition of that fluid, and the various and elaborate processes of nutrition, secretion, &c. were referred to the same laws. This absurd application of mathematical knowledge to vital phenomena, led these philosophers into a labyrinth of error astonishing to common sense. For instance, while one author calculated the contractile power of the femoral artery at upwards of 1000 pounds, he overlooked the very obvious circumstance, that the pulsation of that vessel may be immediately suspended by the use of a tourniquet which scarcely exerts the pressure of a few pounds. Indeed, the contradictory results arrived at by these experimenters showed the absurdity of their experiments. Thus, Borelli asserted that the contraction of the heart was equal to a resistance of 180,000 pounds; Keil, that it was equal to five, or, at most, eight ounces. Hecquet calculated the digestive (or, according to him, triturative) powers of the stomach, in conjunction with the abdominal muscles, to be equal to 261,000 pounds; Astruc stated the amount of that power at four pounds three ounces.

Yet was this mode of investigating the science of life by no means useless; for, by teaching pathologists to resort frequently to *experiment* in proof of their assertions, it destroyed the attachment to fanciful and gratuitous hypothesis which had so long prevailed: it directed their attention to parts and actions of the animal economy which the humoral physicians had passed over unnoticed and undescribed; and, what was of still more importance, it induced correct and analytical habits of reasoning. Accordingly, we find, during the 17th century, which may be considered as the period at which the mechanical philosophers principally flourished, discoveries which have stood the test of time, and theories, concerning the correctness of which we are still earnestly employed in discussion. Physiology and the minute parts of anatomy were investigated with the grandest results; the circulatory system was gradually and successfully illustrated by many distinguished physiologists. Excellent descriptions of the structure and relative position of the heart were given by Steno and Lower. The microscopical experiments of Leeuwenhoek and others served to establish the important fact of the continuation of arteries and veins with each other. Ruych likewise, by the great degree of nicety in the use of injections to which he attained, was enabled to throw much light on this subject. Some important parts of the arterial system were discovered by Vieussens. The necessity of the absorption of oxygen gas through the lungs was first inculcated by Mayow. Malpighi improved the knowledge of the structure of those organs.

The mechanical part of respiration, the compound actions of the muscles, &c. were beautifully demonstrated by Borelli; and Kepler applied mechanical principles to the explanation of the functions of the eye in a manner the most clear and satisfactory. He first pointed out the true use of the crystalline lens, and showed how the images of external objects are formed, in an inverted position, on the retina. A public experiment with the eye of an ox, which was made at Rome, in 1625, by the Jesuit Scheiner, fully confirmed Kepler's theory: but afterwards Mariotte, having found that the images of objects disappeared when they fell on the spot where the optic nerve enters the eye, called in question the sensibility of the retina, and maintained that the choroid coat was better calculated to receive and transmit the perceptions of sight; and a controversy arose concerning the actual seat of vision, which was carried on, with great eagerness, by Pecquet, Perrault, and St. Yves, and which had the effect of eliciting many valuable observations. The Newtonian discoveries, respecting the properties of light, contributed still more to the accurate analysis of the functions of the eye; and the treatises of

Du Petit, Porterfield, and Zinn, which followed soon after, have left little for their successors to accomplish.

The lymphatic system was likewise brought into notice during this century. To Caspar Asellius is due the merit of having taken the first step in the investigation of this important part of the animal frame. While dissecting a dog, for the purpose of demonstrating the recurrent nerves, the appearance of a milk-like fluid issuing from some small white vessels arrested his attention. Examining them more minutely, he traced them to the villous coat of the intestines; and repeated dissections informed him, that these vessels were only observable in the animal which had lately fed. Hence he concluded these to be the *vasa chyli*. He confessed, however, that these vessels had been mentioned by ancient authors, though described in a very imperfect manner; but he justly claimed the honour of having first pointed out their use. Asellius, however, entertained erroneous ideas as to the termination of the lacteals: he supposed that they united together in the pancreas, and passed from that gland into the liver. This error was corrected by the researches of Pugen, who, observing on one occasion a milky fluid in the vena cava of a dog, traced carefully the progress of that vessel, and discovered the thoracic duct. This discovery was disputed however with much acrimony; and the character of Harvey was tarnished by the circumstance, that he stood forth among the most illiberal of its opponents. The absorbents of the large intestines were discovered by Olaus Rudbeck in the year 1651; he likewise refuted the received opinion, that the liver possessed lacteals, and, by their means, assimilating powers: he showed that the only absorbent vessels existing which could have led to this error, were the lymphatics of the hepatic glands. The glandular system in general was afterwards more fully illustrated by the writings of Glisson and Wharton, the experiments of Lower, Drelincourt, Lister, and Musgrave; and the anatomical researches of Nuck, Pacchioni, and Duverney.

Nor were the more abstruse and difficult questions of physiology neglected by the philosophers of this age. With much talent Willis supported the hypothesis of a nervous fluid, the vehicle of animal spirits; and, when deficient or excessive, the cause of disorder; and he seems in some respects to have anticipated the speculations of Spurzheim and Gall, in referring to particular parts of the brain peculiar mental faculties. The errors of this author on the former subject were pointed out by Malpighi, who moreover investigated the cerebral structure with great minuteness, particularly in reference to the existence of fibres in the cortical substance. Here too the injections of Ruych and the microscopical experiments of Leeuwenhoek were usefully employed to show the vascularity of the brain. Many improved descriptions were furnished by Caserius, Duverney, Riverius, Vieussens, and others, of the structure of the ear. The tunica arachnoidea was described by Swammerdam and Blaes. Many interesting experiments were made on the generation of animals; among which the most famous, though certainly not the most useful, was that of Leeuwenhoek on the animalculæ of the feminal fluid. See our article ANIMALCULE, vol. i. p. 727.

To the "triumviate," as they have been called, Stahl, Hoffman, and Boerhaave, pathology and therapeutics are indebted for many important illustrations. The first of these physicians has rendered himself famous by the introduction of an hypothesis, which, with various alterations, has maintained its ground until the present day. We allude to the existence of an immaterial principle, or essence, as producing the phenomena of life. The particular tenets, however, on which this theory was founded, had been promulgated before the time of Stahl: René des Cartes had taught his followers to consider matter as purely passive, and to refer all the changes to which it is subjected to a spiritual cause: the union of body and

K

spirit

spirit was, in his estimation, merely one of its modes, or accidental conditions. Malebranche, extending the Cartesian doctrine, endeavoured to explain more fully the nature of this union, and to show that the soul had a more or less distinct consciousness of all the movements and affections of the body. From these tenets, the transition to the system developed by Stahl was very easy; and an attentive review of the progress of the opinions in question must convince every one that the Stahlian hypothesis, far from being entitled to the merit of originality which its author claimed, was nothing more than an offspring of the Cartesian philosophy. Educated under Wedel, who was a devoted adherent of Sylvius, and an assiduous teacher of his doctrines, Stahl began very early to question the sufficiency of those chemical explanations which he heard applied to all the phenomena of life. It appeared very wonderful to him, that the humours of the body, which are, of themselves, so disposed to putrefaction, should yet so seldom fall into that state; and that the daily presence of so many saline substances, as we are in the habit of receiving in our food, should produce so few symptoms of acrimony. The intervention of *animal spirits* he conceived to be a very unsatisfactory supposition; and all the attempts which had been made to explain the theory of life on pure chemical and mechanical principles he held very cheap. Taking the passiveness of matter for the basis of his system, he maintained, "that the body, as body, had no power to move itself, but was put in motion only by immaterial substances; that all motion, therefore, was immaterial, and a spiritual act." It had been always observed, that there is a certain power in the animal body of resisting injuries, and correcting some of its disorders; and Van Helmont had ascribed some degree of intelligence to this power: but it was reserved for Stahl to refer it entirely to the rational soul, which, he affirmed, not only originally formed the body, but is the sole cause of all its motions, not excepting digestion, assimilation, and secretion, in the constant excitement of which life consists. While he referred to this principle the actions by which health is established, he attributed to its irregularity the occurrence of disease; admitting however, to a very great extent, the operation of slighter causes, among which *plethora* held a favoured rank. To this state Stahl supposed the human frame was perpetually disposed, and that at particular periods of life this disposition manifested itself with great precision in different parts of the body. Hence arose, according to him, in infancy complaints of the head, during adolescence in the pulmonary structures, and in old age in the digestive organs. Fever he described as an autocratic effort of nature to conquer the morbid cause, and to expel it from the body; and all the symptoms, not excepting *rigor*, were only so many proofs of the tonic action which was thus excited. Congestions were supposed, in contradistinction to obstructions, to result from an afflux of the fluids occasioned by the same tonic power; when obstruction followed, or when the object of the congestion, i. e. *evacuation*, was not accomplished, inflammation took place; and the tendency of the violent actions which accompanied it, was to disperse the obstructed humour. If this end was not attained, the obstructed matter became vitiated, and pus was formed. Hypochondriasis, gout, melancholy, and almost all cachectic disorders, were attributed to a *diminution* of the tonic power of the vena portæ, and the consequent stoppage of the blood in it; while spasmodic diseases were thought to indicate an *excess* of the general tonic power of the system.

Rejecting the aids derivable from anatomical researches, of the use of which in medicine Stahl entertained a very mean opinion, he proceeded, in conformity to the general principles we have related, to the treatment of disease. It may very naturally be supposed that a theory which attributed so much to the salutary operations of nature, was not likely to lead to very active practice: accordingly we find that Stahl adopted, to a very great extent,

the Hippocratic mode of watching these healing operations, without interfering with them farther than to assist their weakness or moderate their excess: and, in fact, he and his followers, trusting principally to the operations of nature, zealously opposed the use of some of the most efficacious remedies, as opium, cinchona, and mercury; and were extremely reserved in the employment of bleeding, vomiting, &c. Notwithstanding, however, the hypothetical notions of Stahl, his inert practice, and his contempt for anatomical research, yet much praise is due to him for having directed the attention of pathologists to the phenomena of *vitality*, and showing the fallacy of the chemical hypotheses, a task for which he was pre-eminently qualified by his profound investigations in the science of chemistry.

Hoffman was a physician who obtained great celebrity at this period, less however on account of his superior mental faculties than for his extensive erudition, and the art he had of displaying it to advantage. He was educated under the mechanical sect of physicians; and it is rather remarkable, that Stahl, who had been taught the chemical doctrines, should have discarded entirely chemical illustrations of disease, while Hoffman, who had been taught by the mechanists, admitted the existence of acid cacochymia, and even attempted to show how the union of this acid with blood produced neutral salts which were the cause of gout, calculi, rheumatism, and cutaneous diseases. Though engaged at one period of his life in controverting the opinions of Stahl, on the supposed ground of their atheistical tendency, yet the theory of Hoffman, as far as the vital or motive principle was concerned, scarcely differed from that of his enlightened colleague: for, though he applied to it the appellation of *nervous fluid*, or ether, and fixed its seat in the nervous system; yet, in attributing to it the faculties of mind, sense, and intelligence, he caused it to approach very nearly to the *anima*, or soul, of Stahl. Like Stahl, too, he allowed that morbid actions were frequently induced by a plethoric state of the system; and, in conformity likewise with the views of that author, he referred much to the obstructions of the humours, especially in the vena portæ. Fever and inflammation he supposed to arise from spasm, or constriction of the capillary vessels, particularly of the skin, an opinion which was illustrated and improved in after-times, and more fully developed in the famous theories of Cullen.

In the practical department of the art, however, Hoffman left Stahl far behind him. We have to observe in his treatment of inflammatory disorders great decision and correctness, and consequently a great degree of success. He abolished too, in a great measure, the sudorific plan of treatment which the humoral pathologists had practised to a very dangerous extent, and to which Stahl was particularly attached. To him likewise we are indebted for the use of the *Liquor anodynus*, an excellent and well-known article of the materia medica. He likewise showed the great use of bark in intermittent fevers, and of chalybeates in chronic disorders. Moreover he investigated, with great care, the composition of mineral waters, and taught the art of preparing them artificially. We ought not to forget to remark that, in the work of Hoffman, "*De Consensu patium nervosorum*," many valuable observations will be found, particularly those which regard the influence which various organs exert upon one another.

But the physician who obtained at this period the highest rank as a pathologist was Boerhaave. Educated by his father with a view to the ministry, he imbibed at an early age a knowledge of the learned languages; afterwards applying himself with assiduity to the study of mathematics, and then to the profound investigations of moral philosophy, he next proceeded to botany and natural history, by which he laid the foundation for a very extensive acquaintance with the science of medicine, which at length he adopted for his profession. See BOER-

HAAVE, vol. iii. Anatomy (of which his works betray great deficiency) was the only branch of his education which seems to have been neglected; which is nevertheless surprising, because he dissected for some time under Nuck, an anatomist of much repute. Boerhaave conceived that that theory of medicine must be the best which reconciled the opinions of all sects; and, accordingly, he laboured to unite the chemical doctrines of the day with the valuable observations derived from the other schools and from Hippocrates. Of the father of medicine he professed to be a great admirer, and affected to return to the good and ancient method of acquiring knowledge by observation and experiment; but unfortunately forgot his own rules, yielded to the influence of early studies and a love of theorising, and in many instances obscured the science his abilities had otherwise enabled him to adorn in a most eminent degree. However, the plausibility of Boerhaave's doctrines, the beauty of his style, and the graces of his delivery, gained for him an ascendancy which is almost unparalleled. We may form some idea of the importance attached to his labours when we read, that, on his beginning a course of lectures, the occurrence was deemed of so much consequence, that the whole city was illuminated. Boerhaave adopted a notion, of which his philosophical education should have taught him the absurdity; viz. the existence of an intermediate substance between matter and spirit, a principle which regulated or produced all the vital functions. He had taken this idea from an ancient dogma found in one of the writings attributed to Hippocrates; and his nephew, Kaan Boerhaave, followed up and illustrated this hypothesis with much spirit, and, unfortunately, with the admiration of his contemporaries, who adopted it almost universally, until the splendid discourses of Haller began to wean them from opinions so dissonant to the results of sound reasoning.

Boerhaave died in the year 1738; so that we have now fairly got into the eighteenth century, and have arrived at a period when physiology, long obscured by the misapplication of the natural sciences, at length began to be studied according to the dictates of sound reasoning and the results of experiment. The name of *Haller* (who studied under Boerhaave) stands in lofty pre-eminence among the cultivators of medical science during this century. Panegyric has been seldom more properly applied than to this distinguished author. His biographers have shown how assiduously, at the earliest periods of his life, his mind was bent on the acquisition of knowledge; and they have reported his varied, his extensive, accomplishments. His poem of the Alps shows how eminently he possessed sublimity of imagination and the harmony of numbers; and his researches in our own science manifest the profundity of his reasoning; while the admirable picture is closed by the relation of his earnest regard for the interests of morality and religion. In a word, Haller seems to have almost realized the account given of the gods, or inventors of medicine, who individually united the four grand sciences of poetry, legislature, physic, and divinity. See the article HALLER, vol. ix.

The irritability of the body was the point to the establishment of which a very large proportion of Haller's researches were directed; and in this principle he formed a ready solution of many phenomena which had puzzled his predecessors and given rise to much idle and fanciful speculation. We may be excused, however, from entering into the physiological discoveries of Haller, as we shall have occasion to treat of them somewhat largely in our article PHYSIOLOGY. It should be mentioned, however, that the *Elementa physiologica* of Haller is a work of the greatest merit, and which, notwithstanding the wonderful progress of physiology in our own time, may still be referred to, as containing an immense body of research arranged in a very beautiful manner. And this book would probably have still remained the text-book of every physiological school, had not the profound re-

searches of our countryman Hunter led mankind to detect its errors and deficiencies, and shown how much still remained to be done ere the fabric of this science could be considered as resting on a stable foundation.

It would appear that Haller was not an operating surgeon; for, in his *Bibliotheca Chirurgica*, vol. ii. he says, "Although I have practised surgery seventeen years, and exhibited the most difficult operations on the dead body, I have never ventured to apply a cutting instrument to a living subject, through a fear of giving too much pain."

Among the other physiologists who flourished during the early part of the eighteenth century, we may mention Porterfield, Whytt, and Bordeu. The two former were distinguished by their researches on muscular action and nervous influence; and the latter has the merit of having pointed out the importance of the cellular tissue, and of describing many properties belonging to it which his predecessors had overlooked.

We can scarcely draw a stronger contrast as to the different methods of acquiring knowledge than by mentioning the name of *John Hunter* immediately after that of Haller: the one possessing every advantage which collateral knowledge could procure, a man of the most perfect skill in languages, and profoundly erudite; the other ignorant of the most simple and elementary branches of education. Yet they stand each unrivalled in the annals of our art. The name of Hunter will frequently come before us when treating the sciences of physiology and zoology; but we must here pause to describe, in some measure, the speculation which he adopted on the subject of life, or vitality, because it has probably had much influence on pathological doctrines. Before the time of Hunter, many authors had remarked that a vital principle existed in the body independent of organization; but he first asserted, (to use the words of his own enlightened eulogist,) that "*life* actually constructed the very means by which it carried on its various processes; and that it could operate in semi-fluid, and even fluid, substances."

This specimen of hypothetical reasoning which Hunter has left us, forms the only exception to the unqualified admiration with which we are disposed to regard him. But certainly, this notion of a vital principle is very extravagant; and, in attributing to it some degree of intelligence (which he has done when treating of the absorbents,) he has rendered himself liable to be opposed by the same conclusive arguments which had long since refuted the notions of Stahl. The labours, however, of Hunter, by giving a more certain and fixed character to physiology, have caused that science to be used as the basis of medical practice and every modern system of nosology; and his extensive researches in comparative anatomy, opened a field of which the further cultivation has produced, and is still producing, great information in regard to the science of life, and, hence, to the science of medicine. The surgical operative improvements which Hunter made, were some new methods of treatment in rupture of the tendo achillis, and in the operations for hydrocele and fistula lacrymalis; and likewise in the mode of operating for popliteal aneurism, by taking up the femoral artery in the fore part of the thigh.

The publications for which John Hunter is most distinguished, are—his work on the Venereal Disease, 1786, and his *Treatise on the Blood, Inflammation, and Gun-shot Wounds*, not given to the public till after his death. Nor should we omit to notice the very numerous and important papers which he presented to the Royal Society, in rapid succession, especially between the years 1773 and 1783, chiefly relating to comparative anatomy and physiology. His fame, however, will principally rest upon his various discoveries in this branch of science; and it would be injustice to his character not to describe, as amply as our limits will admit, the Anatomical Museum, the formation of which may be regarded as having been the main object

object of his life. In its plan it was absolutely unique, and the perfection to which he brought it rendered it the admiration of all who were capable of judging of its value. It embraced the grand design of exposing to view the gradations of nature, from the most simple state in which life is found to exist, to the most perfect and complete piece of animal mechanism, that of man. This collection of anatomical facts is arranged according to the functions they are intended to illustrate, the different parts of animal bodies intended for similar uses being brought together in series, so that the various links in the chain of perfection are readily followed, and clearly understood. This arrangement comprehends four great orders; the first, parts constructed for motion; second, parts essential to animals respecting their own internal economy and preservation; third, parts superadded for purposes connected with external objects; and, fourth, parts for the propagation of the species, and the maintenance of the young. The First Order exhibits the fluids of living bodies in a series, from the simple colourless sap of some vegetables to the coloured and coagulating blood; the muscles, from the straight simple muscle to the most complicated structure with elastic ligaments; the growth of bone, horn, shell, &c. and the varieties of joints. The Second Order comprehends the organs of digestion, beginning with the hydatid, which is itself a simple pouch, and passing to the polypus, the leech, and more complicated animals, including a series of stomachs, of intestinal canals, and of the glands connected with them, as livers, spleens, &c. After the organs of digestion follows the system of absorbing vessels, from the roots of plants up to the lacteals and lymphatics of different animals. The next step is to the heart, which, in the caterpillar, is a simple canal, and receives various additions as we ascend in the scale, until we find it a double heart in man and quadrupeds: this leads to the structure of arteries and veins. Then the lungs are shown in all their gradations, from the simple vascular lining of the egg-shell, which serves as lungs for the chicken, to those of the more perfect animals, including gills, &c. The windpipe and organs of voice are shown under their different forms. And, lastly, the kidneys are exhibited, which separate the superfluous fluids from the circulation. The Third Order takes up the brain from its simplest state in the leech, to the snail, insects, fish, &c. upwards; the varieties of all the organs of sense in the different tribes of living things; and, lastly, the external coverings of hair, feathers, scales, &c. the weapons of offence and defence, as spurs, hoofs, horns, stings, and electric organs. As an Appendix to this Order, some peculiar structures are added, such as the air-bladder in fish, &c. The Fourth Order includes all the variety of parts connected with the process of generation in plants and animals, from the polypus and coral to the perfect animals; those of females in the maiden and impregnated state, including the products of seeds, spawn, eggs, &c. the progress of incubation; the peculiarities of the fœtus; and the various organs for the nourishment of the young. This sketch gives a very inadequate idea of the amazing number of objects, from every department of nature, which the collection comprised; but it contains, besides, a large series of whole animals, arranged according to their internal structure, many of them the rarest ever brought into this country; such as the camelopard, hippopotamus, &c. It comprehends, moreover, a series of skulls of different animals, and skeletons of almost every known genus; an immense number of calculi, urinary, biliary, and intestinal; a large collection of shells and insects; and a most complete assortment of extraneous fossils. By his will, Mr. Hunter directed that this Museum should be offered to the purchase of government; and, after some negotiation, it was bought for the public use for the sum of 15,000*l.* and given to the College of Surgeons, on condition of exposing it to public view on certain days in the week, and giving a set of annual lectures explanatory of

its contents. A large building for its reception has been completed in Portugal-street, connected with the College of Surgeons, in Lincoln's-Inn Square; and, in the spring of the year 1810, the first course of lectures was delivered by Mr. Home and Sir William Blizard.

One of the very first surgeons of the present day, Mr. Lawrence, in a Lecture at the College of Surgeons a few months ago, speaks of John Hunter in the following terms: "Mr. Hunter is the glory of England in the 18th century. In vigour and originality of genius, in comprehension and depth of thought, in unwearied industry, he has been surpassed by none. He was one of the men who gave a character to the age in which they live, whose names are associated to the great eras of science, and who do honour to the country which produces them. Occupied by a laborious profession, and defraying from its hard earnings the expenses of his multifarious inquiries, he accomplished what appears almost incredible. What might he not have done, had his time been devoted exclusively to his favourite pursuits, and had they been aided by that pecuniary assistance and fostering support, which the rulers of mankind so seldom and so unwillingly spare from their schemes of war and conquest? He surveyed anatomy and physiology with the eye of a philosopher; proceeding constantly, with the aid of dissection and experiment, to ascertain the structure of animals, and to determine the nature of their functions. There is scarcely a branch of physiology which he has not illustrated by some original researches, while he has examined each organ in every animal that he could procure. His Museum is arranged on this truly philosophical principle; a plan followed by Aristotle, and to be completed, I hope, by Cuvier." This last eminent person is mentioned by the same distinguished authority, as one who has suffered no corner of the wide field of zoology to escape his penetrating glance: "Equal (observes Mr. Lawrence) to Buffon in enlarged views and comprehensive grasp of mind, and much superior to him in patient research, minute observation, and learned inquiry, he presents a rare union of all the great requisites for promoting natural knowledge. He has been not less fortunate in his situation than in his qualifications; devoting his whole time to science, and surrounded by numerous able assistants, he could avail himself, to their full extent, of those liberal institutions for the advancement of natural knowledge, and that uniform encouragement of talent, for which science will ever be indebted to the late French government. Accordingly, his progress has been every-where marked by improvement and discovery."

Dr. William Hunter, the elder brother of John, was a very distinguished physician, anatomist, and accoucheur. We have already devoted two pretty long articles in our ninth volume to the HUNTERS. We need, therefore, only add, that to William the profession is indebted for the discovery of the *membrana decidua reflexa*; and to remind our readers how much we have availed ourselves of his splendid work, the Anatomy of the Gravid Uterus, in our articles ANATOMY and PARTURITION, vols. i. and xviii. His Museum, which is extremely valuable, though of a different nature from that of his brother, is now in the university of Glasgow, having been sent there by Dr. Baillie some years before the time mentioned in his uncle's will. See HUNTER, vol. ix. p. 481, 2.

Among the most distinguished anatomists of the 18th century, as enumerated by Haller in his Bibliothecæ, we have the names of Morgagni, Winslow, Cheselden, &c. which were dated in about the first 30 years of that century, except Morgagni's work, de Sedibus and Causis Morborum, which he published at an advanced age. Under the title of the *perfect state* of anatomy, Haller reviews the works of Albinus, Senac, Monros, (the father and son,) Nicholls, Lieutaud, Ludwig, Leiberkuyn, Daubenton, Camper, Walther, Meckel, Zinn, Fontana, Wrisberg, Spalanzani, Hewson, Portal, Sabatier, Scarpa, Blumenbach, Troja, &c. whose writings extend to the

time when he wrote, and indeed about twelve years after, since the two last of the 10 vols. of which that noble work consisted were published, in 1788, with additions, by the learned editors, to that time.

While supplying the deficiencies of Haller, and extending the enquiries to our own times, we shall be convinced of the impropriety of the title of one of his chapters just quoted, "the perfect state of anatomy," since anatomy and surgery, as well as pathology and physiology, have been rapidly improving ever since. This has arisen from the assistance of governments in the different countries. They being convinced that anatomy is one of the most necessary sciences, and the groundwork of the whole healing art, but particularly of surgery, in many great cities academies were instituted for the cultivation of practical anatomy; and schools were also established for the instruction of the theoretical and practical parts of surgery.

These improvements in surgery have been chiefly made in England, France, and Germany; and in all these countries a number of very eminent men have appeared.

The English surgeons, besides possessing an accurate knowledge of anatomy, and great abilities in the operative part of their profession, were the first who endeavoured to bring the art to its present simplicity. They directed also their attention, in a particular manner, to the diet of patients; the neglect of which had caused the unfortunate issue of many operations which had been dexterously performed.

Among the surgeons of later times, we may first mention the name of Sharp. He was a scholar of Cheselden, and one of the best surgeons of his day. He wrote a Compendium of Surgical Operations, 1746; and also a Critical Inquiry into the State of Surgery; both of which works are still in high estimation.

In the year 1719, Dr. Monro, after visiting the schools of London, Paris, and Leyden, where he was a pupil of the great Boerhaave, came to Edinburgh; and this may be considered as the date of the foundation of the Edinburgh medical school. He began by giving lectures on anatomy and surgery, the first which were delivered in Edinburgh; and in the year 1721 he was appointed professor of anatomy and surgery to the university. This eminent anatomist and surgeon, besides filling his chair with the greatest reputation, contributed to the advancement of our knowledge in many important parts of anatomy and surgery. His works, published by his son, besides his Treatise on Osteology, which is certainly the best description of the bones that has ever been given, will be found to contain many interesting and valuable observations on various surgical diseases.

Joseph Warner, surgeon of Guy's Hospital, in London, published his Cases and Remarks in Surgery in the year 1754, a work which contains many very important practical remarks. He afterwards published a very good work, containing a description of the human eye and its adjacent parts, in which he particularly rejects the fastening of the eye during the operation of cataract. He also published An Account of the Testicles, their Common Coverings and Coats, &c.

Percival Pott, surgeon of St. Bartholomew's Hospital, may be justly considered as one of the principal English surgeons of his time. He was not only a successful practitioner, but an industrious and excellent writer. The merits of Pott are indeed considerable. He threw much light on the doctrine of wounds of the head, by his accurate arrangement of the different kinds of injuries to which the head is subject. He also gives a good account of hydrocele and the other diseases of the testicle. For the operation of the fistula in ano, he made material improvements. He has given many useful hints on fractures and dislocations; and he was a great champion in favour of the operation for cataract by couching. He was the first person who described the chimney-sweeps cancer; and on herniæ, polypus, and curvatures of the spine, he

VOL. XIX. No. 1283.

has made many judicious pathological and practical observations.

Charles White, surgeon in Manchester, published an excellent practical work in the year 1770, in which he recommends amputation of the foot, a little above the ankle-joint, instead of under the knee, as had usually been practised. He also shows the effect of sawing off the ends of bones; and discusses several other interesting points in surgery. In the same year, Mr. Else, of St. Thomas's Hospital, published his treatise on the hydrocele, in which he recommends the use of caustic in the cure of that disease.

In the year 1770, Mr. Dease, of Dublin, wrote an excellent treatise on the wounds of the head. Mr. Bromfield, of St. George's Hospital, and Mr. Hill, surgeon at Dumfries, also distinguished themselves; Mr. Bromfield for his Chirurgical Observations, and Mr. Hill for his Observations on Cancers.

In the year 1778, Mr. Benjamin Bell published the first volume of his System of Surgery. The reputation of this work was soon such, that it was translated into the French and German languages; and it has since gone through several editions in these, and many in English. This work presented the most complete system of surgery which had ever appeared; and in every part of it there is displayed a talent for practical observation and clearness of thought which must render it ever a useful and valuable present to surgery. Like all such extensive works, it is not without faults, and the language in which it is written is in some places prolix and diffuse; but, notwithstanding its errors, it certainly must be considered as the most useful body of surgery that has yet appeared in this country.

We are aware that we have omitted the names of very many eminent English surgeons and anatomists; as Douglas, Cowper, Alanson, Hawkins, Smellie, &c. &c. The details, however, of their respective inventions and discoveries, would exceed our limits; and, indeed, may very well be spared, for there is confessedly great difficulty in ascribing even anatomical facts to their right discoverer, much more the abstruse and obscure speculations of physiologists. Moreover, the same facts have been discovered by different persons, ignorant of the researches of each other, and each has been equally tenacious of his prior claim. Thus, the discovery of certain parts of the lymphatic system, was made by Dr. Wm. Hunter, and by Monro, jun. of Edinburgh, each unconscious of the other's labours. The publication of them aroused much controversy and litigation. Numerous instances might be adduced of a similar kind.

Periodical medical works were set on foot in Great Britain about this time. Upon the great utility of such publications, in diffusing knowledge far and wide, we need not enlarge after what has been said under the article MAGAZINE, vol. xiv. p. 90. The Edinburgh Medical Essays were first published in 1732, being eleven years antecedent to the appearance of the Memoirs of the French Academy.

Italy, during this period, lent some aid to the improvement of surgery, by the lectures of Molinelli, Bertrandi, and Moscati; while, in Holland, Albinus, Deventer, and Camper, by their discoveries and improvements, and still more by their free communication of them, endeavoured to remove the stigma which the charlatanism and secrecy observed by Ruysch, Roonhuysen, and Raw, had thrown on the surgery of that country.

In Germany, and the north of Europe, flourished Heister, the fellow-student of Albinus, Blatner, Roederer, Stein, Bilguer, Acree, Brambilla, Theden, Richter, &c.

The reign of Louis XIV. has been called, by Richerand, the iron age of surgery in France. Yet the French, at that time, prided themselves on the almost exclusive possession of chirurgical practitioners. "Les progrès de la chirurgie," observes M. De Francheville, "furent si

L rapides

rapides et si celebres dans ce siècle, qu'on venait à Paris des bouts de l'Europe, pour toutes les cures, et pour toutes les opérations qui demandoient une dextérité non commune. Non seulement il n'y avait guères d'excellens chirurgiens qu'en France; mais c'étoit dans ce seul pais qu'on fabriquoit parfaitement les instrumens nécessaires." It is somewhat singular however, that, amidst all this boasted possession of surgical knowledge, the fistula in ano should be a disease in which the French surgeons were fearful of operating, and which had often proved fatal beneath their attempts. Cardinal Richelieu fell a sacrifice to the unskilfulness with which the operation was performed; and, when the king entrusted himself to the care of M. Felix, his chief surgeon, so hazardous was this operation deemed, that all the hospitals were ransacked for those who had laboured under the same disease; and innumerable consultations were held with other surgeons of known reputation, to determine on the mode of operating that should appear least painful and dangerous. The churches also were perpetually crowded, and prayers perpetually offered up throughout the whole kingdom, to avert the fatal termination which was so generally apprehended. And, when this monarch was attacked by the disease to which he fell a victim, he became dissatisfied with his own physicians, and employed an empiric, who boasted of being able to cure him speedily, but under whose care he expired in a few days.

We have gone back to the 17th century to speak of the state of surgery under Louis XIV. as he died at the beginning of the 18th. Yet we cannot help attributing the great perfection the art acquired in the last century to the exertions of that powerful monarch. He founded hospitals and colleges, established professorships, which he required to be filled only by surgeons of acknowledged talent: he commanded bodies to be liberally supplied to the anatomists; and hence Paris became the medical and chiralurgical school of the greatest celebrity on the continent.

Petit and Desault are the first and most conspicuous authors who come under our observation at this time. The eulogium on J. L. Petit, delivered in the Royal Academy of Surgery, of which he was one of the first and most distinguished members, represents him as blending the study of anatomy with his amusements when a boy; and ardently seeking every opportunity to increase his knowledge by observation. He had had experience enough to publish, at an early period of his life, his "Traité sur les Maladies des Os," Paris, 1705, 12mo. a work, which for a century was esteemed the best upon the subject. It may be noticed, that his success was most virulently opposed by the envious. It was not till after more than thirty years of academical labours and extensive practice, that he was unanimously elected chief of his associates. This acknowledged superiority was the more flattering, as J. L. Petit obtained it at a period when surgery was in a flourishing state in France, and where he held no place from which he could derive an influence foreign to his personal merit. While Mareschal, La Peyronie, and La Martiniere, assured him of the royal favour, Quesnay, Morand, and Louis, who corrected his writings, made him speak a language that does honour to the famous collection to which he contributed his observations (see Memoires et Prix de l'Académie Royale de Chirurgie, 10 vols. 4to.) and in which, if we except some theoretical explanations, nothing has lost its value by age. In short, it will ever be considered as one of the most valuable collections of surgical knowledge. J. L. Petit was also the author of a "Traité des Maladies Chirurgicales, et des Operations qui leur conviennent; Ouvrage posthume;" a production that will always stand high in the estimation of the judicious surgeon.

Of Desault we may remark, that he is highly celebrated for the exactness and method which he introduced into the study of anatomy; the ingenious apparatus which he invented for the treatment of fractures; a noble

ardour in his profession, which he knew how to infuse into all his pupils; and the boldness and simplicity of his modes of operating. His clinical lectures upon surgery were the first ever delivered. Indeed, such was his genius, that, when he practised only methods already understood, he did them with so much adroitness, that he rather appeared to be the inventor of them. He wrote the Journal de Chirurgie, 4 vols. 8vo. and left behind him Œuvres Chirurgiques, 3 vols. edited by Bichat. He likewise furnished many papers to the Memoirs of the Academy of Surgery, and was a distinguished member of the Ecole de Santé which succeeded it.

What tended principally to raise the reputation of French surgery to so high a pitch, was the union of individual labours in the Academy of Surgery just mentioned. This valuable institution, which gave our continental neighbours so great an advantage over us, was unfortunately suppressed at the time of the revolution; and every one interested in the improvement of science must deeply regret the discontinuance of a society, in which emulation and talents were so long united for the benefit of mankind. The various dissertations, published by the illustrious members of the Academy, will serve as a perpetual memorial of the spirit, ability, and success, with which the objects of the institution were pursued; and centuries hence, practitioners shall reap from the pages of its Memoirs the most valuable kind of surgical information. Indeed, the "Mémoires et Prix de l'Académie Royale de Chirurgie" is a work which is absolutely indispensable for every surgeon, and the various parts of which cannot be too often consulted. In it are preserved the labours of Le Dran, Garegeot, De la Faye, Louis, Verdier, Foubert, Hevin, Pibrac, Fabre, Le Cat, Bordenave, Sabatier, Puzos, Levret, and several other practitioners, who, though less famous, have contributed by their exertions and knowledge to form this useful body of surgical facts. The preceding surgeons also distinguished themselves by other productions.

Le Dran published, 1. Parallèle des différentes Manières de tirer la Pierre hors de la Vessie, 12mo. 2. Opérations de Chirurgie, 2 vols. 12mo. 3. Observations de Chirurgie, 2 vols. 12mo. 4. Traité des Plaies d'Armes à feu, 12mo. 5. Consultations de Chirurgie, 12mo.

Garegeot wrote: 1. Traité des Instrumens de Chirurgie, 2 vols. 12mo. 2. Traité des Opérations de Chirurgie, 3 vols. 12mo.

Fabre was the author of Recherches sur l'Art de Guérir, 8vo.

Le Cat wrote: Recueil de Pièces sur l'Opération de la Taille.

Sabatier published the Médecine Opératoire, 3 vols. 8vo.

Puzos composed Traité des Accouchemens; Paris, 1759, 4to.

Levret wrote, 1. Observations sur les Accouchemens laborieux; Paris, 1747. 2. Art des Accouchemens, démontré par les Principes de Physique; Paris, 1761, 8vo. 3. Essai sur l'Abus des Regles générales, &c. Paris, 1766, 8vo. 4. Observations sur la Cure radicale des Polypes; Paris, 1749.

La Motte published: 1. Traité complet des Accouchemens naturels, non-naturels, et contre Nature. 2. Traité complet de Chirurgie.

Mâitre-Jean was the author of Traité des Maladies de l'Oeil, 4to.

Goulard wrote: Œuvres de Chirurgie; Liege, 1763, 2 vols. 12mo.

Ravaton composed, Le Chirurgien d'Armée.

Pouteau: 1. Melanges de Chirurgie, 8vo. 2. Œuvres posthumes, 3 vols. 8vo.

David, Observations sur la Nécrose; Paris, 1782, 8vo.

The Academy of Surgery, which was overthrown during the French revolution, had at first a very inferior substitute in the Ecole de Santé; but, since the restoration, has been succeeded by the Ecole de Chirurgie, (see PARIS, vol. xviii. p. 467.) which has brought forward

Boyer,

Boyer, Heritier, Dubois, Manoury, Lallemand, Richerand, Petit de Lyon, and, above all, Bichat.

To Bichat, the ingenious and enlightened Bichat, the world is indebted for the first truly philosophical view of the structure of the human body. The simple division of it into its component parts, which this great anatomist and philosopher has pointed out, must be considered as the ground-work of all future anatomical and pathological inquiries.

Bichat demonstrated, that most of the organs of our body are made up of a variety of elementary parts or textures; each of which, in whatever part of the body it is found, uniformly has the same physical properties, and presents the same morbid phenomena. These he considers as the *elementary parts*; which, by the diversity of their combinations, produce all the modifications of structure and functions exhibited in the different organs of animals. This method of considering organized bodies, accords with every phenomenon with which we are acquainted, and seems to arise from the essential nature of their constitution. We may trace this view of the structure of the body in the observations of many of the older anatomists; and particularly it may be considered as the basis of some of the most ingenious philosophical theories of the late ingenious Mr. John Hunter.

In order to fix the characters of the elementary textures, Bichat employed various modes of inquiry. He performed numerous experiments on living animals; persevered in tedious and minute dissections; employed chemical re-agents to supply the place of the knife; and examined with minuteness all the varieties of morbid structure. Having by these means accomplished his object in tracing the character of each separate texture, he proceeded next to investigate their combinations as they are found in the different organs.

The effects of this mode of investigating the structure of the human body when diseased, must be at once obvious. We learn from it, that diseases at their commencement are generally confined to one texture of an organ; the other textures of which the organ is composed remaining found. There is no organ of the body from which this important truth may not be deduced. It may be readily illustrated from considering the diseases of the mucous, serous, and muscular, textures, which compose the stomach and alimentary canal; of the cellular texture of the lungs; of the mucous membrane of the bronchi, the serous one of the pleura, and many others.

But diseases are not only confined to one individual texture of any organ, as in the cases just mentioned; the symptoms and morbid changes are likewise uniformly the same in textures of a similar structure, in whatever parts of the body these textures may happen to be found. Thus the serous membranes which invest the lungs, the brain, the heart, the abdominal viscera, have one common character when affected with any specific disease; so also have the mucous membranes, whether we trace them in the mouth, the nose, the vagina, the urethra, or covering the eye-ball; and the same may be observed of every individual texture which enters into the composition of our bodies.

Besides the symptoms and morbid changes which are common to all textures whose structure is similar in the natural state, there are others which are determined from the particular functions of the organ in which the diseased texture exists. For example, when any of the serous membranes are inflamed, the nature of the pain, the degree of fever, and the duration of the symptoms, are the same, in whichever one it may have taken place. But to these symptoms are added, cough, difficulty of breathing, &c. when it happens to be connected with the organs of respiration, as in the case of pleuritis; costiveness, strangury, delirium, loss of vision, when the intestines, the bladder, the brain, or the eye, are involved in the disease.

This view of the subject naturally suggests a correspondent division of the *symptoms*. The first class are general, and characterise a whole genus of textures; the second are in a manner accessory, and depend upon the relative situation or the particular functions of the organ into the composition of which the affected texture enters. But here we must set bounds to this theory. The history and progress of diseases show, that we ought not to confine our observations within such narrow limits. The principles which have been stated, indeed, account admirably well for the propagation of some affections; and for some of the sympathies which subsist between different parts of the body; but there are other disorders which advance in a very different manner. In some diseases which are termed chronic, for example, the whole structure of an organ becomes gradually altered, although the primary affection was confined to one of its component textures. This is often to be observed in cancer, scrofula, lues venerea, &c. These general observations, however, will be sufficient to give an outline of the principles of a pathological system founded on the basis of anatomical knowledge; but the details of which are reserved for another place.

With regard to the *urgery* of the present day, we may remark, that our labours have of late been chiefly directed, by means of physiology and pathology, to the *treatment* of surgical cases; and, though in that respect we may be allowed to stand far before our ancestors, yet even in simple operations we are not without improvement. The bold and successful operations of Larrey will testify this, as well as the grand operations for aneurisms performed by Abernethy, Lawrence, Astley Cooper, and others of our English surgeons, whose names however we forbear to mention, convinced of our inability to do justice to the merits of all, and unwilling to appear invidious by the exclusion of any.

We now hasten to the consideration of those pathological theories, which, perhaps more than any other branch of medicine, form the criteria of medical practice.

The medical theorists, then, of the 18th century, were chiefly Cullen, Brown, and Darwin. If we were inclined to draw comparisons in regard to merit, the first of these physicians would deserve our greatest encomium; for he observed nature with acuteness, and was consistent and rational in his treatment of disease, which cannot be accorded to either of the latter. He likewise made an arrangement of diseases which had great merit, and which nothing but the increase of physiological knowledge, and its successful application to pathology, that has taken place in our time, can warrant us in departing from, and which indeed we promised to adopt. See vol. xvii. p. 245.

Cullen's pathological doctrines were a modification of the theory of Hoffman. From that author he took up the doctrines of spasm and debility, and deduced from them all the phenomena of febrile disorders; and he endeavoured to confirm his theory by proofs drawn from the laws of the nervous system, and from the consideration of the remote causes of the diseases in question. Rheumatism was referred by him to a spasm of the muscular fibres, arising from an increased afflux of blood; but gout he conceived to originate in atony, especially in atony of the digestive organs. In these latter diseases, he rejected the idea of a peculiar morbid matter; yet in his explanations of certain other complaints, as, for instance, of scrofula, he had recourse to the supposition of an acrimony of the fluids. He laid much stress on the efforts of the *vis medicatrix nature*, advocated the hypothesis of a nervous fluid and vital principle, and ascribed to the brain a peculiar faculty, by which it was enabled to excite the muscles to action, independently of the mind, and to which he gave the name of *irritability of the sensorium*. Cullen seems to have been much in the same situation with Boerhaave as to anatomical and physiological

physiological learning, of which many of his speculations betray a sad deficiency.

In regard to *fever*, Dr. Cullen's theory was that the first change induced in the animal system by the operation of the exciting causes of fever is, "diminution of the energy of the brain." The powers of the body and the mind, the functions of sensation and motion, respiration, circulation, and secretion, all fail, or are diminished in the general debility; but, after a certain time, a morbid increase of some of these functions, especially of the circulation, takes place, with an augmentation of the heat. The three states of debility, of cold, and of heat, which regularly succeed each other in fever, in the order just mentioned, are presumed to exist in the relation of cause and effect; the first state being the result of the sedative or debilitating influence of contagion, miasmata, and cold, which are the exciting causes. Dr. Cullen acknowledges his inability to explain satisfactorily, how the debility produces all the phenomena of the cold stage, especially the *spasmodic* constriction of the extreme arterial vessels, which is inferred from the suspension of the secretions, and the shrinking of parts, in the cold stage, as well as from the continuance of this suspension in the hot stage, after the action of the heart and large arteries is increased. Were the constriction of the cold stage merely the result of the weakened action of the heart, it is supposed, that, on the return of its ordinary or increased action, the constriction would be removed, and the secretions restored. Here Dr. Cullen resorts to "the *vis medicatrix naturæ*, so famous in the schools of physic;" i. e. the innate preserving power of the constitution, which has been appealed to for the solution of difficulties by all medical theorists, from Hippocrates downwards. This "spasm of the extreme vessels," then, is considered as "a part of the operation of the *vis medicatrix naturæ*;" at the same time, Dr. Cullen is of opinion that, during the whole course of fever, there is an atony existing in the extreme vessels, depending on the diminished energy of the brain, and that the relaxation of the spasm requires the restoration of the tone and action of these. To this atony in the vessels of the skin, he attributes the loss of appetite, nausea, and vomiting, the stomach being affected by sympathy. The spasm induced in the extreme vessels throws a load of blood upon the central parts of the circulating system, which proves a source of irritation to the heart and arteries, and excites them to a greater action, which continues till the spasm is relaxed or overcome. The hypothesis is thus briefly recapitulated: "Upon the whole, our doctrine of fever is explicitly this. The remote causes are certain sedative powers applied to the nervous system, which, diminishing the energy of the brain, thereby produce a debility in the whole of the functions, and particularly in the action of the extreme vessels. Such, however, is, at the same time, the nature of the animal economy, that this debility proves an indirect stimulus to the sanguiferous system; whence, by the intervention of the cold stage, and spasm connected with it, the action of the heart and large arteries is increased, and continues so till it has had the effect of restoring the energy of the brain, of extending this energy to the extreme vessels, of restoring therefore their action, and thereby especially removing the spasm affecting them; upon the removing of which, the excretion of sweat, and other marks of the relaxation of excretories, take place." Cullen's First Lines, § 46.

To this theory it has been objected, firstly, that it is founded, as far as regards the *vis medicatrix naturæ*, on the gratuitous assumption that a principle exists of which we have sensible evidence; secondly, that, to take the cold stage as the proximate cause of the after-phenomena of fever, is dissonant with evident fact; for the hot stage of fever often comes on apparently from external causes, and unaccompanied by the cold stage; and thirdly, that, with regard to spasm of the external vessels, such an oc-

currence affords no explanation of febrile phenomena; and indeed it seems quite absurd to suppose that the hot stage and the cold stage can by any means be consequences of the same action; and that, so far from the capillaries being contracted, we have pretty clear evidence that they are extremely distended with blood during all febrile diseases in which the skin is affected.

In a passage of his "Institutions of Physiology," Cullen speaks of a state of *excitement*, or *collapse*, of the brain and nervous system, on which he supposes the strength or debility of the other parts of the body to depend; and in his other writings, he is constantly labouring to prove in what manner these conditions may be occasioned by the agency of various causes. Brown, seizing upon this idea, set about the formation of a new theory, according to which all the actions of life were to be referred to the *excitement* of the body by *stimuli*, and all diseases reduced to the two general heads of *direct* and *indirect debility*, or debility arising from a deficiency, or a previous excess, of excitement; or in other words into *sphenic* and *asthenic* disorders.

The Brunonian system might very well be compared with the Methodic, its distinguishing features being the referring of all diseases to two opposite conditions of the constitution, *sphenia* and *asthenia*, or strength and debility, which might with almost equal propriety have been called *strictum* and *laxum*, (see p. 11.) and the consequent exclusion of all particular investigation of the minute distinctions in the phenomena of diseases which it encouraged.

This sweeping arrangement was, however, much lauded in many parts of the continent, and gained a very large proportion of advocates in our country, among those who had not sufficient knowledge of nature to detect its fallacy. The most general of Brown's principles are thus explained.

1. To every animated being is allotted a certain portion only of the quality or principle on which the phenomena of life depend. This principle is denominated *excitability*.

2. The excitability varies in different animals, and in the same animal at different times. As it is more intense, the animal is more vivacious or more susceptible of the action of exciting powers.

5. Exciting powers may be referred to two classes. 1. External; as heat, food, wine, poisons, contagions, the blood, secreted fluids, and air. 2. Internal; as the functions of the body itself, muscular exertion, thinking, emotion, and passion.

4. Life is a forced state; if the exciting powers are withdrawn, death ensues as certainly as when the excitability is gone.

5. The excitement may be too great, too small, or in just measure.

6. By too great excitement, weakness is induced, because the excitability becomes defective; this is *indirect debility*: when the exciting powers of stimulants are withheld, weakness is induced; and this is *direct debility*. Here the excitability is in excess.

7. Every power that acts on the living frame is stimulant, or produces excitement by expending excitability. Thus, although a person accustomed to animal food may grow weak if he lives upon vegetables, still the vegetable diet can only be considered as producing an effect the same in kind with animal, though inferior in degree. Whatever powers, therefore, we imagine, and however they vary from such as are habitually applied to produce due excitement, they can only weaken the system by urging it into too much motion, or suffering it to sink into languor.

8. Excitability is seated in the medullary portion of the nerves, and in the muscles. As soon as it is anywhere affected, it is immediately affected every-where; nor is the excitement ever increased in a part, while it is generally diminished in the system; in other words, different parts can never be in opposite states of excitement.

We will not detain our readers by detailing all the numerous controversies in which this theory has engaged the medical world, nor by repeating the various arguments which opposed its adoption among the more enlightened of our own physicians: for an hypothesis which fails to explain all the phenomena of disease cannot be considered worthy of our notice; and how could it be supposed that Brown, who paid little attention to the minute symptoms of disease, was capable of generalizing facts so various and anomalous? In no instance does the application of these principles form so much a subject for regret as in regard to the treatment of fever practised by the followers of Brown. It may be said, without exaggeration, to have immolated millions of our fellow-creatures. It inculcated methods of treatment the most opposite to those indicated by nature and common sense. Let the statistical reports of mortality in every climate testify the truth of this painful assertion. To stimulate in inflammatory disorders is a mean so repugnant to the feelings of the patient, or the advice of every practical author, from the time of Hippocrates downwards, that we are astonished at the extensive prevalence of so absurd a practice. We should remark, however, that the more enlightened of Brown's followers modified his doctrines considerably, and in their practice often departed essentially from his dogmas. In attempting to explain the phenomena of fever according to the doctrine of direct and indirect debility, Brown has the following expressions: "The distinctions that physicians have made about the differences of fevers are all without foundation; they are all the same, with no other difference but in degree; and, unless in that respect, they do not differ from other diseases of the same form." *Elements of Medicine*, § 662. note *m*. He does not, however, attempt to explain the manner in which the various succession of symptoms results from the state of debility, or how the various modifications of the pyrexia are to be accounted for upon this principle. The only approximation to such an explanation, is merely an enumeration of the leading changes in the symptoms after the manner of Cullen, but less explicit than the one given by that author. We are told, that "the debility during the cold stage is the greatest; that of the hot less; and that of the sweating stage, which ends in health for the time, is the least of all. Hence, in a mild degree of the disease, as cold is the most hurtful power, its effect is gradually taken off by the agreeable heat of the bed or of the sun, and the strength thereby gradually drawn forth. The heart and arteries, gradually excited by the heat, acquire vigour, and, at last, having their perspiratory terminations excited by the same stimulus, the most hurtful symptom is thereby removed, the hot fit produced, and afterwards the same process carried on to the breaking out of sweat." § 666. We are further told, that "the cause of all these diseases, (viz. fevers, from the simple and intermittent to the gaol-fever and the plague,) is the same with that of diseases not febrile, to wit, debility; differing only in this, that it is the greatest debility compatible with life, and not long compatible with it." § 670.

Such is the vague and inexplicit theory which divided the medical world, which excited so much interest in those who espoused or opposed it, and inspired such a degree of enthusiasm in the debates and writings especially of the pupils of the seminary which gave it birth, that it not unfrequently burst forth with all the violence of religious phrenzy. This indeed is little to be wondered at, when we consider that half-educated young men, as is the case with the great proportion of medical students, unaccustomed to patient investigation, and fond of novelty, are the most apt to embrace such speculations as could be supported and defended by ingenious and subtle reasonings rather than by accurate and extensive observation. It was admirably well calculated to flatter the vanity of the superficial, and to abridge the labours of those disposed to be idle, since it was abundantly more easy to

descant upon the sthenic and asthenic forms of diseases, and the excess and deficiency of excitement, than to describe the distribution of the blood-vessels, or to trace the course of the nerves. The knowledge of anatomy and physiology was to a Brunonian perfectly useless; and the laborious toil requisite for the acquirement of these branches of study might well be spared him, since the structure of the human frame and the functions of its various organs were by no means necessary considerations, either in his estimation of the causes of diseases or of the means requisite for their removal. The beautiful simplicity of the system, accordingly, recommended it chiefly to those who were most deficient in that solid knowledge which can alone form the basis of a successful cultivation of medical science; whilst its fallacy was too evident to those who had opportunities of witnessing its want of accordance with the natural operations of health and the phenomena of diseases.

It is, however, fully admitted, that Dr. Brown possessed great vigour of mind, and seems to have been capable of considerable application. His talents, had they been directed to more practical and more useful objects, would have probably raised him to eminent distinction, and rendered him a valuable member of society. The style of his *Elementa Medicinæ* is harsh and unpolished, and his meaning is often dark and ambiguous. But perhaps this want of perspicuity is as much owing to the subjects which he treated, the principles of which are far from being settled, as to the obscurity of his expression. He attempted an unbeaten path; it is not wonderful that he was often bewildered and lost.

A French physiologist and pathologist of the present day, Dr. Broussais, (*Examen des Doctrines Médicales*, 1821.) has bestowed about a hundred pages on a review of the Brunonian system; but at length he happily comes to the conclusion, at which all the rest of the medical world had arrived long since, "That the classification of diseases by Brown, into sthenic and asthenic, general and local, is quite arbitrary." He then enters upon the consideration of what he calls the Brownism of the Italian school. He first shows how readily the Italian physicians adopted the system of the Scotch reformer in the first instance; and, next, how they subsequently modified it, by various interpolations of their own, so as to create a new doctrine, to which the name of *contra-stimulant* has been given. According to this system, of which Rasori was the founder, there exist but three classes of diseases: 1st, those arising from excess of excitement; 2dly, those from want of due excitement; and 3dly, those resulting from local irritation, or disturbance of the vital actions of the part, differing both from inflammatory excitement and from debility. The two former are, respectively, the sthenic and asthenic maladies of the older schools. The latter requires a little explanation. According to Guani, the founder of this point of doctrine, the animal body is endowed with a property, inherent with its organization, by which it either assimilates to itself those substances brought into contact with it, or enters into a reaction for the purpose of rejecting them. All those substances which it appropriates to itself, produce what is termed animal excitement which is the agency of the assimilative property; whilst those which are not assimilable produce an action called irritation, which is a sort of disturbance, tumult, or orgasm, of the part, and which may extend from the part where the irritating cause is applied more or less generally over the system. This state, he argues, differs from the two former, because it is not relieved by either stimulants or sedatives. It obstinately continues as long as the cause of it exists; but, when the cause is removed, the effect instantly ceases, and it is never productive of real excitement, but soon, if it persist, induces debility.

Guani appears to consider that animal excitement properly, (by which he means exaltation of the vital actions without absolute change of their qualities,) only arises

from the local application of substances really assimilable, or from the presence of such in the system generally.

This doctrine of irritation was adopted by Giannini, and applied by him to the explanation of the phenomena of fever arising from contagion. The virus, he says, on being admitted into the system, in proportion as it is diffused and applied to different parts of the body, causes an irritation, which is improperly called *excitement*, or the effects of a *stimulant*. This irritation extending throughout the system, because the irritating matter is thus diffused, carries every-where a *local* cause of disease, and thus produces a malady that is "universally local," (*una malattia universalmente locale*;) but which does not constitute the *sthenic diathesis* of the schools. This fever is only the *tumultus toto corpore diffusus* of Brown; and is similar to the affection arising from the irritation of a stone in the bladder, or the fever arising from burns, severe surgical operations, &c. so well treated by Dumas.

Guani, Bondoli, and Rubini, considered this state of irritation as a particular diathesis, and proposed what they imagined to be the causes of its existence and progress. Professor Tommazzini also adopted the elementary principles of the same doctrine, but modified the propositions the physicians already named had made respecting its laws. He believes that irritants may at length give rise to real inflammation. The following are the general axioms he endeavours to establish.

1st, There exists an order of substances (as well as a partial condition of the animal structure, which relatively to the rest of the organization is an extraneous body) which, on making an impression on the animal economy, produce an action different from those termed *stimulant*, and *sedative*, or more properly *contra-stimulant*; and which is, properly speaking, *irritation*.

2dly, Some substances are *naturally* and *primitively* irritative, but which may *secondarily* become stimulants where they give rise to phlogosis; or they may become *contra-stimulants* (*sedatives*) when they produce pain or coldness, or distressing nausea; as pain, coldness, and nausea, themselves, act as *contra-stimulants*. Others are irritants by their quantity or concentration, or the manner of applying them, which induce either mechanical distension, or chemical decomposition, *accidentally*, and may by their nature appertain to one or the other of the two classes of dynamics.

3dly, The state they produce may be distinguished from all other states by the following characters: 1. by its incurability by means either of stimulants or *contra-stimulants*: 2. by the obstinacy of its duration in spite of all attempts to remove it, as long as the cause is present and active: 3. by the readiness, and as it were instantaneousness, of its cessation, as soon as the cause is destroyed: 4. by the type of the disease, which is manifestly local, even where the disturbance by sympathetic consent is universally dispersed.

4thly, Irritating substances may be either chemical agents, which enter the organization, or mechanical agents, which torment it, or a disordered state of a living part, which becomes a centre of irritation with respect to the whole system.

5thly, Inassimilability, heterogeneity, and inaffinity, cannot be the essential and diagnostic characters of irritants; because those characters do not appertain exclusively to them; nor, perhaps, to them universally.

6thly, In the present state of our knowledge, we are, then, constrained to define an irritant *à posteriori*, that which produces the train of morbid phenomena described under the name of the *irritative tumult*.

7thly, Irritation very often terminates by inducing phlogosis in the centre of its own action, and then it enters into the class of diathetic (inflammatory) diseases, preserving nevertheless, not unfrequently, the character of irritation.

1. The diseases of the first class, those consisting in excessive excitement, may then arise from all irritating and

exciting causes, whether contagious virus, mechanical or chemical injury, or excess of the natural excitants of the economy. These produce, in the first instance, local effects of the nature above indicated, which effects are at length diffused over the system to a greater or less extent, according to the violence of the cause, and the constitutional disposition of the patient. This inflammatory excitement is of the same nature, from whatever cause it arises, and in whatever part it may be seated. It is of importance to remark, too, that local excitement produces only excitement as far as its influence extends, and not debility of the rest of the system by any concentration of the vital actions, as is taught in some other schools. Inflammation may occur, also, in an intense degree, in any certain organ, whilst the rest of the system is in a state of the utmost debility; and it is, indeed, more readily excited in a state or weakness than in vigour, because the animal fibre is then more susceptible of the influence of stimulants. Inflammation is, however, always originally of a *sthenic* character; and it preserves this as long as it exists, even in the midst of the most desolating privation of vital power.

All fevers, acute and chronic, whether arising from the impression of cold, excess of the natural excitants of the body, animal contagion, or marsh-effluvia; all acute and chronic local inflammations, cutaneous ulcerative diseases, and phthisis; take their place in the first class. The general causes of this class of diseases have already been designated as those of essentially excitant or irritating qualities, but, in addition to those should be mentioned, some others which, under circumstances, are *contra-stimulants*. Thus, pain, to a certain degree, is a *sedative*; but it becomes an excitant, when intense; and many substances, which are *contra-stimulant* in certain quantities, become either excitants or irritants when given in larger quantities; this is the case with the tartarized antimony, belladonna, digitalis, &c.

2. The second class of maladies are of the nature which the doctrines of Brown would term *direct debility*, or that depending on want of due excitement. The doctrine under consideration does not admit the existence of such as he termed diseases of *indirect debility*, or exhaustion from previous excess of excitement. The effect of stimulants is considered to be constantly and solely excitement.

3. The character of the diseases of the third class was indicated when the nature of irritation was particularly considered.

This doctrine not only opposes the most favourite dogmas of the Brunonians, that of the existence of what they term *indirect debility*; it also attacks their principle of the essentially stimulating quality of every substance making an impression on the animal body. It teaches, 1st, That many substances act on the animal fibre in a mode diametrically opposite to the stimulant agency, whence result the effects which Brown attributed only to the negative action, or want of action, of different substances; or to the diminution of the natural excitants of the system. 2dly, That we may destroy, by the administration of these substances, the effects of excessive stimulants, and that without these substances necessarily producing any evacuation; and that we may, by frequent repetition of their use, produce diseases which are not susceptible of cure by the intervention of stimulants. 3dly, That *contra-stimulants*, such as blood-letting and purgatives, offer the means of cure for all maladies which result from excess of stimulation; and that, by the same analogy, the effects resulting from the abuse of *contra-stimulants* are combated with efficacy by stimulants, such as wine, aromatics, &c. 4thly, That the animal fibre supports the agency of stimulants or *contra-stimulants* in a direct ratio, respectively, to the degree of intensity of the diathesis of excitement or of debility. 5thly, That we may discover the degree of the diathesis rather by the aptitude to support the agency of the one

or the other of those classes of substances, than by the apparent symptoms of the malady.

This part of the new doctrine is not, however, so extensively adopted in Italy as the former. Many reflective physicians still maintain the opinions of Brown, and cannot be induced to believe that tartar emetic, digitalis, and the like, can directly depress vital action in the part to which they are applied.

Connected with this, and bearing some resemblance to it, is the system of Broussais himself, of which the following is an outline. 1. That the exaggeration of the vital actions in one tissue, which subsequently re-acts on others, constitutes the far greater proportion of diseases. 2. That all the tissues are susceptible of experiencing this modification, but certain ones are more exposed to it than others. 3. That those in which it is ordinarily developed, are the mucous tissues, because they are the organs of relation, (that is to say, organs which receive impressions, and which besides develop other actions by the influence they exert on the nervous centres,) and because they are all sanguineous and secretory organs. 4. That these tissues, being formed of capillaries and nervous substance, have the irritation they experience participated both by vessels and nerves. 5. That *irritation* being established in a tissue, calls the fluid to it; and that it is on this phenomenon that all the secretions, all the vital excretions, and, in a word, the actions of all the organs, depend. 6. That these irritations, with the solicitation of the fluids, being carried to a certain degree by the influence of certain causes, constitute states of disease. 7. That, whilst we do not distinguish in the economy, the four phenomena of inflammation (*tumor, dolor, rubor, and calor*), we should not give this name to the irritations which may be manifested. 8. That, in certain subjects, they are hardly ever raised to the degree which merits the name of *inflammation*; but that they then constitute, in some cases, the neuroses of authors; in others, organic affections. 9. That, in some persons, these irritations, confined for a long time to a certain degree, suddenly become exalted, and pass to the state of *phlegmasia*; that is to say, we then observe exaggeration of the action of the red capillaries, an extraordinary afflux of blood, with augmentation of heat, pain, &c. 10. That, in others, this exaltation takes place suddenly. 11. That, when then these exaggerations of the actions of organs have for the result, not the solicitation of blood, with heat, &c. but the accumulation of colourless fluids, and the predominance of the vessels which contain them, we then see the phenomena of irritation in a degree inferior to true phlegmasia, and to which, for this reason, the name of *sub-inflammation* may be given. 12. That neurosis, inflammation, and sub-inflammation, constitute the three varieties of irritation which furnish the principal and most important division in pathology: that is to say, *neurosis*, when the irritation is confined to extraordinary action, without increase of heat or imminent danger of disorganization; *inflammation*, when heat, with injection of blood, and imminent danger of disorganization, exist; *sub-inflammation*, when the irritation accumulates in the part only lymphatic fluids.

These are the morbid phenomena of *irritation* in the part where it originates. But, in addition to these, it should be considered, 1. That, as soon as the organic action is exaggerated in a part, it is transmitted to other organs by the nervous cords, (which should be distinguished from the nervous substance in the state of expansion, or in the pulpy state, as it exists in the organs of sense, and in the brain.) 2. That this transmission of the exaggeration of local organic action is a sympathy. 3. That it takes place, in the state of disease, according to the same laws, and by the same means, as in the state of health. 4. That the irritation, sympathetically developed in an organ secondarily affected, is of the same nature as the primitive irritation.

This is the mode in which M. Broussais has himself

stated the principles of his pathology of inflammatory diseases; and he has shown that, when fully developed, they will involve the far greater part of the maladies to which human beings are liable: but to trace these extensions of them does not come within the plan of this section. It is, however, necessary to advance so much respecting this doctrine, since it is becoming daily more extensively adopted in France, and has already obtained the consent and support of a great proportion of the more reflective part of the physicians of that nation.

An union of the reasoning and imaginative faculties has seldom been possessed by an individual with any advantage to the interests of philosophy. Of the truth of this proposition we have a melancholy example in the writings of *Darwin*. The figurative expressions and brilliant diction which so much adorned his poems, being applied to a stricter science, have equally obscured and tarnished his compositions.

We observe in the medical speculations of this author a near approach to some of the Brunonian tenets. Educated, however, in a superior manner, endued with better taste, and more minute in his observance of nature, Darwin saw that Brown's two general principles were inadequate to explain many forms of disease; and he therefore added a third. Two general laws of the animal economy are stated by Darwin, as well as by Brown: 1. That all excitement or action of the living organs and functions occasions a diminution or exhaustion of their power, (*excitability* in the language of the latter, *senforial power* in that of the former,) according to the degree of excitement. 2. That rest, inactivity, or the abstraction of the usual stimuli, render those organs more susceptible of the action of the stimuli subsequently applied. Thus, when a small part of the capillary vessels of the skin are exposed for a short time to a cold medium, as, when the hands are immersed in iced water for a minute, these capillaries become torpid or quiescent, owing to the abstraction of the stimulus of heat. The skin then becomes pale, because no blood passes through the external capillaries, and appears shrunken, because their sides are collapsed from inactivity, not contracted by spasm; the roots of the hair are left prominent from the receding or subsiding of the skin around them; and the face of coldness is produced. But in this situation, if the usual degree of warmth be applied, these vessels regain their activity; and, having now become more irritable from an accumulation of the senforial power during their quiescence, a greater action of them follows, with an increased glow of the skin, and another kind of pain, which is called the hot-ache, ensues.

Thus far the two theories nearly accord; but beyond this point the Brunonian doctrine leaves us to a general statement of debility, altogether inadequate to account for the various forms and phenomena of fever. But Dr. Darwin appeals to other established facts in the animal economy, upon which these varieties appear to depend. From these he deduces a *third* general law; namely, That the functions of different parts of the system are so far catenated, or associated with each other, as it were in circles, either from direct connexion in structure, from the habit of acting together, or, more frequently, from causes at present inscrutable, that an increase or decrease of the action of one organ is followed or accompanied by an increase or decrease of the action of another; sometimes by a similar change, that is, increase followed by increase of activity, or decrease by decrease; but occasionally by the contrary change, that is, increase followed by decrease of activity, and *vice versa* in the associated parts. The former of these is termed a *direct sympathy*; the latter a *reverse sympathy*.

The instances of sympathy between different parts of the animal frame are very numerous; as, between the stomach and brain, the stomach and skin, the stomach and heart, the brain and heart, the skin and lungs, the uterus and mammae, &c. And this, which occasioned him

to call his system "the sympathetic theory," is the most important part of that theory; for the catenation, or association, which takes place between various functions when disordered, had, before his time, been very slightly touched on. A partial view of one circumstance of sympathy had made Cullen attribute too much to the state of the *skin* in fever; and insulated facts of the same nature had impressed almost every pathological system with error. Darwin embraced then the whole range of these associated actions, and formed the design of founding a system of pathology and therapeutics on the contemplation of all the laws of animated nature. And hence this may be considered as the first system constructed in exact conformity with physiology. Of this latter subject, Darwin, however, knew little; and hence the failure of the superstructure which he raised on it. Yet the conception was grand, and has been acted upon by all pathologists since his time.

The three laws or principles of action in the animal economy, which we have mentioned before, viz. 1. The exhaustion or diminution of the sensorial powers by exertion; 2. The recovery or accumulation of the same powers, during quiescence, or impaired action; and 3. The direct and reverse association of parts, by which the actions of one part give rise to actions in others; are the grounds of Dr. Darwin's explanation of the phenomena of fevers. He supposes that the cold stage accrues in consequence of the torpor of the capillary vessels, from the abstraction of the stimulus of heat, or other causes; the hot stage, in consequence of the renovated activity of the capillaries, from the accumulation of sensorial power during that torpor. Dr. Darwin, however, remarks, that this renovated activity of the capillaries is not owing to the renewed action of the heart, which forces them open by the mechanical impulse of blood; that the action of the capillaries often recommences sooner than the action of the heart, these vessels having a greater mobility than the heart and large arteries, as appears in the sudden blush of shame; and that, in low fevers, the capillaries acquire increased strength, as is evinced by the flush and heat of the skin, while the pulsations of the heart and arteries remain feeble. Hence simple fever is of two kinds; in one the pulse is strong, in the other weak: in the fever with strong pulse, not only the cutaneous capillaries, but also the heart and arteries, readily acquire a greater activity by the accumulation of sensorial power during the torpid state, which last is farther increased by direct sympathy with the increased activity of the capillaries; this happens in strong constitutions, and is often seen in vernal intermittents: in the fever with weak pulse, on the contrary, the heart and arteries do not acquire much increase of sensorial power, but continue in some degree in their state of torpor, while the orgasm of the capillaries is produced; whence there is a hot fit, with feeble pulse.

But, when the sympathies of other parts of the system are called into action, together with this torpor and orgasm of the cutaneous vessels, and of the heart and large arteries, the fever-fit becomes more complicated and dangerous. And again, when the torpor commences, from the operation of other exciting causes of fever in other organs of the body, and extends, with the subsequent orgasm, by direct or reverse sympathy, to the organs associated with them, other various forms and modifications of febrile disease are produced. Thus, if the stomach is affected with torpor, either primarily, as from the action of contagion swallowed with the saliva, or secondarily, by its sympathy with the cutaneous capillaries, or with some internal viscus; a total loss of appetite occurs, followed by sickness and vomiting. If the brain is affected, either primarily, as by the depressive passions, by exhaustion from watching, &c. or secondarily, as by the influence of contagious or marsh effluvia received into the stomach or the lungs, then prostration of the general powers, head-ache, delirium, stupor, tre-

mors, convulsions, &c. are induced. In the same way, the secretions from the internal organs, as from the kidneys, are diminished when a torpor takes place in them, either primarily, or by sympathy with the cutaneous capillaries, or other parts, and are restored with the renovated action. These phenomena take place in different degrees in almost all fevers, and vary according to the nature of the organs primarily affected, and to the state of the constitution, or of the organs individually. Thus, when the stomach is slightly disordered, as by indigestible food, or when the vascular system is deranged from exposure to cold, (when no inflammation is produced,) the fever which ensues is mild, the brain suffers little by sympathy, no delirium, &c. occur, and health is soon restored. If, on the contrary, a virulent contagion acts upon the stomach, and through its medium upon the brain, the sensorial powers are greatly exhausted, and the complication of dangerous symptoms, arising from the morbid condition of the nervous system, and from the total loss of powers in the organs of digestion, occurs, constituting the contagious, nervous, and malignant, fever, or *typhus*, under its various forms and denominations.

Dr. Darwin explains the peripneumony as "generally induced by the patient respiring very cold air, and this especially after being long confined to warm air, or after being much fatigued or heated by excessive labour or exercise. For we can cover the skin with more clothes, when we feel cold; but, the lungs not having the perception of cold, we do not think of covering them, nor have we the power of covering them, if we desired it; and the torpor thus produced is greater, or of longer duration, in proportion to the previous expenditure of sensorial power by heat or exercise. This torpor of the lungs affects the skin with shuddering, and the stomach is also secondarily affected; next follows the violent action of the lungs from the accumulation of the power of irritation, and an inflammation of them follows this violent action, &c."

This author classed diseases according to their supposed origin in disturbed states of the vital powers; but the arrangement is quite fanciful, to say the least of it; and the frequent repetitions of species which occur under different heads, show its imperfection. Thus, he divided diseases into four kinds; those of irritation, sensation, volition, and association; and, forming his therapeutical doctrines according to the same views, he arranged the materia medica into seven classes. 1. *Nutrientia*, or those things which preserve in their natural state the due exertions of all the irritative motions. 2. *Incitantia*, or those things which increase the exertions of all the irritative motions. 3. *Secernentia*, or those things which increase the irritative motions which constitute secretion. 4. *Sorbentia*, or those things which increase the irritative motions which constitute absorption. 5. *Invertentia*, or those things which invert the natural order of the successive irritative motions. 6. *Revertentia*, or those things which restore the natural order of the inverted irritative motions. 7. *Turpentia*, those things which diminish the exertions of all the irritative motions.

This theory was never very generally received in England; but, stripped of the hypothetical phraseology and much modified, it appears to have been taken up and illustrated with much success by the celebrated Hufeland in Germany.

We are now arrived at a period when physicians, no longer dazzled by brilliant hypotheses, required in pathology and physiology the close analogical reasoning which had been found so useful in every other department of science. Hence systems of medicine, incapable of embracing all known forms of disease, have ceased to exist. Impressed with the conviction that our stock of known facts required much addition ere it could be generalized, the pathologists of our time have individually attached themselves to the acquisition of further experience

rience in particular diseases; and, when theory has been promulgated, it has generally had its foundation in new discoveries in physiology. Hence too it is no longer possible to enlist ourselves under the banners of any one pathologist, and, by quietly assuming the infallibility of his doctrines, save the trouble of thinking for ourselves. It must not therefore be supposed, that, because this æra may not transmit to posterity the name of an author whose works might contain all that we know on medical subjects, we have done less for the science we profess than our continental neighbours. True it is, that the speculations of Broussais and Tommasini have something better to recommend them than the systems of Cullen, Brown, or Darwin; yet still many imperfections exist in them, imperfections necessarily connected with the unfinished state of the ground-work on which pathology is built. Nevertheless, in real improvement, the first twenty years of this, the 19th, century, affords the most delightful prospect. The errors of Brown, here first promulgated, were here first refuted. Currie introduced the judicious use of cold bathing in the most numerous and formidable complaints to which human nature is liable, viz. fevers. Abernethy and Hamilton have shown the efficacy of purgatives in most diseases, and the innocence of their properly-regulated exhibition in all. The bold and decided treatment practised by Jackson, as well as his sound theoretical views, deserve the highest encomium; and we have to regret that the peculiar style and expression of that author has so long opposed the general reception of opinions which are equally consonant with reason and the long experience of thirty years. To Armstrong, Clutterbuck, and a host of others, the insertion of whose names would tend to render our history a mere catalogue, we owe the preservation of many of our fellow-creatures. Nor have our investigations on these topics been confined to our own island. The accounts we receive from our Indian possessions serve to instruct us in the treatment of acute diseases, by showing them in the intense marked forms which they exhibit in tropical climates.

Physiology likewise has been by no means neglected in this age. That science, which no longer can be called uncertain, has received auxiliaries from the improvements daily occurring in the collateral branches of knowledge. Its more general principles have been illustrated by discussions which the speculative notions of Hunter and Abernethy on the one hand, and Lawrence and the French physiologists on the other, have given rise to. The motive powers of the vascular system have been illustrated by Parry, Carson, Bell, Philips, and Brodie. To the two last of whom we are moreover indebted for some useful information concerning the phenomena of secretion and the dependence of that function on nervous influence. The contradictory opinions, however, which we meet with on these subjects, compel us to acknowledge that this science bears little proportion in its advancement to that of the practice of medicine.

In the early part of the present year, Mr. James, a surgeon of Exeter, published "Observations on some of the General Principles, and on the Treatment, of the different species of Inflammation." This work is an amplification of the Dissertation which gained the Jacksonian prize on Inflammation, when the illustration of this subject was recently proposed by the Court of Assistants of the Royal College of Surgeons. This production comprises many interesting observations; but the author is too much the disciple of John Hunter, and he exhibits more of the manner of reasoning of that physiologist, than a close investigation into the mode of production of the phenomena he describes: like him, he rests contented with a substitution of terms, instead of endeavouring to explain the operations of which they are only the expression: in a word, his ideas want precision, and his pathology depth. Mr. James adduces a new classifica-

tion of inflammation. His arrangement is founded on the disposition which inflammatory action assumes to spread or diffuse itself, or to be limited by the adhesive process or other means. In this point, too, we recognize John Hunter. As, however, this fortuitous quality of inflammation but seldom constitutes a generic difference in the form which the disease assumes, but depends on several varying conditions of temperament and other things in the patient, and on accidental conditions of the atmosphere, and other external circumstances, it appears to be objectionable, and not likely to be adopted by the generality of pathologists. The author's considerations in other respects, especially those relating to semiology and therapeutics, are judicious, and developed with sufficient order and perspicuity.

In anatomy, as far as the relative situation of parts is concerned, our diligent ancestors have left us little to do. So that, if we except a few discoveries concerning the more minute structure of membranes, the muscularity of vessels, &c. we have nothing new to transmit to our successors on this subject. Far different is the result of our researches on morbid anatomy. The labours of Dr. Baillie, accompanied with descriptions and plates of great accuracy, are too well known to require our comment; as likewise the excellent works of Farre, Bell, &c. in the same department. And these examples have been followed very generally by our most eminent practical physicians.

Of course this brief sketch cannot be supposed to embrace all the names or discoveries which dignify our country in this enlightened æra. We shall have occasion to speak largely of them in the body of this article, when we come to notice particularly the treatment of each disease; and therefore may be excused entering in the detail of them here. In the mean time, it may not prove uninteresting to trace a faint outline of the labours of our foreign brethren at this moment. By so doing, we enlarge the fund of our experience, and thus correct the error into which more limited observation might betray us.

FRANCE.—If reiterated experiment and unceasing observation be the means which most forward medical science, the French nation have claim to high honour. In no other country is the science of life illustrated by so many experiments, elucidated by the application of so many different sciences, or examined so closely in all its varied and extensive phenomena: yet we observe theories continually arising, opinions asserted one day to be refuted the next. But some recent labours of the French physiologists, have established facts which stand on the firmest basis: such are many of the doctrines of Bichat, of Majendie, and of Broussais.

Of Bichat enough has been said, in every country where his works have been read, to stamp him as a philosopher of the greatest merit; and all who are interested in the improvement of science, must deeply regret the loss of one whose comprehensive and enlarged mind, whose minute anatomical studies, and whose brilliant pathological discoveries, alike fitted him for re-forming and re-casting the fabric of medical science. This vast design had been formed by Bichat; and, when a few lectures had developed his opinions, he was suddenly carried off. In teaching mankind to study the minute structure and fabric of the body, rather than to be perpetually occupied with the description of its relative situations and parts, he seems, like our countryman, John Hunter, to have followed that course which Lord Bacon had so clearly pointed out to anatomists, and in which much still remains to be done: he says, that "they (anatomists) inquire of the parts and their substances, figure, and collocations; but they inquire not of the diversity of the parts, the secretaries of the passages, and the seats or nestlings of the humours, nor much of the footsteps or impressions of diseases; the reason of which omission I

suppose to be, because the first may be satisfied in the view of one or a few anatomies, and the latter, being comparative and casual, must arise from the view of many."

The name of Majendie, already well known by his Elements of Physiology, is presented to us, in every periodical work we receive from France, as occupied in some interesting or useful experiment. Passing over his experiments in regard to the nervous system, to the absorptive power of veins, &c. we may remark, that he has lately been endeavouring to discover some more effectual mode of controlling the action of rabies than has hitherto been known. And, though it would be premature to offer any opinion on the probable result of his experiments, we may remark, that he has done the public great service by showing the complete inefficacy of drugs hitherto reputed specifics in the cure of this dreadful disease.

Of Broussais's physiological system of pathology we have given a short account at p. 43. Nothing is wanting to the full success and acceptance of that system, but that every body should think as well of it as the doctor himself does. On its first appearance, Dr. Hutchinson, the editor of the London Medical Journal, gave a favourable account of it; not quite sufficiently so, however, as entirely to satisfy the inventor. Dr. Granville, the present editor of that work, speaks rather contemptuously of it; Rafori (the contra-stimulant sedative Rafori) opposes it on the continent; and upon the whole it seems to be going down. Two commentaries on the doctrines of Broussais, of very different characters, have been recently produced at Paris. One of them, by Monf. Begin, is intended to advocate his principles, and to display them in a more perspicuous and orderly manner than has been done by Broussais himself; while the other, published anonymously in the *Revue Médicale*, a new monthly journal of great merit, is a jeu d'esprit, full of that fine satire and delicate ridicule which the French so well know how to employ, which, while it displays the character and conduct of Broussais and the merit of his writings with great force and sufficient eulogy, describes his vanities, his ingenious obscurities, the *nonchalance* with which he cuts the gordian knots he happens to encounter, and apologizes for the art with which he has appropriated to himself the opinions of others, in a manner truly Rabelaisic. From this publication we shall make an extract, in reading which the reader will bear in mind, that Dr. B. contends that all complaints arise from the stomach, and that lemonade and leeches are to cure every complaint.

"A distinguished man of letters, who is publishing a new edition of Moliere, aware of the ridiculous appearance of some modern physicians, has determined to make some variations in the celebrated scene of the comedy of that author, entitled *Le Malade Imaginaire*. The following is a specimen:

Toinette, (*dressed as a physician*.) Let me feel your pulse. Come, come, beat as you ought. Ah! I'll soon make you go right. Faith! this pulse is mightily impertinent. I see plainly it does not know whom it has to deal with. Who is your attending physician, sir?

Argan. Monsieur Purgon.

Toin. That name is not to be found in my pocket-book, amongst the physicians of eminence. What did he say was the matter with you?

Arg. He says my liver is affected: others contend that it is the spleen.

Toin. Pooh! pooh! They are a pack of *ignoramus*. It is your stomach, sir, that is affected.

Arg. The stomach?

Toin. Yes! the stomach. What do you feel?

Arg. I have occasionally the head-ache.

Toin. Exactly so. The stomach.

Arg. I sometimes see double;—I have a veil over my eyes.

Toin. The stomach!

Arg. And a great difficulty in breathing.

Toin. The stomach again!

Arg. I suffer from great languor and lassitude in all my limbs.

Toin. The stomach!

Arg. And I now and then feel pain in my feet, in my heels, and toes, as if I had the gout.

Toin. Exactly so. It is the stomach! You eat with good appetite?

Arg. Yes, sir.

Toin. The stomach! You like to drink a small quantity of wine.

Arg. Yes, sir.

Toin. The stomach! You feel rather drowsy after dinner, and delight in taking a nap?

Arg. Oh yes, sir.

Toin. The stomach, the stomach, I tell you! What has your physician desired you to eat?

Arg. He desired me to take some soup.

Toin. *Ontologist!* [An appellation of contempt adopted by Dr. Broussais to designate all those physicians who seem to have identified or personified the different causes producing diseases, such as the gouty principle, the scrofulous humour, &c.]

Arg. And chicken.

Toin. Fatalist!

Arg. And occasionally veal.

Toin. Incendiary!

Arg. Broth.

Toin. Murderer!

Arg. Some fresh eggs.

Toin. What an assassin!

Arg. And stewed prunes in an evening.

Toin. Incendiary! the murderous diet of the ontologistic school.

Arg. And, above all, he desired me to put water to my wine.

Toin. *Ignorantus, ignorantia, ignorantum!* This is not the way of a *medecin physiologiste*. You must drink pure water, which is indeed too nourishing as it is: it will calm the gastro-intestinal irritation under which you labour; and thin your blood, which is now too dense. You'll apply five hundred leeches to the pit of the stomach, which will remove the *gastro-enteritis* in the twinkling of an eye. Don't you see that "irritation is preying heavily on the mucous membrane of your stomach, from whence it extends its malignant power over all the organs of your economy, through sympathetic irradiations?" Be assured that your physician is an *ontologist*, who will believe only what he sees. I will come again to see you in a fortnight, if you are alive; and, above all, rest assured that, if I have abused my brethren of the profession, it was not through envy, but for the good of mankind. How superior to them all the *doctrine physiologique* makes me! "a doctrine which is destined to do more good even than the immortal discovery of Jenner." [The two paragraphs in this speech marked with inverted commas, are not a parody, but the real words of Broussais.]

The brain has of late been to the French pathologists what the abdominal viscera have long been to the English, the great object of interest and the subject of their especial consideration. Several works of much value have been the results of their labours. That which presents most evidence of a talent for original observation and profound and comprehensive reasoning, is one by Dr. F. Lallemand, of Montpellier. The greatest merit in the work of Dr. Lallemand consists in the admirable precision and perspicuity with which the histories of disease are given, and, for the most part, the very judicious reflections with which they are accompanied; the especial object of which is to trace the relations between the appearances observed after death, and the symptoms of the disease that were manifested during life. Dr. Lallemand differs from Dr. Rossan respecting the nature and origin of what the latter has described under the name of *ramollissement du cerveau*, and thinks that it is really a consequence

consequence of inflammation of a more or less chronic kind. He relates some cases which seem to show that it has, at least sometimes, such an origin. He advances a curious proposition respecting *delirium*, that has much apparent probability. He says, delirium is never observed in cases of inflammation of the brain alone; this symptom appertains especially to inflammation of the arachnoid membrane. It is not because the arachnoid is the seat of the immediate causes of delirium; but because this membrane, when inflamed, irritates the surface of the brain which is in contact with it; and, as the tissue of this organ is then not altered, its functions are merely "exalted:" these functions, on the contrary, cease (to an extent corresponding with the extent of the inflammation,) when inflammation has its seat in the proper substance of the brain.

A work of very considerable value on inflammation of the arachnoid membrane of the brain and spinal marrow, has been published by two young physicians of Paris, Drs. Martinet and Parent-Duchatelet, which is the result of several years' observation at the Hotel-Dieu and the Hospice des Enfants Malades, under the direction, and indeed assistance, of Drs. Recamier and Jadelot, physicians, respectively, to those institutions. This work presents such a number of cases (not selected, and therefore the more valuable, as presenting a view of what is of ordinary occurrence,) as will admit of general inferences, of more or less validity, respecting every point of most interest in the history of the disease.

The characters of arachnitis appear to vary as the disease occurs in parts of the membrane corresponding to different parts of the brain. Thus, the symptoms of arachnitis at the base of the brain, present, in general, characters by which the disease may be recognized, and distinguished from arachnitis in the convexities. There are, however, some varieties in those symptoms, connected with diversities in the age of the patient. In children, for example, who are disposed to be affected with this form of the disease almost exclusively, the excessive irritability of their nervous system occasions spasms in different parts, which give a particular character to the malady. These affections sometimes appear in a sudden manner, without any previous indications; at other times, the progress to them is more gradual; the state of the intellectual faculties presents less varieties than that of other organs. The degree of energy which the brain possesses in adults, and even in adolescents, enables patients of this class to resist much longer the disposition to stupor; so that this symptom is much less early and completely manifested in them than in children. In both, the lesion of the intellectual faculties results essentially from the want of action of the brain, from the inertia of this organ, and not from the derangement of its functions, or delirium, which is the predominating characteristic of arachnitis of the convexities. When inflammation is seated in the portion of the arachnoid which lines the ventricles, the symptoms are the same as those which result from it at the base of the brain; and in the greater number of cases it is present also in the latter region. Thirteen cases of inflammation of the arachnoid membrane of the spinal marrow are related, from which it appears, that the chief characteristic symptoms of this affection, are stiffness of the neck and trunk, pain along the vertebral column, in addition to the common symptoms of irritation of the nervous system, with the absence of signs of cerebral disorder when the inflammation is confined to the arachnoid of the spine, and their coincidence when the serous membrane of the brain partakes of the inflammation.

Two interesting cases of inflammation, and consequent disorganization, of the spinal marrow itself, have been lately published by Dr. Pinel the younger, which were characterized by continual convulsive motions of the whole of the trunk of the body, followed by an almost complete annihilation of the functions of the nerves of

voluntary motion, and accompanied by a febrile state of the system, having a paroxysm of exacerbation every evening.

The surgery of France, as far as operations are concerned, scarcely appears on an equal footing with the surgery of this country; and, if we were disposed to criticize our Gallic neighbours, we might further remark, that a great want of attention and respect is manifested by them for the labours of others. Thus Broussais, just mentioned above, has been lately labouring to show that we know next to nothing; and very unfairly supports his assertions by quoting the practice or the reveries of some of the obscurest contributors to our periodical publications. And Boyer, a character of great repute in France, and author of one of their standard surgical works, has the blindness to reject Mr. Hunter's excellent mode of operating for popliteal aneurism, and even denies his claim to the discovery of it. By the way, we may just extract from a case lately published by DeRoux, an account of the method in which the operation for aneurism is performed in France: "I performed the operation," he says, "in the place where it is now practised in England. The artery was completely insulated from all adjacent parts, even from the crural vein, for the space of an inch. I placed four ligatures at about two lines distant from each other. Thus there were two ligatures to intercept the blood, the first and last being only left as *ligatures d'attente*. I then followed the recommendation of Scarpa, in applying upon the artery a small cylindrical body, an inch long and two lines in diameter, upon which I put a piece of linen, which had been dipped in melted plaster; on this I tied the two middle ligatures. I took care not to let the wound unite, and kept the lips separated by soft lint." An English surgeon will have little difficulty in seeing the striking contrast exhibited between this operation and the manner it is performed in the hospitals of London. Let us not however confound all in this censure: there are many who duly appreciate our toils and our merits; and there are many who deserve from us the same regard. We might mention scores of names in proof of this; but Larrey, Richerand, and Dupuytren, are sufficiently known to our medical readers.

In parturition, we have two curious recent cases to record.—A male child was born in May last, at the Hospital of la Maternité, at Paris, with the whole surface of the body deeply wrinkled, like that of a very old man. Its hands and feet are double the ordinary length, and are equally wrinkled. It has strong grey hair, and a beard of the same colour. In every other respect it enjoys perfect health, and is nursed in the hospital.—The following is not less interesting; though we have already remarked, (see the article PARTURITION, in the preceding volume,) that the French are in general more successful in these desperate cases than ourselves. At a meeting of the Royal Academy of Medicine at Paris, on the 7th of July last, (1821.) M. Beclard, one of the most distinguished surgeons of that capital, reported that he had, the day before, performed the cesarian operation, by an incision made in the direction of the *linea alba*; and that both mother and child were doing well. The report continues favourable down to the 10th, on which day the account was transmitted.

The French pay more attention to pharmacy than perhaps any other nation, and consequently their attainments in that branch of the healing art are very great. Simplicity has assumed the place of that multiplicity of formulæ which had overrun all the old pharmacopœias; and the analysis of vegetables which at present engages so much the attention of the French chemists, promises to afford very important information in regard to the *modus operandi* of medicinal substances; a subject which very little is at present known.

These remarks have occurred to us in perusing the last Paris Pharmacopœia, or Codex, published in 1818, in a

handsome 4to of 600 pages. But we must observe, that the French prescriptions continue to have more ingredients in them than our own; for we find one of the compound tinctures containing 18 ingredients, another 16, and so on. They are however, as we said, improving; for their *Alcoholatum vulnerarium*, which, in the former edition of the Codex, consisted of 42 ingredients, is now reduced to 13. We cannot, however, avoid noticing the *Electuarium opiatum polupharmacum*, *theriaca dictum*; and never was an epithet so justly applied as the term *polupharmacum* to a farrago containing upwards of 70 articles. This ne plus ultra of complexity is ushered in by the most solemn assurances that the compilers have not dared to encroach on, or alter in the slightest degree, the directions given in the preceding Codex (60 years since), for the preparation of this "percelebris compositio;" and that, although several of the compound medicines, which formerly entered its composition, have lately been excluded from the pages of the Codex, yet they have taken especial care to introduce every one of the constituents of those compounds in the exact proportion in which they entered the preceding formula; for instance, though the *trochisci viperini* are no longer in use, yet the *caro viperina* is carefully preserved as an ingredient of the *theriaca*. In order to give our readers some idea of the complexity of this formula, suffice it to observe, that the authors have judged it necessary to divide it into thirteen distinct heads, for the purpose of giving us some insight into the nature and action of this monster in pharmacy. These are, 1. *Acrida*. 2. *Amara*. 3. *Styptica*. 4. *Aromatica exotica*. 5. *Aromatica ex indigenis*. 6. *Aromatica ex umbelliferis*. 7. *Resinae et Balsami*. 8. *Graveolentia*. 9. *Virofa*. 10. *Gummosa*. 11. *Terra inert*. 12. *Dulcia*. 13. *Vinum*. The amazing complexity of this medicine, the very circumstance on which its celebrity is grounded, is a sufficient cause of condemnation. How is it possible to suppose, that the simultaneous exhibition of agents so opposite, is a desirable object? It will, no doubt, be always a most valuable acquisition to the quack, who, not knowing what intention he should endeavour to fulfil, may reckon with tolerable certainty, that some of the articles of this panacea are adapted to the wants of his patient. We cannot too strongly reprobate the retention of this compound, which has obviously arisen from timidity in the authors, who feared to reject a remedy of which so high an opinion is entertained. But by whom? They themselves answer the question, and confess they have acted according to the wishes of those who are totally unqualified to form an opinion. One of the reasons given for its introduction into the new Codex is, "quia a vulgo saepius requiritur." A parity of reasoning would lead them to introduce into their *Pharmacopoeia* all the quack-medicines of the composition of which they could attain a knowledge; and, indeed, this intention they have displayed on one or two other occasions. It appears to us, that in assigning the above cause for the retention of certain remedies, they have mistaken their duty, which is no less to decide what medicines ought to be retained or rejected, than to give accurate instructions for the compounding and preparing of such as are judged proper to compose a part of their *materia medica*. After all the ingredients of the *theriaca* have been mixed together, *secundum artem*, they are set aside for one year, in order to undergo a slow fermentation, as it is directed in the Codex. That they do *not* undergo this process, seems probable from the circumstance that analysis discovers no difference between parcels of *theriaca* differing much in age, the recent preparation perfectly resembling that which has been of several years standing. *Diascordium* is another electuary, translated from the old edition to the new Codex, in all its pristine complexity, with the same scrupulous regard to its composition as that we have just been considering. It is only to be wondered how the *Theriaca cœlestis*, and the *Benedicta*

laxativa, each of them consisting of at least twenty articles, could have so far degenerated as to have forfeited a place in this new edition.

A new preparation of opium has been very recently proposed by Mr. Robiquet of Paris. It has been ascertained, that the most active properties of opium reside in two substances, which may be obtained in distinct forms, and which produce very different effects; *narcotine* and *morphine*, as they have been named. The former is a very powerful irritant to the nervous system, as appears from the experiments of Dr. Majendie; and it seems to be this substance which produces the effects which we so much wish to avoid in the administration of this medicine, and which are obviated, to a certain extent, by giving it in the form of the *black drop*, or other analogous acid preparations. *Morphine*, according to the evidence of the same experiments, and others made on human beings, produces sedative effects without symptoms of the slightest irritation. To separate the narcotine, then, from the other parts of opium, is a very desirable object of pharmacy; and Mr. Robiquet says it may be easily effected in the following way: "I macerate," says Mr. Robiquet, "common opium, divided into small pieces, in cold water, as if it were for the aqueous extract of opium; I filter the solution, evaporate it to the consistence of a thick syrup, and treat it, in convenient vessels, with rectified ether; the whole is then shaken a great many times, before the ethereal tincture is poured off; this, being separated, is then submitted to distillation, that the ether may be drawn from it. This process is repeated as often as crystals of *narcotine* are obtained as a residue of the distillation. When the ether is without action, I evaporate the solution of opium to a consistence proper for pills; and I obtain, by this means, an extract wholly free from narcotine."

In the *Revue médicale*, before quoted, there is an article continued from time to time, called "Medical Letters." These contain the medical chit-chat of Paris. From the 2d N^o of that work, we shall make a few extracts applicable to our present purpose. These letters contain much truth, but not without a mixture of what the French call *malice*, a term, however, not of so harsh a meaning as the same word in our language; and will certainly give an idea of the state of medicine, and the opinions upon it, at this time.

"Paris has long given the ton to Europe; and so completely dictates to the provinces, that whatever comes from the capital excites the greatest curiosity; a feeling the more predominant in medical men, from its having been as yet, with regard to them, less gratified. The daily papers detail only events of general interest; and the scientific journals exclude all anecdote. To fill such a gap will be a difficult enterprise, and the execution of it will offend many; but the consideration that science and the public will gain by it, is a sufficient incitement to the attempt.

"Petitions have been presented to both chambers, to protest against the suppression of the *concours* (examination and competition) in the election of professors; and one of the petitioners has proved to demonstration, that the only object in this suppression is to serve the interests of M. Royer-Collard. If this gentleman had taken the trouble to study chemistry, anatomy, and medicine, by way of qualifying himself to deliver a course of medical jurisprudence, there is no doubt but he would have saved government from all the blame which this election has thrown upon it. John Hunter, arriving at the age of twenty-two years from the mountains of Scotland, where he exercised the trade of a carpenter, became nevertheless one of the first anatomists of England. M. Royer-Collard, arriving at Paris at the age of forty from Chambéry, where he performed the duties of a commissary, might have found some better method of teaching medical jurisprudence than by reading lectures copied from a printed book which is known to the whole world.

The

The source from which the professor drew these waters of science was soon discovered; each student, being able to taste them at the fountain-head for the moderate sum of thirty francs, the price of M. Fodéré's excellent Treatise on Medical Jurisprudence, did not hesitate between this expense and the fatigue of listening to tedious lectures; so that the professor found himself abandoned by his pupils, and left alone in the vast amphitheatre of the schools of the faculty. Such a mishap is certainly a sufficient apology for M. Royer-Collard's having given so few lectures in the first year of his professorship, and for having, during the succeeding years, renounced all public instruction. Still we are indebted to the professor for the excellent course of lectures which his pupils heard in the summer of 1819. As director of the Bibliothèque Médicale, he insured the success of the work by contributing the fewest articles to it; as professor of medical jurisprudence he felt it his duty to resort to similar means to recall his truant pupils, and accomplished his object by employing M. Orfila to lecture for him; and the success of the experiment did not detract from the reputation of the learned author of the Toxicologie.

"Several nominations followed that of this able chemist. M. Béclard was called to the chair of anatomy, M. Marjolin to that of external pathology. MM. Fouquier and Roux have also been lately appointed; the first to the chair of the Clinique de Perfectionnement, vacant by the death of M. Bourdier; the latter to a chair of pathology, vacant by the resignation of M. Percy. A-propos of this resignation; it is said in the medical world of Paris, that 60,000 francs was the price M. Percy received for this professorship; certainly a large sum for a place, the receipts and preservation of which are not certain. The case is not without precedent; at Montpellier in 1786, M. de Barthez sold a professor's chair to M. Grimaud for 30,000 francs. This is great authority for the venality of professorships; which, however, has one little inconvenience, i. e. that of excluding the poor man of talent, though it presents the inappreciable advantage of narrowing the field of favour, a divinity more to be feared than riches. Still we cannot complain of similar bargains, when they bring such men as M. Roux into a more extended sphere of usefulness. This excellent surgeon and learned professor must always have appeared to advantage in a concurrence with any rivals.

"Since the suppression of the *concours*, the faculty of medicine presents to the choice of the committee of public instruction four candidates. The three last are, however, only inscribed for form's sake. This sort of election is not at all approved by the faculty, who accordingly, in 1818, unanimously demanded that the vacant professorships should be given by the *concours*. The committee of public instruction refused to accede to this request; and, to avoid all discussion with the faculty, resolved to choose the first of the candidates named. It was therefore without any chance of success, that MM. Hufson, Récamier, and Pariset, were joined candidates with M. Fouquier.

"You have not forgotten that M. Pariset left Paris, by order of the minister of the interior, to observe the yellow fever which raged at Cadiz, with great violence, in the summer of 1819. In Europe, as well as in the tropics, this disease always disappears on the first approach of winter; a little trifling fact, of which M. Decazes ought to have been aware before he put the state to such an expense. As M. Pariset was still at Madrid on the 23d of November, it is clear that he could not make observations on a disease which had already disappeared from Cadiz. The only subjects for examination would be convalescents, who are perhaps as fit to give an idea of the character of a disease as a few stragglers to convey an appropriate impression of the nature and strength of an army. If M. Pariset had departed three months earlier, he might have given us the result of his

own observations; as it is, we shall only now have the opinions of the Spanish physicians, which could have as well been transmitted by the post. As yet the fruits of such an expensive journey are confined to four coloured engravings, published by M. Pariset, which, announced at a moment when all eyes were directed to Cadiz, excited great curiosity. We expected at least portraits of Quiroga, Riego, plans of the fortifications of La Isla, and the redoubts of La Cortadura. It was a cruel disappointment for the curious to find three faces of men dying of the yellow fever, and fourteen tongues; not tongues of eloquence and fire, but the dirty tongues of patients announcing to the eye and finger the state of the intestinal canal; and which are intended by M. Pariset to express the different phases of the yellow fever in succession. You will be surprised at this. Why? Since we class and describe diseases by the same method which botanists employ to class and describe plants, it is natural that we should endeavour to determine the characters of the former, by the aid of drawings. M. Pariset, indeed, must view diseases as enjoying great advantages in this respect; for Linnæus affirms that the colour of the corolla is too variable a quality to determine the distinction of vegetables; and our learned traveller considers the colour of the face and tongue as characteristic of diseases, in which the expression and colour of the face change from minute to minute.

"M. Gall has commenced his annual course of craniology in the amphitheatre in the Rue St. Victor. This science is getting singularly out of fashion. Time was when M. Gall made us pay high enough for his lectures, and we had difficulty to fight our way to the door. Now we enter gratis, and there is plenty of room. When M. Decazes was minister of police, he greatly encouraged the science of craniology, by giving its inventor a pension of 3000 francs. M. Decazes undoubtedly found the science useful in choosing his counsellors; and, if this minister's reign had continued, the late preventive laws would have been founded on craniological principles.

"A subject which has more reality and practical application, is the excellent course of human anatomy which M. Béclard gives to the faculty of medicine. M. Dumeril had already greatly advanced the study of this department of anatomy, considered in a philosophical point of view. Some indeed thought that he too frequently introduced the subject of comparative anatomy. M. Béclard is more reserved on this point; but the composition and analogies of textures, the forms and relations of parts, both in a state of health and disease, suggest to him at every step a variety of interesting general observations, which enliven the dryness of anatomical discussion, and are almost all of practical application. M. Béclard, before he became professor, underwent the probationary trials, as "chef des travaux anatomiques." MM. Dumeril and Dupuytren occupied this honourable post before him. M. Breschet now fills it in a manner which will soon place him on the distinguished level of his predecessors. M. Chaussier still teaches physiology, and gives two lectures a-week. This learned teacher always displays the same profound views, and the same originality of ideas. He still preserves his prejudices against the accessory sciences, which he calls "strangers to medicine," and against chemical explanations of phenomena, which he styles chimerical.

"Since Professor Cuvier has become a statesman, and science is only the amusement of his leisure hours, there are no other lectures on comparative anatomy at Paris, but those given by M. de Blainville, at the Faculté des Sciences. They are very well attended, and would be more so if the theatre of the College de Pleffis were larger. M. de Blainville, as a savant and professor, promises to be a worthy successor of his master Cuvier, whom we trust he will follow in his Linnæan zeal for the science of nature; but we hope he will not imitate him in those pretensions

pretensions to nobility, which made Buffon ridiculous though born noble; nor that in love of office, which was the misfortune of Pliny the elder, and of which M. Cuvier seems to have his share.

"You are acquainted with the work which M. Geoffroy de Saint Hilaire published last year on philosophical anatomy, in which he endeavoured to bring all the types of organization to a primitive and unique form. M. Geoffroy continues to illustrate his discoveries at the College de Pleffis before a numerous audience, and demonstrates that "insects are provided with a skeleton as complete as that of the large quadrupeds; that the crustaceæ do not walk upon their claws, but upon their ribs. It is a pity that man is not a lobster, for then, like our first father, Adam, we might lose our ribs without being aware of it, which would have diminished the risk which M. Richerand ran in removing those of the unfortunate Michelleau, in his famous operation for cancer. For a long time M. Richerand has published nothing but new editions of his old works; it is matter of regret; for this surgeon has great talents as a writer. The clearness of his style is admirable, and his works have been universally popular as elementary books. But M. Richerand as author, and M. Richerand as professor, are two very different persons. It appears to be matter of regret that M. Richerand should have changed his former chair of external pathology for that of operative medicine. In the latter he had to succeed M. Dupuytren. Who could stand the comparison? M. Dupuytren is perhaps the only surgeon, who with C. Bell and M. Delpech, has made it his study to teach the art of operating by showing the relation of different methods with the structure of parts, and by determining the advantage of each proceeding according to the alterations of form produced on organs by disease. "The lectures on chemistry are, of all the lectures delivered at the Faculty of Medicine during winter, the best attended. He who wishes to know chemistry thoroughly, must attend M. Vauquelin. He who wishes to see chemical facts philosophically arranged and illustrated by experiments skillfully performed, must go to the College of France, and to the Faculty of Sciences, to hear M. Thénard; but he must make haste, for it is as difficult to get a place to hear Thénard as to see Talma.

"A new and rival school has risen by the side of the Faculty of Medicine. A generous opposition is already the result, and it will probably save the medical schools of France from the destruction which hovers over them. Indeed the school of Val-de-Grâce can only yet boast of one professor of celebrity; but this teacher is endowed with real talent. He has all the enthusiasm of a reformer, and the power of communicating it when necessary. It is in vain to conceal the influence which M. Broussais already exercises, not only on the studies of the pupils, but on the practice of the physicians of the capital. As this influence is the most important fact I have to communicate at present respecting our science at Paris, I shall take an early opportunity of detailing to you the doctrines of M. Broussais. It would not be judging properly of his doctrines or practice to repeat with the public, that the annual consumption of leeches in the civil hospitals of Paris, which constituted only an expense of 2000 francs, is now 80,000. (See p. 46.) You will nevertheless have heard that M. Broussais is not so much in vogue as last year, when the minister at war found it necessary to close the doors of the hospital to the crowd of students who besieged them. As the doctrines of M. Broussais are of a direct practical application, the above-mentioned circumstance may have retarded their propagation. It does not much signify. If these doctrines are true, reflection and time will only serve to establish them; if they are false, it is perhaps better that the pupils should defer the examination of them until they are qualified to judge and think for themselves.

"There are some people in the world, doubtless, who

wish to establish the amount of a salary upon any other consideration than the service rendered for it; but we must look to a madhouse only to see the salary increase in direct proportion to the diminution of attendance. In the hospital of lunatics at Charenton, the following regulation appears: "The physician shall reside in the establishment; he shall receive a salary of 4000 francs, and pay five visits a week; if he does not reside, he is to receive 6000 francs, and pay only three visits." Talking of the Charenton, I must give you an account of a new method of improving the salaries of physicians in hospitals where the patients pay for their board. This plan consists in assigning to the former a certain share, say two-twelfths, of the savings which are made on the sum the patient pays, rendering it of course the interest of the physicians to make this saving as considerable as possible. The salary of the physician, therefore, it is evident, can only be limited by the bad intentions of a director too much attached to the welfare of the patients. This may be easily obviated. By the assistance of calumny, the director is got rid of; and, to prevent all future disputes, the direction of the hospital is made the marriage-portion of the physician's daughter. I need not tell you that the Lunatic Asylum of Charenton is out of the administrative control of the hospitals of Paris.

"When a man professes zeal for his profession and love for humanity, his ardour in discharging his duties is above all remuneration. At the Hotel Dieu, M. Dupuytren receives a very moderate salary, which is neither directly nor inversely proportioned to the number of his visits, and which does not prevent his going winter and summer to the hospital from half-past five in the morning to ten, and again returning in the afternoon to see the patients who have been recently operated upon. Here, also, M. Dupuytren, before performing an operation, establishes, in presence of a numerous audience, the causes which indicate it; he discusses the methods of operating employed by surgeons, and describes the one at length which he is about to employ.

At the Charité, MM. Boyer and Roux alternately take charge of the clinical department. M. Boyer examines the house-pupils on the patients entrusted to their care. The professor discusses the most important cases, and displays all that profound knowledge and practical ability which have long ranked him among our first surgeons.

At the Hospice de la Faculté, there are only forty beds, and the patients are selected with great care. M. Dubois can therefore devote to each patient a sufficient time to establish the diagnosis, and answer the questions which each pupil has a right to address to him. In the theatre, the professor enters on the cases which have been operated on, or those which are about to take place. The operation is then performed, after which M. Dubois sees the out-patients. Here he applies public instruction to private practice, and presents us in part with the advantages of those private establishments which in Germany are called *clinica ambulatoria*. M. Dubois is really indefatigable; to the experience of age he joins the ardour of youth. Charged with the instruction of female midwives at the Hospice de la Maternité, he has just commenced a public course of lectures on midwifery for medical students. These lectures will be quite an epoch, and unfortunately they will be the last which M. Dubois will give on a subject which requires more to be reduced than extended. Who will be better able than this learned surgeon to reduce to their proper value the pretensions of those surgeons, who have only become great accoucheurs because they were not fit for any thing else?

"M. Roux has repeated with success the beautiful operation of the future of the *velum palati*, which he was the first to practise, upon an American, who had had a congenital division of this musculo-membraneous part. Some months ago, at the Royal Academy of Sciences, the subject of this operation, whose voice before was hardly perceptible, read his own case very distinctly."

The

The following account of the funeral of the celebrated Corvisart, well known to the English faculty by his writings, which we extract from the *Journal des Debats* of the 22d September, 1821, may be thought curious by the mere English reader: "The obsequies of M. le Baron de Corvisart, physician, took place to-day. In pursuance of the directions contained in his will, his body was not taken to the church of St. Elizabeth, his parish, but was conveyed to his estate at Atys, where he desired that the religious ceremonies should be performed. A deputation from the Faculty of Medicine, in their doctor's robes, (*en habit doctoral*,) and nearly all the physicians of Paris, repaired this morning to his late residence, Rue de Vendome, for the purpose of attending his funeral. Mr. Leroux, dean of the physicians of Paris, pronounced a discourse over his body. The coffin, covered with the mantle of a doctor, and with the different orders which had been conferred upon the deceased, was afterwards placed in a hearse, to be taken to its destination, whither the deputation of the faculty, and a great number of other persons, accompanied it."

As we have spoken largely of the management of the hospitals, we shall conclude with a few words upon the subject of the lunatic asylums.

The Salpêtrière, under Dr. Esquirol's management, affords as fair a specimen of the result of benevolent consideration and exertion as any institution to be found in France, or on the continent. Here the classification of patients is attempted, and to a considerable degree carried into effect; though, without doubt, there is still much to be desired. The use of chains, and all that apparatus of severity which formerly obtained, are entirely done away; and the result has pretty clearly demonstrated that in an institution of this kind, properly conducted, they are useless. Confinement and the strait-waistcoat, we are told, are the only restraints now had recourse to at La Salpêtrière. The latter of these, for very good reasons, is very much abandoned in this country: it is never used at Bethlem, and very seldom at St. Luke's: its inexpediency is very apparent. The patient is quite incapable of assisting himself in a thousand little necessary offices; and, when locked up by himself, this becomes unusually irksome. When the wrists are manacled together, even the most furious are helpless: or a leathern girdle may be put round the waist, and the arms may be pinned down to this in a way to prevent any injury.

The treatment pursued here is no longer the decided and active one, in the way of bleeding, purging, &c. which used to be practised. M. Esquirol considers mental alienation as an acute disease, having its successive periods of intensity, decline, and convalescence, the order of which is not to be disturbed by officious interference, though the symptoms are to be moderated by gentle means, viz. tepid baths, diluents, occasional soothing medicines, and very slight douches. Speaking to Dr. Clark of relapses, he said that he had known many cases where a paroxysm had occurred after bleeding; in some cases after a small, in others after a large, bleeding. The treatment is made as much moral as possible. An effort is made to gain the confidence of the patient; and this is generally obtained by appearing to take an interest in his affairs, and by scrupulously preserving good faith. As much work is given them as can be procured. The convalescents have a large room where they are employed at their needle; and, by way of encouragement, they receive a trifling remuneration for their work. M. Pinel, as is well known, removed the regular servants from the institution, and set the convalescents, with much profit to themselves and their unhappy companions, to attend upon the patients, and do the little menial offices.

Dr. Esquirol, from 800 dissections which he has made, has come to the conclusion that "he has never found any constant alteration in the structure of the brain, or of any

other part. The hardness of the brain, insisted upon by many, he had not generally remarked."

The excellent regulations we have just noticed belong to Paris, not to the provinces. But the Report of the Committee appointed by the British parliament produced a sensation on the public mind which was strong and permanent; and, we rejoice to say, that its good effects have not been confined to England alone. The governments on the continent have taken alarm, and investigation has every-where commenced. The French government appointed Dr. Esquirol to visit all the receptacles for lunatics in France; and the result of a tour which he undertook for that purpose, is stated in a "Memoire présenté au Ministre de l'Intérieur." It is but justice to Dr. Esquirol to state, that this Memoir is drawn up with much ability and feeling; and, as far as we are able to judge, with strict justice and candour. It, in fact, does equal credit to the head and heart of the writer.

"Those for whom I plead," says Dr. Esquirol, "are the most interesting members of society; for they are almost always the victims of the prejudice, injustice, and ingratitude, of their fellow-creatures. Among them are to be found fathers of families, faithful wives, skilful artisans, brave warriors, and distinguished literary characters, ardent, proud, and acutely sensible minds; and yet these individuals, who ought to attract a peculiar degree of sympathy and interest; these unfortunate beings, suffering under the most fearful of human miseries, are treated worse than criminals, and reduced to a condition below that of the inferior animals. I have seen them naked, or half covered with rags, with only straw to protect them from the cold, and wet pavement upon which they lay. I have seen them badly fed, without air to breathe, water to quench their thirst, without, in fact, the first necessities of life. I have seen them in narrow, dirty, infectious, cells, without air, without light, chained in dens, where we should hesitate to confine the wild animals which the luxury of our governments keeps up at such expense in our capitals. This is a faithful picture of what I have seen all over France; and this is the manner in which the insane are treated in almost every country of Europe."

The insane, in France, are almost all placed in public establishments; either in institutions specially devoted to them, in hospitals, in the *depôts de mendicité*, or in houses of correction and prisons. They amount to 5153 in number, and occupy 59 houses; out of this number, more than 2000 belong to the three great establishments of Paris. It is rather singular, that in the southern provinces of France, the proportion of men considerably exceeds that of women; while, in the north, the reverse is observed. In Spain, the proportion of men is greater than that of women.

There are only eight establishments peculiarly dedicated to the reception of lunatics in France. These are at Armentières (for men only), Avignon, Bourdeaux, Charenton, Lille (for women only), Marseilles, Marville, Rennes. There are several glaring defects in these institutions. At Charenton, for instance, part of the institution is used as a workhouse for the poor of the neighbourhood. Epileptic patients are mixed with the lunatics, and prisoners are occasionally confined in the same house. Incurable cases are also received, and are kept there for life. So it may be said, that there is in France no institution specially devoted to the treatment of insanity. In thirty-three towns of France, which M. Esquirol specifies, the insane are received into the general hospitals, which are also appropriated to the old, the infirm, and the diseased; to venereal patients, and to those affected with cutaneous disorders, and which even admit women of disorderly lives, and criminals. In the cities where *depôts de mendicité* have been established, a portion of the building is devoted to lunatics, but only to those who are furious; these are kept constantly chained in their

their cells. The others, intermixed with paupers; are without any of the care which their state requires. Dr. Esquirol specifies twelve places where lunatics are received into the *depôts de mendicité*. In seven towns, lunatics are even confined in prisons, and chained by the side of the most abandoned criminals. The latter can work, and the produce of their labour enables them to procure many comforts: the insane are deprived of this resource, and exposed to the jests of the most abandoned wretches. How humiliating must their state be, if a lucid interval reveal to them their situation; and if, in spite of so many obstacles, a cure should be effected, how dreadful must the recollection be of such scenes!

Our author now proceeds to give, in a general way, the result of his observations. The buildings devoted to the insane in France are bad: for they are always confined, damp, and generally in a ruinous state; and even in the *depôts de mendicité*, and some hospitals where new buildings have been erected for the insane, they have been constructed without reference to the object for which they are intended. The cells are dreadful: without air or light, narrow and damp. They are paved like the streets, are often under ground, and sometimes in caves. They have seldom any other aperture than the door, and a small square hole opposite to it; and very often, even this aperture is wanting. There is, consequently no circulation of air, and the smell is almost suffocating. Almost all the insane, not only the indigent, but those who pay, are naked, or only clothed in rags. They receive the tattered garments which have been thrown off by the poor, or the prisoners. Straw is all they have to protect them from the humidity of the ground, and the coldness of the air; and straw is sometimes wanting! "J'ai vu un malheureux imbécile, tout nu et sans paille, couché sur le pavé. Exprimer mon étonnement d'un pareil abandon, le concierge me répondit que l'administration ne lui avait fait, pour chaque individu, qu'une botte de paille tous les quinze jours. Je fis remarquer à ce barbare que le chien qui veillait à la porte des aliénés était logé plus sainement, et qu'il avait de la paille fraîche et en abondance; cette remarque me valut un sourire de pitié. Et j'étais dans une des grandes villes de France!"

In no institution is there room enough for the patients to take air and exercise. The space allotted for that purpose is promiscuously devoted to both sexes; and, in some houses, the patients are brought out and "chained to the walls of the court, by way of taking the air."

The attendants are insufficient, and ignorant; and, indeed, in most houses the patients have no servants. In prisons, the jailor, who has fifty or sixty criminals to look after, has also to attend to beings who have not the power of expressing their wants.

Chains are every-where employed: 1. On account of the wretched state of the buildings: 2. From the insufficiency of attendance: 3. From the ignorance of the keepers: 4. From the expense of waistcoats. "J'ai envoyé des gilets pour servir de modèle dans plusieurs villes; on ne s'en sert point par économie; il est certain que les chaînes coutent moins d'entretien." The chains employed consist of iron collars, girdles, and fetters. In one institution, the patients were confined by means of an iron collar attached to a chain, a foot and a half in length. A whip is in the hands of the servants, and the bunch of keys is made a common instrument of correction. In all the establishments of *Paris*, containing 2000 individuals, corporal punishment has been long abolished.

The medical men in the different towns have made many efforts to remedy these abuses; but, disappointed in their attempts, they have become disgusted, and only visit the insane who labour under illness, but never with a view to cure the insanity. The servants of the hospital order the means which they judge necessary. At *Toulouse*, from time immemorial, it has been the custom for the medical men to visit the indigent in the general hos-

pital, but they never go into the quarter where the insane are confined.

The magistrates, deceived by false reports, and frightened at the tales with which interested keepers awaken their fears, never visit the lunatics; reconciling their consciences to this act of neglect, by viewing the patients in the light of incurables, and thinking they have done enough when they have put them out of a state to do harm, and given them bread and water sufficient to keep them from starvation.

Having detailed the abuses which exist, our author next proceeds to consider the best method of remedying them. The outline of his plan is something like what has been proposed in England; to build asylums in various parts of the kingdom, which should be appropriated to lunatics only. Dr. Esquirol is of opinion, that about twenty of these buildings would be required for the whole kingdom of France; and, as there are already three at *Paris* and eight in the provinces, he would retain these for the sake of economy; and, after radically reforming them, built nine others; all which he would place under the direction of a managing committee, to consist of the prefects of different departments, subscribers, manager, physician, &c. The directors and physicians to be in constant correspondence with a central committee, immediately under the superintendance of the minister of the interior. In conclusion, Dr. Esquirol announces his intention to publish an extensive work on insanity, which may perhaps afford us an opportunity of resuming this interesting subject.

In *ITALY*, the madhouses are in a state equally lamentable, or more so. Dr. James Clark (*Medical Notes on the Hospitals of France, Italy, &c. 1820.*) has given us some shocking instances at *Turin* and *Genoa*; and the temper of the Sardinian government does not lead us to expect any prompt amendment, as reformation is not the order of the day in that unhappy country. Dr. Clark says,

"The part of the hospital (*Casa de'Pazzi*) we were first taken to, consisted of small rooms similar to those generally met with in such institutions; but I was disappointed to find these were not for the poor patients, but for those who paid a certain sum for being kept. The first of these that was opened presented to us the wretched prisoner, perfectly naked, and chained down to his bed by both wrists. He had raised himself in his bed as far as his chains admitted, by which movement he had cast off the single coverlet that had been thrown over him. He had no shirt; his legs (apparently red and swollen from cold) were drawn up under the corner of the bed-cover, which lay over a small part of his body; he was pale and emaciated; he uttered not a word. In short, a human being in so wretched a state I had never before seen; but I was soon to witness others in a state still more horrible. We were next conducted into a ward where thirty beds were huddled together, on most of which lay a poor wretch chained by one or more limbs to the bedstead; for to each corner of these was attached a maffy iron chain, with a clasp of the same materials and strength at the extremity, for admitting the wrist and ankle; and, according as the keeper judged necessary, one or more of these were applied. Some were polished and bright as silver, from constant use. I imagined that these were the most unruly patients, but was told that this was by no means the case. To these we were next led; and, on unbolting the door of a large cell, the scene that presented itself almost exceeds belief. The spectacle of the poor wretches, naked, or covered only by some straw, chained down hand and foot to their bedsteads; the clanking of their chains; the dreadful vociferation they set up at the sight of him who had rivetted these chains; the still more horror excited by such a spectacle; no terms are strong enough to depict! I had read and heard of chains and other means of torture for subduing (irritating) the unfortunate maniac; I had even seen such,

singly

singly chained to the wall by the neck, like an infuriated and dangerous beast; but a den like this, crowded and crammed with human beings, chained down, without a rag of covering, struggling to raise their heads, and exhibiting their emaciated and galled limbs from the heap of straw that had been thrown over them, was a scene I never expected to witness, and which I hope I may never witness again. In this cell there were twelve men, three of whom only were allowed any thing more than straw to cover them. Some I was told had been confined there for many months. On approaching them, they exhibited their chained limbs with the most earnest entreaties for liberation. One man had two chains on one arm. In this case the space between the iron clasps was red, swollen, and ulcerated; and the mortification, which in all probability was to follow, would soon render chains unnecessary for him. Others had their limbs galled, but not in such a degree as that described. In one instance only, in the whole hospital, did I observe any thing introduced between the iron ring and the limb. The rest of the men's wards were similar to that I first noticed.

"From the men's we were led into the women's department, which was in the higher part of the house, and which, in every respect, we found similar to that we had just left, the beds huddled closely together, chains always ready, many applied, and most of the beds occupied; for, whether to save trouble, or from the poor creatures having no clothes but the coverlet that was thrown over them, almost every one was in bed. Here, as below, was also a cell where straw afforded the only covering, where the chains were more heavily applied, and where the state of furious desperation to which the wretched victims were driven, was expressed in terms equally violent, and still more affecting. One of these tortured women held up her arm which was raw, and had been bleeding, from the iron clasp having worked its way into the flesh!

"Such is the dreadful state of this house, which contains 180 males and 97 females, of whom one third, the keeper told me, were kept *constantly* chained. From the same source I learned, that the annual number of deaths (and this, I apprehend, is the principal way in which this house gets rid of its inhabitants) sometimes amounted to eighty (nearly one third of the whole); that it *had* been as few as thirty; and that the average was fifty (nearly one fifth); a mortality, I believe, unequalled in any institution of the kind in any country." But we now turn to a more pleasing topic, the general state of pathology in Italy.

We have mentioned the celebrity the Italians acquired in the 17th century as professors of anatomy; and we may observe of the present æra, that the labours of Volta, Scarpa, Fontana, Rossini, and Mascagni, have much contributed to maintain that reputation. As far as the practice of medicine is particularly concerned, until of late, it appears to have been in a very lamentable condition up to the year 1812. The Italian physicians were divided into Brownists, humorists, those who followed French *expectante* system, and a few who practised more correctly according to precepts originally derived from Sydenham. To these are now added others who adopt what is called the *contra-stimulant* method, (see p. 41.) and who boast among their distinguished advocates Tommasini and Borda. It was Rasori, however, who first introduced this *nuova doctrina medica Italiana*. During the memorable blockade of Genoa, that physician obtained very great opportunities of studying the progress and character of petechial diseases; and the calamitous results which followed the application of the means recommended by Brown in almost all cases soon led him to attempt a contrary plan of treatment, the success of which amply proved that these fevers were of an inflammatory nature. Further investigation convinced him that scarcely any diseases could be traced to direct debility; and he accordingly established that theory of fever of which the leading features corre-

spond very closely with the observations of the English pathologists. The medical school of Bologna, which is in a very flourishing condition, may be considered "at the head of the new doctrine;" and the professors, among whom we find the name of Tommasini, its most zealous and able advocates. A periodical journal, too, has been established at this place, to give an account of the rise and progress of these opinions. In the mean time, these opinions are warmly opposed by many of the Italian physicians. Among the most distinguished of these opponents are Spallanzani of Venice, (a nephew of the celebrated Spallanzani,) and Federigo of Venice; but their efforts are not calculated to have much influence in the medical world.

The doctrine of this school in regard to the operation of drugs merits our most earnest consideration. The grand axioms in Rasori's theory, and that in which it is most strenuously opposed to the doctrines of Brownie, is that "*there exists a class of substances whose action reduces fever; slackens the circulation; and, if pushed too far, induces direct debility, without the intervention of any notable discharge.*" Instead of presuming to argue upon this singular and bold assertion, we shall avail ourselves of the "State of Medicine," appended to Lady Morgan's ITALY, by Sir Charles Morgan, M. D. for a full exposition of Rasori's doctrine, and also for some very just and perspicuous remarks on the general state of medicine throughout Italy at this time.

Alluding to the axiom stated above, Dr. Morgan proceeds thus: "The notions formerly entertained of these drugs were, that they operated by diminishing or diluting the mass of circulating fluids; in which they were supposed to coincide with the operation of letting blood. The *contra-stimulant* doctrine attributes their utility to their direct impression on the living solid; to an action which, when excessive, will extinguish life by an instantaneous exhaustion. In this class of substances must be placed aconite, digitalis, antimonials, and in general all mineral substances, cicuta, the venom of the viper, the laurel-water and prussic acid, camboage, tea, coffee, &c. &c. The classes of stimulants and contra-stimulants, according to this theory, stand opposed to each other in their relations to the living fibre, and serve mutually as counter-poisons to each other. Hence, say the advocates for this doctrine, has arisen the abundant use of coffee among the Turks, as an antidote to the opium they employ so largely. Hence also the utility of the vegetable acids as counter-poisons to the same drug. The *contra-stimulant* effect of lemon-juice is much greater than is commonly supposed. The author, when at Naples, having experienced a slight coup de soleil, inducing a bilious vomiting and febrile paroxysm, adopted, under the advice of the natives, the free use of lemonade. Two or three quarts of this fluid, taken in the course of the morning, not only removed the disease, but induced a degree of debility sufficiently irksome to require vinous stimulation.

One of the most important facts attached to this doctrine is, that the effect of any given dose of a *contra-stimulant* drug upon the constitution, is inversely as the degree of stimulation; and consequently, that, in inflammatory diseases, the patient not only requires quantities totally unusual in English practice of these remedies, but bears them without any notable effect upon the excretions. In practice, therefore, the measure of the dose is found in the quantity of excitement; and no dose is deemed excessive which does not change the diathesis and induce dangerous debility. Thus in sthenic maladies, the Italians employ aconite, from a grain to a drachm; the kermes mineral, from eight to twenty-eight grains; emetic tartar, from eight to seventy-eight grains; the laurel-water, from ten to sixty drops; digitalis, from four grains to half a drachm; nitre, to half an ounce or an ounce. These are commonly given in divided portions through the course of the twenty-four hours, largely diluted with

any simple drink the patient prefers. It is usual to begin with a small quantity, increasing it more or less rapidly according to the urgency of the symptoms. However extraordinary these facts may appear, there are few English practitioners who have not had opportunities of witnessing similar results from the administration of James's powder. Indeed, so great is the apparent caprice in the action of this drug on the stomach, and the variety in its evacuant effects, that it would be almost impossible not to suspect an inequality in its preparation, without this key to explain the phenomena. Half a paper or a paper of the real James's powder, repeated at short intervals, has, in some cases of fever, appeared to be perfectly inert, neither inducing vomiting nor perspiration, though the tongue has been found moister, and the fever abated, on the following morning. The author's attention was first attracted to the fact by the practice of a friend, who trusts especially to this remedy in the cure of fevers, notwithstanding the absence of all sensible action from it, except the very important one of the amelioration of the patient.

The possession of these facts could not fail to have had a most beneficial effect on the practice of physic, in a country whose climate develops inflammation with so much intensity and rapidity; but it has been far more extensively useful in banishing those dangerous errors of practice which had crept in, through the Brunonian doctrine of indirect debility, or of diseases arising in excessive stimulus being curable by still greater stimulation. In inflammatory disease, (no matter whether chronic or acute, no matter whether occurring in a vigorous or a debilitated subject,) excessive stimulation is the cause of malady; and the contra-stimulant remedies afford much more successful methods of cure than are to be hoped from wine, or ether, or any other stimulant. Although the means employed by the contra-stimulant physicians may somewhat differ from our own, yet the indications are generally the same as are recommended by our best authorities. There is a considerable agreement between their views and those of Dr. Blackall, respecting the treatment of dropsy. In this fatal disease, the contra-stimulant physicians have to boast of much success. It is a malady rendered very common in Lombardy by the prevalence of intermittents generated in the rice-grounds, and it seldom finds its way into the hospitals till more or less extensive disorganization has taken place: yet the mortality in the clinical wards of the Ospedale Maggiore of Milan, during three years (1812, 13, and 14) that the contra-stimulant practice was pursued there by professor Rasori, did not exceed $\frac{2}{100}$.

A considerable comparative success has resulted also from the same mode of treating consumption. The deaths in the register amount indeed to $\frac{6}{100}$; but, if the disease had been defined with any degree of accuracy in the entries upon the hospital-journals, even this limited success is a matter of comparative triumph.

The treatment of dysentery is chiefly by camboage, given as a contra-stimulant, the dose being gradually increased till it induces diarrhoea, which is considered as a sign of the resolution of inflammation.

With respect to acute diseases, although the contra-stimulant practitioners push their remedies further than was usual under the other Italian systems, it may be doubted whether they do not yet stop short of a proper vigour. The average mortality of the clinical wards in the Ospedale Maggiore, during three years, was less than 11 per cent. whereas in the other wards, where the older practice was followed, it amounted to 16 per cent. The total number of sick was 4855; that of the deaths, 520. Of these cases, 1302 were pneumonies, consumptions, tabes, dropsy, typhus, and patients received in articulo mortis, of whom died 428. The deaths in pneumonies were $\frac{2}{100}$; and in typhus, $\frac{1}{100}$. This exceeds the deaths in the worst epidemics that have occurred of late years in England. That 22 per cent. in pulmonary inflamma-

tions should be thought a small proportion, (every allowance being made for the stimulating qualities of the climate,) seems to indicate an inefficiency of practice, at least as compared with that of England. It is not therefore improbable, that the employment of contra-stimulant drugs may have led to a partial abandonment of blood-letting, or, at least, to a confidence in smaller effusions of blood than are necessary to cure the disease by a coup-de-main. The action of tartar-emetica, however powerful, is slow; and, in acute diseases, the first twenty-four hours are most important. It is not therefore impossible, that this valuable time may be lost in the employment of drugs, which, if given to a cure by the abstraction of blood, might, in some cases, have saved lives, not susceptible of rescue by the same means when employed at a later period. From all I could gather, in repeated conversations with Dr. Rasori, he seemed indeed to be sufficiently alive to the importance of blood-letting; and I should make this remark with more hesitation, if that physician did not seem to me to stand alone among his countrymen for boldness and decision. Throughout the south of Italy, wherever I had the opportunity of direct observation, I found the blood taken, in inflammatory disease, less in absolute amount than is now usual among English physicians; and it is taken by smaller and more frequent bleedings. It is not therefore improbable, that when the mind has been pre-occupied by another idea, the same error may have occurred in the practice of more efficient physicians.

Of the contra-stimulant theory, the part which seems the least perfectly developed, and concerning which there is the least unanimity, is that which relates to the action of particular drugs; indeed, there is no branch of medical inquiry more contradictory and obscure among the physicians of all sects and all countries; of this, the endless disputes on the action of digitalis, in the medical writings of the British practitioners, afford a striking instance. Among the contra-stimulant remedies are included, by some persons, all the mineral remedies, various bitters, and (mirabile dictu) the blistering-fly itself. Rasori totally rejects from the materia medica the class of diuretics, whose action he considers wholly contra-stimulant; for, he says, not only do dropsies, curable by such remedies, likewise get well by the use of other contra-stimulants, not diuretic; but these very diuretic medicines do not provoke the same discharges in other diseases; while, on the other hand, opium and ether produce diuretic effects in dropsies, which arise from a real debility of the living fibre. From these facts, judging empirically, we must come to the most opposite and contradictory conclusions: but, in adopting the contra-stimulant doctrine, the philosophical induction is, that diuretics, and other specifics for dropsy, derive all their efficacy, and their supposed specific action, from their relation to the general diathesis or constitutional disease.

One of the most obscure parts of the new medicine is, that which distinguishes between the irritative and contra-stimulant effects of drugs. Several of the contra-stimulant drugs are, in certain doses, of the most acrid and irritating activity: (not to mention cantharides,) nitre, the bitter purgatives, and most mineral substances, excite, when taken in over-doses, immense irritation, followed by severe and fatal inflammation of the intestinal canal. Upon the subject of irritation, the theorists have run into the nicest distinctions; one asserting the existence of a peculiar diathesis, produced by irritative stimulation; while another denies the existence of such a diathesis. Some persons, again, consider the irritation as a phenomenon sui generis, removable only by the removal of the cause; while others hold the first effect of irritation and of all pain, to be purely contra-stimulant. In all this logomachy, there seems to be more intellectual subtilty than practical observation; and perhaps also no little precipitation in the classification of particular

particular drugs. It is difficult to conceive irritation in any other light than that of direct stimulation, since, when carried to a certain point, it always induces inflammation. That irritants therefore should be at the same time contra-stimulants, is difficult to understand. Whatever gives a violent shock to the nervous system has a temporary power of diminishing, and in some cases of even totally extinguishing, the vital energy. Blows on the stomach, ruptures of ligaments, extensive injuries of any important viscus, are followed by a very marked condition of contra-stimulus; but this peculiar affection of the nervous apparatus has nothing to do with the power which a drug may hold over the circulation. In all cases of poisoning, where the coats of the stomach are either chemically or physiologically destroyed, this state of contra-stimulus precedes the accession of that inflammatory fever which accompanies the effort to cast off the slough; but it by no means follows, that the collapse is the direct effect of a specific property in the drug administered.

Dr. Clarke (in his observations "On the Climate and Diseases of the South of France and Italy," a work which may be safely consulted by those invalids who are exiled in search of health) has most justly remarked, that the sciences in general, and medicine in particular, are upon a much more respectable footing in Upper Italy, than on the other side of the Apennines; and the former is precisely the territory of the contra-stimulant practitioners. To their bold administration of powerful remedies, the profession in general is largely indebted; more especially for their more philosophic use of digitalis and of antimony, which, notwithstanding all that has been written in England, had not been before rescued from a very gross empiricism. The use of laurel-water and the prussic acid is another benefit derived from this source, though it is probable that the French will obtain the chief merit of this application of a most deadly poison to the purposes of medicine. To those English practitioners who have returned upon the traces of Sydenham, and have disentangled themselves from the learned errors of the last generation, the contra-stimulant writers of Italy will prove highly interesting, by the confirmation they afford to views entertained at home, upon separate and independent grounds of reasoning and observation.

When the contra-stimulant system has been noticed, there remains but little to be said of the state of medicine in Upper Italy, where the merits of individuals is rendered less available by institutions and by combinations of circumstances, more or less fatal to all national prosperity. One of the principal misfortunes attendant upon the political divisions of this ill-fated country is, the establishment of petty universities, laden with obscure professors, whose exertions meet with no adequate reward, either in fame or money. These teachers educate gratuitously, and consequently produce a greater supply of practitioners than the demand can employ. This facility of instruction and insufficiency of remuneration operate to invite the lower classes into the career; and, if persons of more adequate pecuniary means attach themselves to the profession, and are desirous of seeking education in foreign universities, they are restrained by the restrictive laws, which confer licenses to practise only on those who have graduated at home. Pavia, Padua, and Bologna, which still preserve an astonishing zeal for science, and which afford great facilities for the student, would abundantly suffice for the necessities of the north of Italy, but municipal jealousy operates very generally to exclude the subjects of other states from profiting by their propinquity to these seats of learning. Florence, Sienna, and Pisa, Modena, Parma, Genoa, and Turin, have each their schools of medicine, all costing the public large sums, and all more or less unequal to maintain professors of high talent or extensive acquirements."

The most recent particular we have to mention in the medical practice of Italy, is the administration of black

pepper as a remedy for agues, by Dr. Louis Frank, first physician to the dukes of Parma. A man, having tertian fever, had been treated, without benefit, by cinchona, opium, and muriate of ammonia; when, after the lapse of three months, he was advised, by some gossip, to take, twice a day, six grains of whole black pepper; he rapidly recovered his health. Dr. Ghighini, physician at the court of Parma, being in a country where agues prevailed every year, more or less, from the influence of stagnant waters, tried the efficacy of the medicine, and with the most favourable results. Dr. Frank has treated about 130 patients, in the greater proportion of whom the fever disappeared after the second or third paroxysm from the time when the remedy was first administered. From six to ten corns of the pepper (given to the patients as pills) were generally administered twice a-day. But very few relapses occurred.

SPAIN and PORTUGAL.—This is a short and barren section. The Spaniards have not lately been in a situation to cultivate the sciences, or literature of any kind. Long oppressed by bigoted rulers and despotic governments; struggling for liberty, and not knowing how to use it; and even now torn by intestine commotions, while employed in the most laudable pursuits; we have little information to expect from such a source. Yet we begin to hope for better times; and it has given us great pleasure to be informed, that a medical magazine, to be published every ten days, has been announced at Madrid, under the title of "Decadas Medico Cirurgicas." The objects of this periodical miscellany are—1. To inform the profession and the public of all the discoveries and interesting facts relating to medicine and surgery in Spain and in foreign countries. 2. To give an impartial account of modern theories, medical doctrines, &c. 3. To convey intelligence respecting all endemic diseases. 4. An account of extraordinary cures. 5. Miscellaneous queries and observations; with an analysis of medical publications appearing in Spain, and of the more important ones published in foreign nations.

A publication of this kind, tending to invite discussion, will, we think, be of infinite service to the medical cause in Spain. In the mean time, a very singular retrospective decree of the Faculty of Pharmacy in Madrid has lately been issued, by which every person practising pharmacy, or keeping a chemist's shop, who has not reached the age of 25 years, is enjoined to attend courses of lectures at the Royal College up to that age, with a view to his being re-examined previously to obtaining a fresh license to practise.

The following is the account given by Mr. Broughton, a surgeon, in his "Letters from Portugal," of the miserable state of pathology in that country about the year 1814.

"In my professional capacity, it has fallen to my lot to visit the poorest and most distressed classes; and, miserable as the state of this order of society appears to be upon a casual view of it, it is yet nothing when compared with that which is furnished by a more intimate acquaintance with its evils. Often destitute of hospitals, and without the aid of medical men, the unfortunate victims linger in the most loathsome and deplorable state which poverty and disease can inflict, and are consequently doomed to drag out their miserable existence a burthen to their families and to themselves. I found the little assistance I was able to afford them was eagerly sought, and most gratefully accepted; and, as the intelligence of the opportunity of relief spread abroad, the numbers of the afflicted, and the excess to which their various diseases had reached by neglect, astonished me. Whenever I met with medical men, I uniformly found this science limited to a degree that almost exceeds belief. Their study is chiefly confined to the perusal of a few old authors, whose practice among us has become obsolete; and they have consequently few conceptions beyond the dogmas of the latter. The surprise they evinced at the surgical

urgical apparatus of an English medical officer, and at the commonest operations, proved the lamentable state of the whole profession in Portugal.

"The people in general, as well as the medical practitioner, are in perpetual terror of infection; for they are wholly ignorant of its nature, and the most common ways of preventing it. Even to this day the Portuguese cherish an invincible prejudice against the use of mercury, in cases where we know of no other remedy to check the progress of disease. Their prejudice against vaccination was equally strong; but, by the interference of the legislature, it has been introduced; and the arrival of vaccine matter from England is occasionally announced in the Gazette, and inoculation performed gratuitously."

In viewing the state of medicine in GERMANY, we have much to admire; for, whether we consider the Germans as minute anatomists, patient investigators of diseased function, or as surgical operators, they will deserve high encomium. In many grand pathological points, we discover a great similarity between their opinions and our own. And this coincidence is the more satisfactory, because it occurred at a period when the horrors of war prevented a free communication with the continent. We perhaps cannot give a better account of the German medical doctrines than by a short history of the present state of their numerous universities, the most distinguished professors attached to them, and their respective doctrines.

It is well observed, by an amusing modern writer, (An Autumn near the Rhine, 1818.) that nothing can be imagined more striking than the contrast between an English and a German university. "In the former, the Gothic buildings, the magnificent colleges, the noble libraries, the chapels, the retired walks, the scholastic grace of the costume, are all so many interesting indications of the antiquity, the munificence, and the dignity, of the institution. But the constitution of a German university has necessarily no monument of architecture, no appendage of dignity, scarcely any decent building belonging to it. The Univerſitat-Gebäude, or public buildings, containing the library and the lecture-rooms of the professors, barely come under this last description. Indeed, in most universities, the lectures are delivered at the professors' houses; the university being, in fact, only a place where there is a good library and lectures delivered to those who are willing to attend them."

There were, at one time, between thirty and forty universities in Germany. The events of the last twenty years have considerably diminished that number. Viewed as literary institutions, the Protestant Universities, which chiefly occupy the north of Germany, are undoubtedly superior to the Catholic Schools; and, in the words of Madame de Stael, "toute la gloire littéraire de l'Allemagne tient à ces institutions." We shall therefore begin with them; and, without enumerating all, it will be sufficient for us to state that the most celebrated are Gottingen, Halle, Berlin, Jena, Leipzig, and Heidelberg.

They are divided into four faculties; Divinity, Jurisprudence, Medicine, and Philosophy. Each department has several professors. The prince of the country in which the university is situated, is nominally the rector; while a pro-rector, chosen annually from among the professors, exercises all the powers and privileges of head of the university. The professors are appointed by the crown, and receive a small annual salary. Their principal emolument is, however, derived from the students who attend their lectures, and from their literary labours. Perhaps, no class of men concentrates within itself so much talent, industry, and devotion to science, as the German professors. The welfare and prosperity of an university are generally of so much consequence to the state in which it is situated, and that prosperity depends so entirely on the popularity of its professors, that they are always selected from among those who have by their

talents and industry rendered themselves conspicuous in their respective branches of study.

The constitution of the German universities would at first sight appear very favourable to the students. By decrees, even more ancient than the Reformation, these constitute a free body in the state; and, except in criminal cases of great magnitude, the ordinary police of the country has no power either of punishment or control. They are in fact only subject, if subject it can be called, to the University Police, consisting of one or two old men acting under the orders of the pro-rector. There is no gradation of rank or birth, distinctions of country are *professedly* abandoned, and poor and rich are on the same foundation, merit being the sole distinction. So far all is well; but the evils which spring out of this system counteract many of the advantages. In Germany every one goes to the university. To practise medicine, a regular university-education is indispensable; while those destined for the army or the law must qualify themselves by two years' residence at some university. They generally therefore enter young, and at 16 or 17 are transferred from the control and discipline of the parental house to a state of the most unbounded licence.

No peculiarity of dress is enjoined by the university; but a student is known all over Germany by his loose frock, hair flowing down his shoulders, and cap bearing the colour and emblem of the country of which he is a native. The students have a peculiar and secret association, known by the name of *Landmannschaften*; that is to say, the natives of each country unite themselves into a society, and bind themselves to observe all the laws and enactments which may emanate from it. The particular objects which these societies have in view are the preservation of the students' rights and privileges, the protection of their weaker countrymen, and the regulation of *duels*, one of the most important considerations of a German student. These societies are prohibited by law, but sanctioned by custom.

It is long since enlightened observers have seen and regretted, that in more than one respect these institutions have departed from their primitive character, and the spirit in which their illustrious founders created them. Carried away by the torrent of the age, many academic professors have mistaken the real object of the universities, and have given them an arbitrary and frequently pernicious direction. Instead of forming the students entrusted to their care for the situations they were destined to occupy in the state, they have pursued the phantom of a cosmopolitan education, have filled with dangerous political reveries minds equally accessible to truth and error; and have inspired them, if not with hostile dispositions, at least with a decided aversion for all that they see established around them. The result has proved as detrimental to the interests of the state as to those of the rising generation; it has created in the latter the pride of imaginary perfection, and the pretension of re-establishing social order on the basis of some impracticable system; and many young men who were sent to learn have constituted themselves the preceptors and reformers of their country. This dangerous change did not escape the notice of the governments: they had long observed and deplored it; yet their anxiety to respect the freedom of intrusion, so long as it did not directly compromise public order, deterred them from promptly opposing the progress of evil by efficacious remedies. But at the present time, when, under the benign influence of general peace, and the auspices of princes sincerely engaged in securing future happiness to their people, we were authorized in supposing that the universities would again be placed within those boundaries in which they had formerly so honourably served the cause of their country and of humanity; the most hostile attacks against the principles on which repose the peace and security of Germany have issued from those very universities; for, either through

excessive

excessive blindness or culpable connivance on the part of the professors, the noblest faculties of youth have been perverted in favour of extravagant projects and enterprises, which, though impotent or absurd, are not the less reprehensible and criminal, since these fatal delusions have given rise to crimes dishonourable to the German character. The late melancholy events at Gottingen will fully justify us in the above remarks.

In most of the universities there are what are called *freitische* (free tables) for the poorer students. Independently of those provided by the government, individuals often leave lands or money to support a certain number of these *freitische*. A student appointed to one of these, receives his dinner daily at his own house. By this excellent plan, the feelings of the obliged are spared, and the intention of the donor fully carried into execution, by the support given to merit in distress. Besides the *freitische*, there are *stipendium*, or grants of money, appropriated to the same purposes; burfaries or exhibitions. The students reside in lodgings, and dine either at a table d'hôte or have their dinner sent them from an eating-house. Boarding is quite unknown.

Among the advantages which the students enjoy, we must particularly notice the cheapness and independence of living at the universities, the low price of books, and the liberality of the public libraries. The general price of lodgings vary at different universities: at Gottingen, which is by far the most expensive, the price of two rooms may be quoted from three to eight louis d'ors for six months; dinner from one to two louis d'ors per month. Every thing else is reasonable in proportion.

No student is so poor as not to possess a library. The difference in the price of books is very great, and yet there is no class of men more generally opulent and respectable than the German booksellers. By contenting themselves with a moderate profit, the books bear a price which puts them within the reach of almost every student. In Great Britain, students are obliged to content themselves with elementary books, and to borrow others from public libraries. Independently of the difficulties attending the delivery of works in these institutions, it is no small inconvenience to the students not to have his books at all times, and to be able to study at his own time and in his own way. We are well aware of the difference of price in paper and printing in the two countries, but we contend that they are not such as to justify the difference in price; and, if they did, the German booksellers have another drawback: no sooner does a work of merit make its appearance, than a pirated edition is published in a neighbouring state: and yet, with all this, books are one-half or two-thirds cheaper. Thus Blumenbach's *Physiology* sells in Germany at about 5s. 6d. The translation of the same volume in London, a book of the same size and nature, (and, as books go here, a cheap book,) sells at 12s. This is a favourable instance, for we could show cases where the proportion is as 3s. 6d. to 15s.

The public libraries in Germany are better conducted and more useful than ours. They are not so much composed of old and curious books, as of works of general utility. They are perfectly open to the students, nor did we ever hear of a book being purloined or defaced.

There is another advantage which the schools of Germany afford—a very considerable facility of dissection. While our present restraints upon the study of anatomy exist, so that it cannot be pursued to any useful extent, or at any reasonable expense, nor without exposing the student to the vengeance of the law, or the dread of violence from popular prejudice, it is in vain for us to hope to rival the Germans in the study of elementary, much less of minute, anatomy. The smallest school in Germany is better provided with subjects than any of our universities or even hospital-schools, and this without violating the feelings of any one. The rooms are in general supplied by the dead bodies of those who die in the hospitals,

and who have no friends or relations to claim them. We rejoice that this subject has not escaped the notice of one whose eloquence can hardly fail of success when the object is, as in this case, to benefit the cause of humanity and improve the profession of which he is so great an ornament. See the Hunterian Oration for 1819.

In recommending the schools of Germany to such of our countrymen as may visit the continent, we must be understood as addressing ourselves only to such as view the profession of medicine in the light of a liberal and enlightened science: to others the appeal would be in vain. The former we must exhort not to be deterred by the manner in which Germany and her schools are often mentioned in this country, and that too by men whose reputation makes them an authority. They speak of the Germans as illuminati, as proficient in animal magnetism and nothing else, as mere book-men, &c. &c. but neglect to observe, that no country has adorned the profession of medicine with so many eminent men, or laboured more assiduously in her cause, than Germany; the land of Hoffman and Richter, Meckel and Walter, Wrisberg and Zinn, Schmidt and Hildenbrand, the land which still boasts of Franck and Soemmerring, Blumenbach and Beer, and Springle and Hufeland.

The German student enters the profession much better prepared than the generality of our students. A thorough knowledge of the classics, and some acquaintance with natural philosophy, are considered indispensable; while most of them possess sufficient literary acquirements to feel the dignity and importance of the profession upon which they are entering. Their diligence is unwearied and universal.

One great cause why the productions of the German school are so little known or valued in this country, is the ignorance of the German language which is so generally prevalent. The war having suspended our intercourse with the Germans, our knowledge of their labours has been derived from French translators, the very worst medium through which it could have been conveyed. It cannot however be denied that, with all the zeal and industry which the Germans have displayed, the benefit derived from the application of their vast learning to practical purposes (whether in our profession or in other sciences) has not been equivalent to what might have been expected from their acknowledged talents and unwearied industry. The fault has not lain with them, but with the peculiar constitution of their country. Divided into a number of small and inconsiderable states, which were bound by no common union and cemented by no common feeling, its general resources were weakened, and too few opportunities afforded for putting scientific discoveries to the test of practical application. Discoveries often lay dormant, or, in the struggle to make them known, were seized by nations more happily circumstanced, and their real country and author forgotten. Lessing has exposed this feeling in one of his charming fables so happily, that we shall give a translation of it to our readers. "A hen, which had become blind, continued to scratch together her small heap of corn. Little did it avail the industrious fowl; for another hen, which was not blind, followed her steps, and enjoyed the fruits of her labour. As soon as the blind hen had laboriously scratched up a grain, the other carried it off. The industrious German collects the knowledge which the lively Frenchman puts to use."

The most celebrated of the Protestant universities of Germany is that of Gottingen. This university was founded by George II. when Elector of Brunfwick and Luneburg, on the 7th of December, 1736. The imperial licence had been granted by the Emperor Charles VI. so early as January 1733, and lectures were first delivered in October 1734. The university was solemnly opened on the 17th of September, 1737, and named after its founder, the "Georgia Augusta." The celebrity which this university has acquired in so short a period of time, is to be

ascribed

ascribed to the many eminent men it has ranked among its teachers. Of these we need only mention Haller and Richter, Zinn and Roderer, among its former, and Blumenbach, Oslander, Langenbeck, and Himly, among its present, professors, to prove that its title to be ranked among the first medical schools, is as just as the claims which it undoubtedly establishes, on the merits of so many illustrious characters in other departments, to be called the first literary and philosophical school in Germany.

In regard to the course of study to be pursued to entitle the student to a diploma, there are no fixed regulations here, nor, indeed, in any of the Protestant universities of Germany. All that is required is, that the candidate should be able to undergo his examination. No questions are asked respecting the duration of his studies, or the university where he has acquired his knowledge; but, in general, it requires three or four years previous study to be able to pass the examination, which is strict and fair. It embraces all parts of theoretical and practical medicine, including botany and chemistry; and a thesis in Latin is subsequently defended before the university. The expense of graduating is about 40 louis d'or, and the examiners are the members of the medical faculty, generally the four eldest. Medical students generally spend three or four years at Gottingen, graduate, and then complete their studies in the hospitals of Vienna or Berlin. It is, in fact, chiefly a literary medical school, and, the opportunities of dissecting excepted, bears the same relation to Vienna and Berlin, as Edinburgh or Glasgow does to London. The opportunities for study are unequalled. The free and unshackled use of a most splendid library; the excellent lectures of its celebrated teachers, and these at a very moderate price; the peculiar situation of the university, in a small town, from which public amusements and other temptations to idleness are banished, where there is little or no general society, and where the general tone and habits are purely literary, are advantages which few universities in Europe combine.

In 1815, the number of students at Gottingen was 860; of these 604 were foreigners, (i. e. not Hanoverians,) and 146 medical students:

In 1816, there were 1132; of these, 745 were foreigners, 234 medical.

1817,	1160	710	223
1818,	1158	686	210

An unfortunate disturbance which broke out among the students in 1819, had greatly reduced the number; but we are happy to learn, that it is rapidly regaining its former numbers, and that the storm which threatened its entire destruction, has purified it of many things which obscured its advantages.

The salaries of the professors depend on government, and are not generally known. They vary according to the merit and popularity of the professor. Thus, a young professor may receive only 400 or 500 dollars, perhaps less; while 1500 are given to tempt a man of established reputation to come and settle in the university. We believe that no professor in Gottingen has more than 1500 dollars; few so much.

There are three hospitals in Gottingen: 1. A medical and surgical hospital, under the care of professor Himly. 2. A surgical hospital, under professor Langenbeck. 3. A lying-in hospital, under professor Oslander. There is also a botanical garden, a museum, chemical laboratory, physical apparatus, and a public library. The lectures of the professors are all delivered in German; and here we may observe, that in no part of Germany is the language better spoken than in Gottingen, and that to foreigners it affords the advantage of a most excellent master, professor Benecke, professor of the ancient German, and one of the first Teutonic scholars now living. The terms of study are called Semestres; the one commences on the 26th of April, and lasts about five months; the other some time in October. The lectures are delivered

every day, except Sunday. The fee to each course is generally a louis d'or, and never more than two. Besides the public lectures, the professors are in the habit of giving private instructions to one or more pupils. These are called *privatissima*. Professors Himly and Langenbeck each give *privatissima* on the operations of surgery, and on diseases of the eye. Three or four pupils generally unite. The professor commonly receives ten louis d'or for a *privatissimum*. There are also several private lecturers, but none of equal eminence with the professors.

The library is one of the most splendid and useful in the world, and occupies a large and convenient building in the centre of the town. It consists of upwards of 200,000 volumes. It possesses few manuscripts or curiosities; but aims at general utility. The books occupy nine large halls, and are arranged in a systematic order. In one department are the theological, in another the medical, books, &c. &c. These are again divided; and under the heads of neurology, midwifery, ophthalmology, jurisprudential medicine, &c. &c. the student finds every thing which has been written on the particular subject of his studies. The last alphabetical catalogue consists of 180 volumes folio. There are generally about 3000 books in circulation among the students. To keep pace with the progress of knowledge, about 5 or 6000 dollars (1000l.) are annually expended in new works. These funds are derived from what is called the cloister-fund; the produce of the cloisters and convents which were suppressed at the time of the Reformation, and which in Hanover have always been devoted to the support of libraries and charitable institutions. This sum would not, of course, be sufficient for the support of this noble library, were it not to receive many donations from authors. The learned societies are in the habit of sending their Transactions; among these we observed the name of the Royal Society. His present majesty, while regent, presented a most splendid collection of books to this library.

Although the Anatomical School is professedly under the charge of the professor, professor Hempel, it owes its chief advantages to the diligence and celebrity of the professor of surgery, Langenbeck. A building was indeed devoted to anatomical pursuits as early as 1738, but in a literary university we seldom find that much attention is paid to practical anatomy. The Surgical Hospital is a large and commodious building, and has been fitted up in a very judicious and useful manner. It is devoid of architectural ornament; but is placed in an open garden, and well ventilated. It contains two lofty wards, adjoining each other; the one for men, the other for women: each ward contains twelve beds. At the one extremity are the nurses rooms, the other leads to the operation-room, which is built in the form of an amphitheatre. Two small wards, attached to the operating-room, are devoted to diseases of the eye, each containing four beds. Under the Operating Theatre on the ground-floor is the Surgical Auditorium, and adjoining it a most splendid collection of surgical instruments and bandages. Patients are received into the hospital without the payment of any stipend or fee. The reputation of this hospital being very great, patients often come a distance of fifty or one hundred miles to it; but only curable and instructive cases are admitted. By these means no semestres pass over without affording the students the opportunity of seeing almost all the important operations.

The Surgical Hospital is attended by from seventy to eighty students, who are divided into *prædicantem* and *auscultantem*; i. e. practitioners and listeners. The former consist of those who have attended a previous course, and now take in rotation the charge of a patient. On doing this they are obliged to give an account of the disease, and answer all questions which may be put by the professor respecting the anatomy, pathology, and treatment, of the patient. Professor Langenbeck in his lectures on surgery, which he delivers daily from one to three o'clock,

gives half his course in a semestre. They might more properly be called anatomical and surgical lectures; for the professor first demonstrates the anatomy of the different parts in their healthy state, before he proceeds to speak of them in the various forms of disease which require surgical assistance. The Anatomical Theatre is annually supplied with about eighty bodies. During the winter these are used for anatomical demonstrations, and in summer are devoted to the performance of surgical operations. The anatomical demonstrations and surgical lectures are generally attended by 120 or 130 students, of these about forty are *praeparanten* (dissectors), and assist in the making of anatomical preparations.

The foundation of the Surgical Hospital is entirely due to professor Langenbeck. In 1807, on his representation, a certain sum was appropriated to its support from the cloister-fund. In 1808 the professor built the present hospital, which is still his own property, the Hanoverian government paying him a yearly rent for it. The beautiful collection of surgical instruments also belongs to the professor. Besides those which he has himself collected, he purchased the collection of Heister, which, in an historical point of view, is probably unique. The whole as it now stands is undoubtedly the first in Germany. It comprises all the instruments that have ever been used in surgery from the earliest days to the present time.

Professor Langenbeck, as a practical surgeon, is unrivalled in Germany. We have seldom seen a man so enthusiastically devoted to any pursuit, or who brought to the profession of surgery more capability of excelling in it. He has been known for some time as an excellent anatomist, but it was his situation in the army that brought him into notice as a surgeon. He particularly distinguished himself at Waterloo, where he held the office of surgeon-general to the Hanoverian army, by his indefatigable zeal, brilliant operations, and the excellent arrangement of his department. He not only acquired great distinction, but is said to have enriched himself during the campaign. It is much to his credit that all these circumstances have rather contributed to increase than slacken his zeal and exertion. He is unwearied in the pursuit of his favourite studies. Although he has a very considerable practice, and lectures five hours every day, he is in the dissecting-room before it is light, and devotes to it every moment which he can spare. He has founded a museum, chiefly formed from the labours of himself and pupils, and which contains some very beautiful preparations. He is also the author of a periodical work, and has written some other books. Professor Langenbeck however, is more a practical than a book man. His time has been more spent in the dissecting-room than the library, and he is consequently not so well versed in the literature of surgery as some of his countrymen who have probably never handled a knife. As an operator, he is unrivalled in his own country, and we are not aware that he is excelled in any. He is clear and decisive in his judgment; rapid and elegant in his operations.

Lectures on the practice of physic are delivered every morning at ten o'clock, by professor Himly, in an auditorium connected with his dwelling house, and are generally attended by upwards of one hundred students. Two semestres are occupied by the course, the term of lectures therefore corresponds very nearly with those of Dr. Gregory of Edinburgh. Professor Himly has printed his "*Lehrbuch der praktischen Heilkunde*" as a text-book. This work is divided into two sections; the first contains general nosology, and the second treats of *materia medica*. The latter section is really excellent, but the first appears, at least to our unphilosophical minds, quite useless. If the hearer can separate the practical matter of Himly's lectures from his theoretical views, these lectures may be pronounced very good and useful. He is too much attached to a system; but his lectures contain in general a full account of what is

known on the subject, and display great learning and research. Professor Himly's clinic takes place from eleven to twelve every day. It is connected with a small hospital which is under his direction, founded by some inhabitants of Gottingen, and which derives its support partly from the interest of funds left for its maintenance, and partly from the cloister-fund. There are about thirty beds in it. The principal part of the sick at this clinic are out-patients.

Professor Himly has not of late published any thing but his "*Journal der Ophthalmologie*." His text-book is not published, being merely given to his students.

Lectures on physiology, comparative anatomy, and natural history, are delivered, the physiology at eight o'clock in the morning, comparative anatomy from three to four, and natural history at five in the afternoon, by the celebrated Blumenbach, a name respected and venerated wherever it is known. Blumenbach was born in the year 1752, at Gotha in Saxony, of parents who were in moderate circumstances. He commenced his studies at Gotha, from whence he went to Jena, where he remained two years and a half, and then came to Gottingen to study, under Haller, Richter, and Roderer. He took his degree as M. D. in 1776, at Gottingen, and then proposed to return to Gotha, with the intention of pursuing his profession; but his dissertation "*De Generis Humani Varietate*," made so great a sensation, from the novelty of the subject, and the excellence of the execution, that on the same day that he received his degree, the University named him Extraordinary Professor of Natural History. Having thus obtained a situation which the natural modesty of his disposition rendered quite unexpected, he assiduously devoted himself to the study of natural history; with what success, his numerous works, and the splendid benefits he has conferred on science, sufficiently testify. His cabinet of natural history is one of the most splendid in the world. It is entirely collected by himself, and forms, perhaps, the best monument of the esteem in which he is held, for he has never purchased a single article in it. It is kept in his dwelling-house, and occupies five rooms. Nothing can be more inappropriate than its situation, or more disorderly than its arrangement. The most valuable preparations are seen out of their cases lying about. There is no systematic arrangement in any part of it; but this is not to be wondered at, if we consider the progressive manner in which this collection has been formed, and the age of its possessor. Many would be happy to arrange it for him, and Dr. Wernekink has done much towards reducing the chaos to order; but Blumenbach does not like any setting-to-rights in his museum.

The part of his cabinet which attracts principal attention, is his unrivalled collection of human skulls. It has been visited not only by most men of science, but by all the crowned heads of Europe. On this subject Blumenbach says, "If we wish to make great people follow us, and not we them, it is only necessary to make a collection of skulls." This collection is sufficiently known by Blumenbach's work "*Decas Craniorum*." The most valuable thing in it is a Grecian skull, which is at least 2000 years old, a present from his pupil the Crown Prince of Bavaria. It is in a perfect state of preservation, and constitutes a most beautiful specimen of the beau ideal of the skull. The next in point of value are the skull of an ancient Roman, and that of a cannibal (*Bataku*), which he received from the prince of Neuwied. Nothing can be more interesting than to view these three skulls, placed as they are by one another, and to compare their appearances, with the moral differences of character of the nations to which they belong. In an anatomical point of view, the best-preserved skull in the collection is that of a negro. On the same shelf stands the beautiful skull of a Georgian female, and some very rare skulls of the inhabitants of Nukahiva, a present of captain Krusenstern. There is also a remarkable skull of a Cretin, which produces

duces an indescribable feeling of horror, from its close resemblance to that of an ape. We have not room to dwell upon individual parts of this collection; but shall merely remark, that it derives additional value from the care taken to authenticate the accounts given of its contents, and the skulls are preserved in the same state in which they were originally found. Yet Blumenbach, notwithstanding his collection of skulls, is not a craniologist. Spurzheim was excessively anxious to have Blumenbach's opinion on his craniological system, and tried many expedients to elicit it in vain. At length he attacked Blumenbach on his vulnerable side, by bringing him a beautiful skull as a present. This was irresistible. The collector struggled between his love of truth and his extreme fear of wounding the feelings of the craniologist. He looked at the skull, and exclaimed, "My dear doctor, in your system there is much which is new, and much which is true; but the new is not true, and the true is not new."

Blumenbach's collection of fossil bones is one of the most beautiful in Europe. Notice is particularly attracted to the bones of the bear, which exhibit the same proportion in point of size to the bear of present times, as the calf of one month to the ox of two years. There is also a very fine collection of minerals; and another, no less valuable, of skeletons, in which that of a lioness is very remarkable. The preparations in this cabinet, illustrating the growth of the elephant's teeth, are unique. His wet preparations are invaluable, of which we shall only say, that they are described in his "Abbildungen Natur-Historische-Gegenstände." We may, however, notice as interesting, the fœtus of a porcupine, and a crocodile escaping from the egg. We must not forget to mention his beautiful collection of drawings, descriptive of all nations of the earth; and an invaluable assemblage of curiosities which have no particular relation to science.

The following is a list of his principal works: 1. *Introductio in Historiam Med. Litterariam*; Gottingen, 1786. 2. *Synopsis System. Scriptt. quibus inde ab inaug. Acad. G. Aug. 1737 usque ad 1787, discipl. suam augere stud. Profess. Med. Gott. 1788.* 3. *Med. Bibliothek.* 3 Bde. 1783—95. 4. *Institut. Physiol.* 1787. 5. *De Vi Vitali Sanguini deneganda*; 1788. 6. *Geschichte und Beschreibung der Knochen*; 1786. 7. *Ign. v. Born*; *Zwey Abhdl. üb. d. Nutribus-kraft*; Petersburg, 1789. 8. *De oculis Leucaethiopum et iridis motu* Comment; Gottingen, 1786. 9. *De Generis Humani varietate nativa*; 1776. 10. *Collectio craniorum divers. Gentium*; 1790. 11. *Ueber d. Bilduntrieb u. d. Zeugungsgeschäft*; 1781.

Notwithstanding his incessant labours in his study and his cabinet, his three lectures a-day, and the frequent visits he is receiving from strangers, nothing can be more affable or kind than his behaviour to students. He devotes to them the greater part of Sunday, and the evening of nearly every day, from six to nine o'clock, when he receives a certain number at tea. To the English he is particularly attached, having long been on intimate terms with sir Joseph Banks, and many other distinguished characters. He speaks English perfectly, and possesses all the English works of great merit. He is equally well-informed in the other departments of knowledge; his acquirements seem indeed to be universal.

Lectures on midwifery are delivered by Professor Oslander, and are perhaps among the best ever heard. They may be entirely depended on, for they are founded on a long course of accurate observation. His text book is entitled "Oslander's Lehrbuch der Entbindungskunst," which is perhaps the best work on the subject. Professor Oslander gives two courses in the year, each of which lasts about five months; these are combined with chemical instruction in the hospital. The Lying-in Hospital is the finest building in Gottingen, and is admirably adapted to the purposes for which it is intended. Besides the accommodation for patients, it contains apart-

ments for the professor, his beautiful cabinet, and an appropriate lecture-room. Nothing can form a stronger contrast to the chaos of Blumenbach's collection, than the exquisite arrangement of Oslander's. It contains a most valuable series of preparations, chiefly illustrative of his particular department. The room in which it is contained is elegantly fitted up, and the preparations, arranged in the most beautiful order, are all ticketed, with a reference to the catalogue. This catalogue consists of seven folio volumes of MS. and to each number is affixed a complete history of the case of the patient from whom the preparation was taken. Professor Oslander owes this beautiful, we had almost said unrivalled, collection to his own industry. He told an English gentleman, that he had often in his younger days gone without his dinner, to purchase the glass and spirit for some new preparation.

The lectures on botany are delivered by professor H. A. Schrader, from seven to eight in the morning. The botanical garden is one of the most perfect and useful in Europe, the Hanoverian government paying great attention to its maintenance. The lectures on chemistry are delivered by professor Stromeyer, who, since Klaproth's death, may be considered as the first analytic chemist in Europe. At the latter's death, the Prussian government offered professor Stromeyer his place at Berlin; but, the Hanoverian government making a considerable addition to his salary, he preferred remaining in his present post. He is as good a teacher as chemist, and is peculiarly attentive to his students. Independent of his lectures every day, he exercises the pupils twice a-week in experimenting in an excellent laboratory.

We may also here mention professor Haufmann, whose lectures on mineralogy, and whose collection, are well worthy the attention of the curious. The lectures on general science and literature are excellent, and every facility is afforded, in this interesting university, of cultivating the higher branches of our science in a manner which is almost unequalled.

We cannot conclude without noticing the visit of his present most gracious majesty to this town and university during his late tour. As the university was founded by George II. it was naturally expected that George IV. would not pass through such a town with the same haste as he would through a place of less consideration; and the public opinion was not disappointed, for he was resolved to stay as long as the very short time he had prescribed for his journey would admit. About noon, (on the 30th of October, 1821,) his majesty's approach was announced by a discharge of artillery; and, when his carriage arrived at the principal gate of the town, he found a grand triumphal arch erected, and a numerous train of young females, dressed in white, and each carrying in her hand a festoon of variegated flowers, approached, with a poem placed on a scarlet velvet cushion; which his majesty was pleased to accept in the most condescending manner. His majesty did not immediately proceed to the university, to examine the rich stores of the library, the orderly cabinet of Oslander, or the disorderly one of Blumenbach. No—the first place to which he proceeded, on his entrance, was the riding-school, where the *students* had made all the necessary arrangements for entertaining him with a carousal in the style of ancient chivalry. Here his majesty was received by the public authorities; and the *professor of riding in the university* was in waiting to exhibit before his sovereign specimens of his art, from the first essay up to the *acme* of proficiency. His performance, we are told, showed that he was without a rival in his profession; and his majesty was not more pleased than surprised at the exhibition. The students were marshalled according to the instructions contained in a printed programme, and they assembled in numbers not less than fifteen hundred. They were placed in array by marshals chosen from among their body, wearing black coats, cocked hats, long tails, and

and scarfs of white silk tied round the waist. They marched to the riding-school in files of four deep, and formed an immense cavalcade. There were, besides, about fifty students on horseback, who were to serve as a guard of honour to his majesty; these wore blue coats with red collars, buff-leather small-clothes and large boots, and cocked hats with white feathers. Each of them carried a drawn sword in his hand. The riding-school is in the form of an oblong square; and on one side of it the students ranged themselves along in double rows, the inhabitants of the town standing immediately opposite to them, while his majesty was conducted to an open pavilion that was placed at the upper end of the room, and hung with a rich drapery of crimson velvet and white satin. To this there was an ascent of seven steps, and two young gentlemen of the guard of honour stood on the first step in front of his majesty. In the pavilion with his majesty were the landgrave of Hesse Hombourg, his sister, the dukes of Cambridge and Cumberland, with their duchesses, several minor princes, and the noblemen and gentlemen of his majesty's suite, who took their station in the rear. A large party of the students now got on horseback, and went through various equestrian exercises, brandishing their lances with great agility, while they made a profound obeisance every time they passed his majesty. Some Turks in effigy, who stood as their opponents, were soon deprived of their heads: the young cavaliers shot them off with great adroitness as they rode forward at full gallop, and displayed them alternately on the points of their lances and of their long swords. They then rode a quadrille; and no French dancing master of the first celebrity could have shown more precision in the different figures than they evinced. His majesty partook of some refreshment before he re-entered his carriage, and was presented with two poems, one in German, and the other in Latin. After leaving the riding-school, his majesty passed through the principal streets, and then proceeded to the hall, where the professor of natural history gives lectures. Here his majesty received the heads of the university and the civic authorities. He then returned to his carriage, and continued his journey.

Catholic Universities.—There are two German universities in the Austrian empire, Vienna and Prague; and five Lyceums, Lemberg, Gratz, Olmutz, Klagenfurt, and Linz. The difference between the universities and the lyceums, so far as concerns medical study, is, that surgery alone is taught in the latter, both medicine and surgery in the former.

The emperor Frederic II. as appears from a work which he composed, and which bears for title, "De Arte Venandi cum Avibus," had himself made numerous observations in comparative anatomy. He is quoted as an authority by professor Blumenbach. Frederic is entitled to the everlasting gratitude of mankind, for the exertions which he made in opposing the superstitious and the prejudices, which during the thirteenth century pressed down into the dust knowledge of almost every kind, especially medical knowledge. He got Galen translated; gave orders that every year in Palermo a human body should be dissected; and commanded that no man should be permitted to practise surgery who had not studied anatomy on the human subject. It was in the year 1237, that he granted leave to the senate of Vienna to establish a university. This institution was considerably improved by Albert I. in 1296. Ottokar of Bohemia added to the number of teachers, and augmented their incomes. Under Albert II. the university of Vienna flourished still more: he too added to the number of professors, and granted them public *auditoria* and free dwellings in the imperial castle. Duke Rudolph IV. in 1364, removed the academical *auditoria*, and the dwellings of the professors, to the Minoriten-Cloister,

and to the houses of the former knight-templars, as these were more still and retired. In 1365, pope Urban V. issued a bull of ratification for the juridical, medical, and philosophical, faculties of the university. On the solicitation of duke Albert III. the theological faculty was added by Urban VI. In 1366, this university was arranged anew, after the model of that of Paris, and students were now admitted from the Austrian, Rhenish, Saxon, and Bohemian, nations. Under Albert III. in 1388, the number of professors rose to thirty; and considerable additions were made to the accommodations of the university. Ferdinand II. in 1622, gave over this institution into the hands of the Jesuits, who, though they were themselves shut out from the professorships, yet knew how to retain the whole government of the university till the year 1754, when the learned and enlightened commentator on Boerhaave, Gerard baron Van Swieten, succeeded, against much opposition, in introducing very important improvements. He new-modelled the whole medical faculty, and arranged it in a manner much more likely to answer its professed object than it had hitherto done. He introduced professorships of chemistry and of botany; and the establishment of a botanical garden, and of a complete collection of chemical and surgical instruments, was wholly owing to him. He also brought forward a proposal for a professorship of midwifery. He drew the most celebrated men of all classes to Vienna, assuring them of adequate salaries. The university of Vienna is at present the richest in all Germany. Under the reigns of Maria Theresa, Joseph II. Leopold II. and the present emperor, it has so risen in reputation amongst the catholic universities, that it now occupies, especially as a medical school, the very first rank.

The buildings of the university of Vienna are situated in the town, which is small, and is separated by a wide esplanade from the suburbs, in one of which is the *Allgemeine Krankenhaus*, or General Hospital. The hours of lecturing in the university interfere with those of the visits in the hospital. Hence the lectures are but rarely attended by those foreigners who visit Vienna in pursuit of their medical studies; amongst whom are found students not only from the western and northern countries of Germany, but from Hungary, Switzerland, Italy, Russia, Denmark, Holland, and even France and England, and with them many who have already practised medicine, and occasionally professors from distant universities. It is chiefly from the admirable arrangements of the clinics for internal diseases, for diseases of the eye, and for lying-in women, and from the celebrity of the professors of these three clinics, that foreign students are attracted to Vienna.

In order to be admitted a student of medicine in an Austrian university, it is necessary that the candidate should lay before the director of medical study, certificates of his having studied philosophy for three years in a lyceum. Under philosophy are comprehended the Latin and Greek languages, history, mathematics, natural and moral philosophy, and religion. The school-year in Vienna begins with November, and ends with August. The course of medical study extends to five years, and comprehends the following lectures:

First Year: 1. Introduction to medico-chirurgical study, and natural history, by professor Von Scherer. 2. Anatomy, by professor Mayer. 3. Botany, by professor Joseph Von Jacquin.

Second Year: 1. Physiology, by professor Prochaska, 2. General chemistry, by professor Joseph Von Jacquin.

Third Year: 1. General pathology and therapeutics, by professor Hartmann. 2. Midwifery, by professor Boer. 3. *Materia-medica et chirurgica*, by professor Hartmann. 4. General and special pathology of external diseases, by professor Von Rudtorffer. 5. Ophthalmology, by professor Prochaska. 6. Demonstration of surgical instruments and bandages, by professor Von Rudtorffer.

Fourth Year: 1. Special therapeutics of internal diseases. 2. Clinic for internal diseases. 3. Veterinary medicine, by the director of the veterinary school.

Fifth Year: 1. Special therapeutics of internal diseases. 2. Clinic for internal diseases. 3. Medical jurisprudence, by professor Bernt. 4. Medical police, by the same.

The students of medicine, a class who in Vienna are strictly distinguished from the students of surgery, are not obliged to attend the following lectures: 1. Practical surgery, by professor Kern. 2. Practical ophthalmology, by professor Beer. 3. General pathology, therapeutics, and materia medica, by professor Herrman. 4. Special therapeutics of internal diseases, by professor Raimann.

Such are the ordinary lectures on medicine in the university of Vienna. Those indeed of Kern, Beer, and Raimann, are delivered in the General Hospital. For none of the above lectures is any fee paid by those who are enrolled as students in the university. The expense of enrollment is fifteen paper-guldens half-yearly, which is about 10s. For the lectures and clinic of professor Beer, strangers pay twenty-five paper-guldens yearly. The lectures of professors Herrmann and Raimann are designed for candidates in surgery, and are seldom attended by students of medicine.

The following are accounted extraordinary lectures: 1. Diseases of women and children, by professor Boer. 2. Philosophical and physical knowledge necessary for surgeons, by professor Pflügel. 3. Duties of those who attend the sick, by professor Schmidt. The lectures of Prochaska on physiology, and of Hartmann, are given in Latin; the others in German.

The students of practical anatomy carry on their dissections in the university. To foreigners, subjects are supplied at the price of seven paper-guldens. They are brought from the General Hospital, but are not so plentiful as in the dissecting-rooms of Paris. All dissection in the General Hospital is at present strictly forbidden; but it is not unfrequent to obtain leave to dissect in the Military Hospital, which is closely adjoining to the general one, whence the dead bodies are furnished.

Besides the public lectures, several of the professors in the university of Vienna give occasional *privatissima*. By the special order of government, foreigners only are allowed to take advantage of these private courses. Professor Mayer gives private demonstrations on anatomy in this way, or in any particular part of anatomy which is desired. Professor Von Rudtorffer gives over the *privatissima* on bandages and surgical instruments, to his assistant. Professor Kern usually does the same in regard to surgical operations. The assistant also in the obstetrical clinic gives *privatissima*. Professor Beer and his assistant, Dr. Rofas, give similar courses on the operative surgery of the eye. The number of students admitted to a *privatissimum*, is generally six.

In all the public courses of medicine and surgery, an examination of the enrolled students is held by the several professors every half-year, in presence of one or more of the other office-bearers of the university. In order to be admitted to examination for a degree in medicine, the candidate must produce certificates of having acquitted himself respectably in three semestral examinations, of having completed his fifth year of study, and of having publicly treated within the last half-year two patients in the clinic for internal diseases, the cases of which patients he must at the same time present to the faculty, written in Latin.

He who aspires to the degree of *Magister Chirurgia*, a rank analogous to that of member of one of our colleges, is obliged to follow nearly the same course of study as the candidate for a degree in medicine. It is different in regard to the common civil and country surgeons, as they are called. These study only two years, and, so far from being required, are scarcely admitted to attend the Latin lectures of Prochaska and Hartmann. Neither in Austria, nor, so far as we have seen, in any part of Ger-

many, is this class of surgeons respectable. They are inferior to the *officiers de santé* of France, and still retain the helmet of Mambrino, and execute at once the duties of barbers and of surgeons.

One of the public examinations for the degree of master in surgery consists in the performance of two operations on the dead body. The operations are determined by lot. The candidate describes the surgical anatomy of the parts, lays down the indications for the operations, performs them upon the dead body which is before him, and applies the proper bandages.

Degrees are granted by the university of Vienna in ophthalmology. Doctors in medicine, and masters in surgery, are considered as having taken this degree: but no one else can publicly practise as an oculist in the Austrian states, unless he has attended the lectures of Prochaska, and undergone an examination by him on the diseases of the eye.

The marked distinction of students of medicine from students of surgery, the severe course of study to which the former are subjected, the neglectful and almost contemptible education of the *inferior* order of surgeons, and the uncommon opportunities for studying diseases of the eye, especially under men of such reputation as Prochaska and Beer, are prominent points in the medical school of Vienna, so far as the university is concerned. The state of the profession throughout Austria corresponds exactly with the provisions made by the government for medical and surgical education. The physicians are distinguished for their extensive and practical knowledge. Surgery, on the other hand, seems to languish. As for what the Germans have termed ophthalmology; the science of Prochaska, the enthusiasm, the profoundness, and the amazing dexterity of Beer, have contributed to render this one of their favourite studies; and accordingly their practice in this branch is very excellent, and their operations are performed with the greatest judgment and spirit. Indeed, a work recently published in Germany appears to give them the palm over every other nation as oculists; and we must confess that in many points they have outstripped the English. This however is not to be wondered at, when we consider how few in this country make the study of ophthalmic complaints part of their education, while in Germany it forms one of the indispensable qualifications of every practitioner.

Honour, liberty, and life, in so far as they depend upon medico-judiciary reports and inspections, are not made the sport of ignorance and carelessness in Austria. Medical jurisprudence forms an indispensable part of study in the university of Vienna; and certain extraordinary means of promoting an accurate knowledge of this branch of medical science have been adopted by the government, which are well worthy of imitation. These consist in the publication of a code of regulations, by which all medico-judiciary inspections are to be conducted throughout the empire, and reports to be drawn up; and in the performance of inspections publicly, upon the dead bodies which are found in suspicious circumstances, and which, not being at first recognized, are carried to the dead-room of the General Hospital. Due notice is given to the students at what hour such inspections are to take place; and they have thus an opportunity of seeing those regulations put in practice which they themselves will one day be called to fulfil. We may here notice, that, after every death in the Austrian dominions, the physician or surgeon who attended is required to sign a paper, certifying the disease, and whether it were contagious. If it was contagious, the law obliges the relatives to have all the bed-clothes fumigated. In Vienna there is an establishment for this purpose, where, on paying a small sum, the fumigation is properly performed.

There are several anatomical museums contained in the university. That of professor Prochaska is the only one which excites any peculiar interest. As our biographical articles cannot of course include any but persons deceased,

deceased, the present is one of the few opportunities we have of noticing living characters. We shall therefore present our readers with an account of the visit of an English gentleman to professor Prochaska and his museum.

"There is a primitive simplicity, a condescension, and a gentleness, in this old man, so celebrated at the same time for his genius and his learning, which endear him to every one. We had no sooner announced to professor Prochaska the object of our visit, than he put into our hands a foot, which, at first sight, had nothing of an uncommon appearance, except that its surface was of a deep vermilion colour. One might have supposed that it had been roughly coloured, and varnished with a brush. He then gave us a small microscope, and desired us to examine the foot in a good light. We had no sooner approached to the window, and looked at the foot through the microscope, than we discovered that its cutaneous vessels were beyond conception minutely injected. The vermilion colour of the preparation arose from the injection filling, on every point of the surface of the cutis, one might almost say a myriad of arteries. In a second preparation we saw the periosteum of the femur almost equally minutely injected. This preparation seemed to prove the non-vascularity of cartilage; for, as soon as the injected vessels of the periosteum reached the border of the articulating surface of the knee, they were most distinctly seen to return upon themselves, and not one could be discovered, even with the aid of the microscope, to be prolonged into the cartilage, which had retained its white, or rather assumed from desiccation a yellowish, colour. Professor Prochaska has never been able to inject any of the cartilages. He is therefore inclined to believe that the patella which Ruysch has described, the internal cartilaginous surface of which exhibited a considerable number of vessels, must have been diseased. Professor Prochaska next showed us a small box of similar Lieberkuehnian preparations, which had cost him, he said, nearly ten years. These consisted of injected and prepared membranes, and of thin sections of other organs, fixed upon plates of glass in the same way that other microscopical objects usually are. When viewed through the microscope, and especially those of the kidney, these preparations displayed a minuteness, a beauty, and a variety, which even exceeded our expectations. Indeed we can conceive nothing in this kind of preparations more beautiful than one of those of which we now speak, in which we saw the capillaries of the cortical part of the kidney, forming on each side of their trunks those little globules, which both Malpighi and Mascagni supposed to be hollow glands, in which the urine was deposited immediately after being secreted.

"We accompanied professor Prochaska from his house to his museum. Here we found whole heads and extremities injected microscopically. He told us that he had injected even whole subjects in that way. He showed us a series of preparations in which the periosteum, the peritonæum, the mucous membrane of the nose, and that of the intestines, could be compared. It is from the redness which a part assumes, when well injected, that Prochaska estimates its vascularity. Some parts, such as the nails, hair, epidermis, cartilages, and arachnoid membrane, never admit injection. Other parts, which exhibit scarcely any vessels immediately after injection, become extremely red on being dried; displaying, when viewed through the microscope, a tissue of innumerable arteries. Such is the case with the internal surface of the cutis, with the nerves, and with the salivary glands."

The Museum of professor Prochaska contains a number of interesting preparations besides the microscopical ones. An account of some of the most curious of these has been printed in the Quarterly Journal of Foreign Medicine, N^o I.

The Cabinet of Intestinal Worms is a part of the Imperial Museum of Natural History, under the particular

direction of Dr. Bremser, and forms of itself an object of considerable interest, from the great number of specimens which it contains, and from the pains which have been taken to arrange the whole, and even to display the individual specimens. Dr. Bremser practices as a physician in Vienna; he is at the same time a zealous cultivator of natural history, and is perfectly enthusiastic in this particular pursuit, to which his office as conservator of this cabinet directs his attention. He has dissected no fewer than fifty thousand animals, with the sole view of detecting the various species of worms which sojourn in their intestines and in other parts of their bodies. All the animals which die in the Menagerie at Schoenbrunn are delivered to Dr. Bremser for this purpose; and no expense is spared to procure dead animals of rarity, including foreign birds and fishes.

The method taken by Dr. Bremser to detect the smallest worms is extremely precise, and often astonishingly successful. He splits up the intestines, and carefully collects their contents, which he sets aside for examination. Having minutely gone over the internal surface of the intestines which he had emptied, he proceeds to examine the contents in small quantities mixed with water, and poured into a flat glass saucer, the bottom of which is japanned black, surveying each quantity in succession through a microscope. The same kind of saucers he also employs to display the smaller worms, which, being mostly white, are rendered extremely evident by the black ground on which they are thus placed.

The preparations are arranged with much order and neatness. We see each species of worm taken from a complete series of animals, beginning with man, and passing through the different genera of quadrupeds, birds, and fishes. Dr. Bremser has made drawings of most of the species, both of the natural size and magnified: they are executed with great beauty upon a black ground: some of them have been already engraved, and will appear in a work upon intestinal worms, which Dr. Bremser is preparing for publication.

In the suburb of Vienna called the Alster Vorstadt, are situated the General Hospital, the Josephine Academy, and the great Military Hospital. Hence, in this suburb are lodged almost all the foreigners, as well as many of the students from the different parts of the Austrian dominions, who come to Vienna in pursuit of medical study.

The Allgemeine Krankenhaus, or General Hospital, is one of the noblest institutions of the patriot-emperor Joseph II. It is one of the most extensive buildings in Vienna, and considerably the largest hospital which we have seen. Lunatic and Foundling Hospitals are both situated near it; and are, in certain economical respects, connected with it. The greater part of the hospital is of two stories in height. It is arranged in seven large quadrangular courts, the first of which upon entering, and the largest, is laid out with grass-plots and shaded walks; and contains, in a building separated from the rest of the hospital, the house of the director, the medical clinic, a lecture-room, and the museum of pathological anatomy. The physicians, surgeons, and assistants, have apartments in different parts of the hospital. Like most of the hospitals in Germany, it is under the inspection of a medical director, who must reside within the walls of the hospital. This office was filled by professor Von Hildenbrand, lately deceased; and is looked upon as one of great trust and high respectability.

The number of sick rooms is 111; of which 61 are for male, and 50 for female, patients. These rooms are each twenty-six feet long, and seventeen broad; they are lofty and clean. The windows are large; but are all raised eight feet from the floor. The advantages of being able, by this plan, to place beds near to the windows, and of avoiding the stream of air which blows upon the beds when the windows of an hospital are low, are perhaps over-balanced by the disadvantage of being unable readily

dily and completely to ventilate the apartments. The beds are placed two feet and a half from each other. The bedsteads are of wood; and are without curtains; but square pieces of dark green cloth, hung from wooden supports in the form of the letter T, are occasionally used to supply the want of curtains: for instance, in moderating the light around a particular bed, or in concealing a patient, during the last moments, from the view of those who are lying around him. Though long accustomed to the daily view of hospital-wards where no substitute was employed for curtains, we confess ourselves favourable to their use, having seen their great advantages in the Hôtel-Dieu of Paris, and in other hospitals. In beds without curtains, the patients are exposed to the eye of every stranger; whereas, when the contrary is the case, they may look upon themselves as in some measure at home; they can guard themselves from the cold of a large apartment, and are not forced to crowd around the fireplace; they can procure for themselves a certain degree of obscurity, favourable to repose; and conceal themselves from those by whom they are surrounded. The beds of the General Hospital are indifferent: the coverings good. A few minutes before the visit of the physician or surgeon, a quantity of juniper-wood is burned on a shovel carried round in each ward. We never observed this practice produce any irritation even in the patients affected with pulmonary complaints, and it completely removes the fœtor of a sick room. The wards are heated by a large earthen stove placed in the centre of each.

The patients treated in the General Hospital, independently of the Lunatic and Foundling Hospitals, are arranged into five classes. Of these, lying-in women form one; the remaining four consist of patients affected with internal diseases, external diseases, diseases of the eye, and venereal diseases. To each of these five classes, different parts of the hospital are appropriated. The total number of beds is 2000; and in the winter-season this number is nearly filled. The following are the numbers of patients treated during the years 1810, 1811, and 1812, in the General, Lunatic, and Foundling, Hospitals:

	General.	Lunatic.	Lying-in.	Foundlings.	Total.
1810	12,374	251	747	2928	16,300
1811	11,709	512	1115	2843	16,179
1812	10,358	212	1489	2809	14,868

The average number yearly in the General Hospital alone, has, in the succeeding years, amounted to from 15,000 to 17,000.

Three classes of the patients of the General Hospital pay for their maintenance: the fourth, and, we believe, the most numerous class, are admitted gratuitously. The highest rate is eleven-pence daily. Those who enter upon this rate have a separate room, particular attentions, and a very good bed: but they must provide themselves with sheets and washing. Forty separate rooms are appropriated for this class. The second rate is six-pence daily: the patients of this class have no separate room; but, in other respects, are treated as the former. The third rate is, for the inhabitants of Vienna two-pence, and for strangers two-pence half-penny, daily. However great and undeniable the advantages may be, of institutions in which those of small fortune may receive medical attendance on paying a moderate stipend, and thus the patrimony of the poor be preserved to the poor, yet the mixing of those who pay and of those who are admitted gratuitously in one hospital, nay, even in the same wards, by no means appears a proper arrangement. Neither are we friendly to those immense palaces, we had almost said little towns, which we meet with so frequently in Italy, and occasionally in Germany, under the name of hospitals. Whenever the number of patients in an hospital exceeds a few hundreds, the public may look for abuses and mismanagement.

The pharmacy of the General Hospital is an extensive and well-regulated establishment. The Pharmacopœia Auftriaca, of 1814, is followed. The authors of that edition have had especial regard to the cheapness of the articles admitted. They have, for this reason, struck out many articles of foreign produce, such as, balsamus copivæ, balsamus peruvianus, cascarilla; cinnamomum orientale, nux moschata, quassia, saraparilla, scammonium, succinum, zingiber. The medical plants, for instance aconite, are brought chiefly from the subalpine parts of Austria. For the sake of economy, in the commencement of the cure of intermittent fever, it is almost general in this hospital to prescribe a decoction of the root of the common taraxacum; and in cases of chancre, instead of the solid nitras argenti, a solution is employed, which is prepared by digesting for some days, in a warm room, a quantity of filed silver with nitric acid.

There are five clinics in the Allgemeine Krankenhaus, two medical, a surgical, an ophthalmological, and an obstetrical.

The *Schola Præctica*, or Medical Clinic, was united with the General Hospital in the year 1784. It consisted of twelve beds, and was under the care of Maximilian Stoll. In the year 1787, he was succeeded by Reinlein, and in 1795 by John Peter Frank. It was especially under Frank that this institution flourished, and became much frequented by foreigners. The number of beds was increased to twenty-four, and an anatomico-pathological museum was established. In 1804, Frank went to Wilna, as a Russian state-counsellor, and thence to St. Petersburg. He was succeeded, for a short time, by Benth; and, in 1806, by Hildebrand, who, for thirteen years, had been professor of medicine in Krakau and Lemberg.

There can be nothing, we think, more certain, than that, to be really useful, a clinic must consist of a small number of patients. For here, the patients are not to be merely seen, but to be observed; not to be observed by a man of experience merely, but their symptoms and treatment to be made the subjects of investigation by those who are yet unaccustomed to the practice of medicine. The clinical visit ought not to surpass the space of an hour; and, in that space of time, it is impossible to visit more than twenty-four patients. Frank had rarely above eighteen in his clinic at Pavia.

Particular attention ought to be paid, in erecting an hospital, to have the clinical wards both more spacious and more lofty, in proportion to the number of patients which they are to contain, than the common apartments, into which it may be supposed that students rarely come, and where the visits are performed with greater dispatch. In a clinical ward, room ought to be left round each bed, for the accommodation of the students; and, as they are to remain three or four minutes, at least, by every bed-side, there ought to be no chance of the atmosphere of the ward becoming quickly deteriorated. In these two particulars, the number of patients, and the comparative size of the wards, the medical clinic of Vienna perfectly corresponds with the above ideas; but in another respect it struck us as being extremely defective, namely, in the want of small separate rooms for patients labouring under contagious diseases, for phrenitic, maniacal, and hydrophobic patients, for young children, and for venereal cases.

The number of beds in each ward is twelve. Over each bed is hung a black board, on which are written, in Latin, the name, age, country, and profession, of the patient, the name and duration of the disease, the remedies in use, and the name of the *candidatus assistens*, or pupil who has the particular charge of the patient. A painted ticket, hung up along with this board, indicates the diet of the patient, by the words *weak portion*, *quarter-portion*, *third-portion*, *half-portion*, *whole portion*, terms corresponding with those of the fixed diet-table of the hospital, which is suspended in all the wards. It seems to be as necessary to teach the regulation of a patient's diet

in an hospital as to teach the powers of drugs. Yet we have seen hospitals where no such thing as a diet-table existed; or if it did exist, it was at least never submitted to the examination of the students; and we have observed, that it was in regulating the diet of their patients, that young practitioners, issuing from such a school, were ever most at a loss.

The number of patients treated in this clinic, during the school-year, is above 200. They are chosen out of a thousand patients; and the selection made by Hildenbrand, as well as his whole manner of conducting the clinic, seemed highly judicious. He did not search for extraordinary cases, seldom ventured upon new experiments, and despised to raise the wonder of the unexperienced by a show of boldness or of novelty. It was the great object of his instructions to make known to his pupils what is already approved and certain in the healing art, and to teach them the method of observing, examining, and treating, every kind of internal disease. He chose from among the numerous patients who daily entered the hospital, some acute cases, and some chronic, some common, and occasionally some which were rare; but his choice never seemed to be made with the view of putting to the test any whim of the day, nor of flattering the passions of the young for remedies, and even for diseases, which are supposed to be newly discovered. Puerperal women, patients with syphilis, and children, were occasionally admitted.

The visit in the medical clinic is from eight to nine in the morning. The assistant, who is a graduate, and is styled *sekundar-arzt*, regularly follows the visit, and, along with those students who choose to attend, visits again in the evening. We have already remarked, that no one can take the degree of doctor in medicine in the University of Vienna, without having attended this clinic for two years, and treated, under the eye of the professor, two patients within the half year preceding his offering himself for examination. This is absolutely required; but we should suppose that each student has the opportunity of treating five or six patients at the least, each year of his attendance. The number of students at the beginning of November last was about sixty, including foreigners.

The duties of the *candidati assistentes*, or students who have the care of patients, consist in examining the particular patient committed to their care, publicly on his admission, and again at every visit; in writing out an *historia morbi*; and in keeping a careful journal of the symptoms and treatment. These cases are never written in a short and imperfect manner: they are not made up of mere hasty notes of symptoms, strung together without order: they contain a faithful and minute account of the state of the patient, at the last morning visit, at noon, and at evening, with observations, and even occasionally short arguments in regard to the diagnosis, prognosis, and treatment. Each report is dated both by the day of the month, and by the duration of the disease: they are written in Latin; are publicly read at the bed-side; and, on the dismissal of the patient, are delivered to the professor.

Professor Von Hildenbrand's work, entitled "*Initia Institutionum Clinicarum*," contains exact rules for the guidance of pupils in their examination of patients; in determining the nature, form, stage, and degree, of disease; in fixing the names, treatment, and prognosis; and in writing the history of the case. It has, perhaps, too much of a scholastic air to be all at once relished by common English readers; but we have met with no work which could better serve as a guide both for clinical students and for clinical teachers. Nor did professor Von Hildenbrand distinguish himself more by the keen-eyed precision with which he regarded the symptoms, causes, treatment, and prognosis, of a disease, than by the purity and fluency of the Latin diction in which his observations at the bed-side, as well as his lectures, were de-

livered. The whole of the conversation between the professor, assistant, and candidate, is carried on in Latin. Professor Von Hildenbrand seemed to us to speak Latin better than he did his own language; and, though we are more favourable to the Italian and Scottish than to the German manner of pronouncing Latin, we could sometimes have fancied ourselves in ancient Rome, and that the person whom we heard was not a Galician of the nineteenth century, but Celsus himself.

Hildenbrand might be regarded as an Agathæus Spartanus. He was known over all Germany, a country which is but too much overrun with hypotheses, and all the other offspring of a futile philosophy, as being one of the ablest supporters of an eclectic school, in which the doctrines of rational medicine were combined with those of empirical. That he was, in a word, a rational empiric, appeared at once from his clinical practice, from his selections, and from his writings. To what are styled active methods of treatment, Hildenbrand was not favourable; and, having but small faith in the alleged power of drugs, he in general adopted and recommended simple, mild, and indirect, means of relieving and assisting nature. It seemed to be the observing spirit of Hippocrates, enlightened by all that physiology and pathology have discovered since the days of the father of medicine, which shone forth in Hildenbrand, guiding him in his inquiries, and leading him to watch the most minute changes which nature herself effects in diseases, but without blinding him to the agency of any really useful remedy.

We can scarcely conceive any improvement which could be made in the clinical education of physicians at Vienna. The system seems to us to be perfect. A stage for dramatic and affected exhibitions, or for hazardous and ill-directed experiments, is the idea which is apt to rise in the mind upon mention of a *clinic*. But, in that of Vienna, both the physician and the pupils seemed to do every thing as they would have done in private practice. It seemed as if the students were led by Hildenbrand into the private houses of his patients; and as if the pupils were not learning a lesson in an hospital, but beginning to practise for themselves, with the advantage of having an experienced and able practitioner with whom they might consult. The graduates of Vienna have not idled away the season for practical improvement. Placed in a situation suited as well for the communication of knowledge as for the elicitation of talent, they are schooled in penetration, and in actual habits of observation; and bring into the chambers of the sick, something more than book-learning, something widely different from fashionable accomplishments.

The Museum of Morbid Anatomy is attached to the medical clinic; and there is no part of the School of Vienna, which more strongly marks the sincere wish of the Austrian government to render the system of medical education complete. A professor, who acts also as *anatomicus forensis*, is appointed to examine with care the dead bodies of those who die in the hospital, and to preserve such parts as may prove useful pathological preparations. He lives within the walls of the hospital; and receives such a salary as may prevent him from withdrawing his attention from this office towards other pursuits. The Museum consists of upwards of six hundred valuable preparations, the greater number of which are preserved in alcohol. A *Catalogue raisonné* has been published by Dr. Biermayer, the present professor, in which 586 of the preparations are described, under the title of "*Museum Anatomico-Pathologicum Nosocomii Universalis Vindobonensis, 1816*."

The chair of the Surgical Clinic is filled by professor Vincent Kern, who gives daily lectures upon the practice of surgery in the operation-room adjoining to the wards. This clinic, indeed, owes its origin to professor Kern, and has existed only since 1806. The number of male patients admitted is eight, and of females six. They

are usually chosen from among the patients of the hospital who are admitted gratuitously; but, when important operations are about to be undergone, it frequently happens that patients who pay prefer passing into this clinic. This clinic is public to every one who leaves his name with the professor. The students of surgery of the second year are obliged to attend, and to undertake the care of patients, as the students of medicine do in the clinic for internal diseases. From sixty to eighty students follow the clinical visit, but the operations are much more numerous attended. The visit is at ten o'clock every morning.

With this clinic is connected a particular institution, or *Pflanzschule*, as it is styled, for the education of surgical operators. Professor Kern has the liberty of selecting six individuals from among his pupils: these he instructs privately for two years, exercising them especially in the various operations of surgery upon the dead subject; after which they are permitted publicly to operate upon the living. Professor Kern, indeed, leaves almost all the operations upon the clinical patients, except lithotomy, to be performed by his pupils, while he himself takes his place as their assistant. The pupils who are selected for this purpose are not in every case students of surgery, but are sometimes graduates in medicine, whose peculiar talents and inclination lead them to the practice of surgery. They live in the hospital, and receive from the emperor a yearly stipend, in consideration of which they are afterwards obliged to serve the state for a certain period. In general they are speedily promoted to be surgeons of hospitals, regimental surgeons, or professors of surgery in some of the lyceums.

Professor Kern is distinguished by his extreme attachment to simplicity in his surgical instruments, and methods of operating. His lithotome is a short and thick knife, of a very simple and almost uncouth form. The simplicity of his external treatment of surgical diseases is still more remarkable. His school may well be called the School of Nature; for he trusts almost as little to art as did *Maître Doublet*, the contemporary of *Ambrose Paré*, of whom *Brantôme* tells us; "Et toutes ses cures faisoit le dit Doublet par du simple linge blanc, et belle eau simple, venant de la fontaine ou du puits." Professor Kern has banished from his practice almost all the common applications, such as ointments, plasters, lotions, lint, tow, and even bandages; and has substituted in their place the application of water, and a simple covering of linen. This plan of treatment he follows even with his private patients; and it certainly shows no small firmness, to humour the prejudices of the public so little, as never to prescribe a plaster or a salve.

In amputation, professor Kern makes use of iced water, which he applies by means of a sponge to the surface of the stump, as soon as the large vessels are tied. This application, so far from being painful, appears to give ease. The edges are then brought together by adhesive straps. The stump is covered with a large flat sponge, dipped in cold water, and wrung between the fingers; and this is continued for forty-eight hours. In some cases, this application is changed for a folded piece of linen moistened with warm water, and applied over the adhesive straps. The same mode of treatment is followed with all wounds after operation. The edges are brought together by adhesive straps, and then water is applied. No ointment, no charpie, no bandage is employed. The success of professor Kern in his operations is very great.

The extreme simplicity of professor Kern's practice is a subject which never fails to excite the attention of those strangers who visit his clinic. The cases under treatment are seen to be going on well; and the success is acknowledged by all to be extraordinary. Yet the use of water, as almost the only external remedy, is a practice which by no means meets with a favourable reception. There are few, even of professor Kern's pupils, who advocate

this practice; many seem to think it unworthy of serious examination, and to feel as if such a simplification of surgery were a degradation of the art; others blame the practice with much asperity, yet without daring to deny the success with which they see it attended. Those who address the professor upon the subject, he refers to the patients before them; or, if he enter into any defence of his opinions and practice, it is nearly in the following manner: "At the commencement of my surgical practice, I had a patient brought to me with a large ulcer on the leg, which had resisted all kinds of ointments and plasters. I told the man to lie in bed, to remain at rest, and to give up all applications except a poultice. In three weeks the ulcer was closed. This, and many similar facts, have convinced me of the bad effects of the usual treatment, and led me to the use of a more simple plan of cure. I employ water as an indifferent matter, to cover a surface which is deprived of its natural insulator, the external skin, and to protect that surface from injurious influences. It acts favourably upon the circumference of the sore, as well as upon the sore itself. Ointments and plasters, on the other hand, are irritating and prejudicial substances, when brought into contact with an uncovered surface, naturally unaccustomed to any such foreign impressions. As wounds of bones, for instance fractures, are healed without any external application, so may all wounds of the soft parts be cured. The cure of wounds is the work of nature. Even gangrenous, venereal, and scrofulous, ulcers, require only a proper internal treatment, and the use of external warmth applied by means of water. Cold, again, applied by means of a sponge to recent wounds, lessens in the most effectual manner the organic reaction, diminishes pain, moderates suppuration, and prevents nervous affections. Bandages may be dispensed with, except in a very few instances. The journals of this clinic are open to your inspection." A farther account of professor Kern's opinions may be found in his "*Annalen der chirurgischen Klinik*," 2 vols. 1809; and in his treatise "*Ueber die Absetzung der Glieder*. Wien, 1814.

The Ophthalmological Clinic.—It is necessary accurately to distinguish those practitioners who have of late years applied themselves in Germany to the diseases of the eye, from the class who are termed *oculists*, whether of that or of any other country. The latter would wish to divide surgery into a number of trades, of which they would monopolize one. The former have not confined themselves to the eye, but all of them have come prepared to the study of that organ by an intimate acquaintance with medical science in general, and many of them have distinguished themselves by their labours in anatomy, and their improvements in the practice of surgery; as for instance, *Richter*, *Schmidt*, *Barth*, and *Prochaska*. These men have not regarded eye-diseases as local merely. They have rendered eye-operations less frequent, by their rational and constitutional treatment of those affections which give rise, under mere local and empirical management, to the morbid changes of the eye which afterwards call for the interference of the operator.

Vienna is at present the most celebrated school for the surgery of the eye in Germany. Professor *Barth*, who is by birth a Maltese, and still lives in Vienna, as emeritus-professor of anatomy, was the first public teacher in this branch of surgery in Austria. He is but little known by his writings on this subject, not having published any thing upon the diseases of the eye, with which we are acquainted, excepting a small tract, in which he describes a manner of performing extraction of the cataract without an assistant. He has many pupils, however, who still speak of his lessons with respect; and the present professor of practical ophthalmology was, for a considerable number of years, his assistant. By the late *John Adam Schmidt*, the fame of Vienna as a school for the diseases of the eye, was much increased. He did not belong to the general hospital, nor to the university, but to the *Josephine*

Josephine Academy. He is well known by his ophthalmological as well as by his other writings, and especially by his treatises upon the Diseases of the Lachrymal Organs, and upon the Inflammation of the Iris. He wrote a considerable part of the ophthalmological *Bibliothek* of Himly; and it were to be wished that some of his countrymen would treat his memory with more respect, and acknowledge what they have borrowed from his valuable communications to that journal.

Dr. George Joseph Beer has been for more than thirty years employed in the practice of this department of surgery. He was for many years extraordinary professor only; but in the year 1815 a chair of practical ophthalmology was founded in the university, which has since been filled by this learned and enthusiastic man. The name of professor Beer is already known in England. He is a voluminous author, but all his works are upon the subject of his favourite study.

The Clinic for the Diseases of the Eye has undergone various improvements within the last ten years. It has existed in its present situation in the General Hospital, and with its present arrangements, since November 1816. The clinic consists of an auditorium, and of two wards, on the second floor of the hospital. The auditorium is well lighted, and neatly covered in green. The windows are so supplied with shutters and curtains, that the light can be in an instant increased or diminished. A large eastern window supplies the light admitted during operations. Besides seats for one hundred and fifty students, this room contains a cathedra of an oval form, raised about a foot and a half from the floor, and surrounded by an iron balustrade. From this the lectures are delivered, and it is used also for the operations, being large enough to contain a patient, along with the professor, the assistant, and the *ordinarius*, or pupil to whose care the patient is intrusted. A collection of instruments and bandages both for the use of the clinic, and for the illustration of the history of ophthalmology; a collection of anatomical and pathological preparations of the eye; and a library of printed books, manuscripts, and drawings, illustrative of the structure and diseases of that organ; are contained in the auditorium. The dust of neglect is not allowed to gather on any of these collections. They are, on the contrary, yearly increasing. The library is open to the students. The auditorium is adorned with a bust of the present emperor; and portraits of Baron Protomedicus Von Stift, the director of medical study in the Austrian dominions; and of the following distinguished surgeons; Scarpa, Richter, Schmidt, Barth, and Prochaska. Each ward is about the same size as the auditorium, is also coloured green, and contains twelve beds. The wards are separated from the auditorium by two small rooms appropriated to the use of the nurses. In the middle of each ward is a long table, which serves both as a dining-table for the patients, and also for laying out the bandages, instruments, and medicines, made use of at the visit. The windows are supplied with shutters and curtains. Each bed has three such substitutes for curtains as we have already described at p. 64. The wards are furnished with every thing necessary both for the strictness of clinical instruction, and for the peculiar care of patients affected with diseases of the eye. A salaried assistant, residing in the hospital, is also attached to this clinic.

The instructions delivered in this institution, which, as in the other clinics, are continued uninterruptedly for ten months, are given in the following order. The lectures on Practical Ophthalmology are delivered every morning, Saturdays and Sundays excepted, from ten to eleven o'clock, in the German language. The lectures commence with a very complete account of the anatomy and physiology of the eye, in which constant reference is made to the morbid changes to which the various textures of that organ are liable. The dissections of the eye and of the neighbouring parts, which are made for this

part of the course, are very numerous, and are executed with great care, chiefly by professor Beer himself. Students can readily procure admission when these dissections are preparing; and thus have an opportunity of becoming more intimately acquainted with the practical anatomy of the eye, and with some peculiarities in Professor Beer's manner of demonstrating that organ. Under the anatomy of the eye, Professor Beer includes the osteology of the orbit, and the demonstration of the muscles, blood-vessels, nerves, and all other parts connected with the organ of vision. He borrows frequent illustrations from the comparative anatomy of the eye; and possesses a finer collection of original drawings in this particular department than is perhaps in the hand of any other anatomist. To this part of the course, which lasts about two months, follows a few lectures upon the manner in which the diseased eye ought to be examined. The next and principal part of the course continues for nearly six months, and is occupied with the pathology of the eye, and the medical and surgical treatment of its diseases. The whole concludes with a history of ophthalmology from the most ancient times to the present, and a critical review of the most celebrated works in this science.

Daily, from eleven to twelve, Saturdays and Sundays included, the strictly-practical instructions are given, partly at the bed-sides of the patients who have been admitted into the clinic, and partly in the review of the ambulatory or out-patients. The plan followed by professor Beer is to bring every new and interesting patient, whether he be afterwards to remain in the clinic, or to be an out-patient only, into the auditorium, and to place him in the cathedra. Any one of the students may now offer himself to be the *ordinarius*, or *candidatus assistens*, for this patient; and, entering the cathedra, may examine the symptoms, pronounce a diagnosis and prognosis, and propose a plan of treatment. All this is done under the correction of professor Beer, whose earnest desire to communicate instruction in these practical exercises merits the most unequivocal applause. It is here perhaps that professor Beer most distinguishes himself. We do not mean to lessen his fame as an eye-operator, already so widely and so well established; but we must confess that it was ever as a diagnostician that he appeared to us to rise beyond all rivalry.

The number of students who attended this clinic from 1814 to 1817 was as follows:

1814-15,	111.	Of these 65 were not Austrians.
1815-16,	170.	92
1816-17,	199.	104

The number of patients and of operations was as follows:

	In-Patients.	Out-Patients.	Operations.	For Cataract.
1814-15,	96	114	92	60
1815-16,	106	158	78	57
1816-17,	115	180	96	59

We have already taken notice (p. 58, 62) of the method of instruction by what are called *privatissima*. Those of professor Beer are extremely valuable. He gives a short course of the operative surgery of the eye, repeats the different operations, and explains, as he goes along, every step and minutiae in their performance; and then directs the pupil in the repetition of each of them upon the dead subject. After attending one of these private courses, the pupil is allowed to operate upon the living subject. Upwards of thirty heads are employed in a course.

Daily, at three o'clock in the afternoon, professor Beer gives advice to the poor in his own house; and to this *house-clinic*, as it is called, students are admitted. Many of the less severe diseases of the eye may here be observed, which are not so frequently seen at the hospital; and the student finds in professor Beer a friend ever ready to explain, and to assist him in the examination of the cases.

The fee for the clinic is twenty-five paper gulden yearly,

yearly, (19s.) for the house-clinic a ducat, (10s. 6d.) for a *privatissimum* eighty paper guldens, and for each operation upon the living subject four ducats. For Dr. Rofa's *privatissimum*, twenty-five paper guldens. For each head for operations, one paper gulden.

The *Gebauerhaus*, or Lying-in Hospital, was established by the emperor Joseph II. in the year 1784, partly with the view of preventing child-murder. In the course of the first year after it was opened, 748 children were born in this hospital. It forms part of the General Hospital, and is under the same management; but is separated in some measure from the other buildings of the hospital by a small court.

This establishment is divided into two sections. The one is for those women who pay; to the other admission is gratuitous. The former is committed to the superintendance of Dr. Pelan, and is not open to students; the latter constitutes the Clinical School of Midwifery, and is under the care of professor Boër.

The Private Lying-in Hospital consists of two divisions. The one contains twelve rooms on the ground floor, which are set apart for secret deliveries, and the greater number of which are occupied each by a single patient. The other division contains six rooms, each of from four to six beds. In the first division, if the room is not occupied for a complete day, six paper guldens are paid. If the person continues longer, she pays daily a gulden and a half; for which she has board, lodging, medical attendance, nursing, and the baptism of her child. If she gives over her child to the foundling-house, she pays forty guldens. Besides the accoucheur, midwife, and nurse, no person is allowed to enter her room. In the second division, there are indeed several beds in each apartment, yet there is such an arrangement, that those who have been separated from those who are to be delivered. A person who does not remain in this division during an entire day, pays four guldens and a half. If she remains longer, she pays daily half a gulden. Also here, none but the necessary attendants are admitted. If a woman of this division would give her child into the foundling-house, she pays twenty guldens.

This section of the lying-in hospital was intended by the imperial patriot as an asylum for those who might wish to conceal their pregnancy; and here those individuals find that they are safe from discovery. Even the tribunals are obliged, if it be brought as a corroborative ground of accusation against a woman that she had resided in the lying-in hospital, to reject the evidence to that effect as not valid. On entering the hospital, the woman is not required to tell her real name or condition, much less to declare who is the father of her child. She is required merely to bring along with her a sealed letter containing her real name, that in case of her death information may be communicated to her relations. As soon as the number of her room and bed is written upon the letter, it is returned into her own keeping. She can enter the hospital and leave it in disguise, or even masked; and indeed continue so during her whole residence, if she choose it. If she bring a nurse along with her, she need not expose herself even to the nurses of the hospital. She can leave the hospital immediately after her child is born, or remain for some time. She can leave her child, or remove it. Many make use of this institution only during labour, leave it some hours after their delivery, and give up their child to the foundling-house.

The rooms of this section are neither so spacious nor so clean as those belonging to the section for the poor, but are more crowded. Notwithstanding, they contain fewer sick in proportion to the number they accommodate, and fewer die in this section. This must be attributed in some measure to the greater degree of warmth, and to the avoidance of draughts of air in small rooms; in which particulars these are much preferable to spacious and airy wards, especially for lying-in women. The average number of births in this section of the lying-in

hospital, has been for some years past from 800 to 1000 annually, being about a third fewer than in the clinical school. We suspect that in a considerable proportion of these births, the children are illegitimate. In the twenty-four hours, there are on an average from two to three births. Three midwives assist at the labours, and the accoucheur is called in only in difficult cases.

The Obstetrical Clinic.—The chair of clinical midwifery is filled by professor Lucas John Boer. The section of the lying-in hospital, containing all those women who are admitted gratuitously, along with almost all those who enter on the lowest rate of twopence halfpenny daily, is committed to his care. Every woman admitted gratuitously must assist in the household work of the hospital, and afterwards serve for a certain time as nurse in the foundling-hospital. The number of births in this section is 1200 annually. The proportion of unmarried women delivered, is to that of the whole number delivered, as 47 to 50.

This section of the lying-in hospital is frequently styled the *Schola Obstetricia*; and it is here alone that students are admitted to the practical study of midwifery. Indeed it is chiefly in this school that midwifery is at all studied, at least by foreigners, at Vienna; for professor Boer's lectures in the university are for midwives rather than male students; and the lectures of professor Schmitt in the Josephine Academy interfere with the clinical visit of professor Boer.

Professor Boer visits his clinic morning and evening. The morning visit is from nine to ten; and is so far public, that foreign students, who apply to professor Boer, are permitted to attend gratis, and to be present at the deliveries which happen between these hours. Those who follow this visit meet in the delivery-ward, and then attend the professor through the wards containing the women who have been delivered. Two wards for this class of patients are constantly in use, each of fourteen beds. A third was formerly kept for the purpose of emptying either of the others at pleasure; but sometimes all the three are occupied.

Into one of these wards, those who are about to be delivered are brought as soon as their labour-pains commence, and there they remain until the os uteri has dilated. They then pass into the *delivery-ward*, which is situated between the two large wards for women who have been delivered. The floors of all these apartments are covered along the sides of the beds with broad pieces of dark-coloured cloth, which are continued also between the wards. This prevents those who have been delivered from stepping out of bed upon a cold floor, and hides any blood which may fall from the woman in labour, as she passes into the delivery-ward. The delivery-ward contains four beds, which are surrounded by the kind of moveable curtains formerly described. No delivery-chair is employed by professor Boer; but the bed is arranged to answer the purpose of a delivery-chair, by means of ten bags of straw, each three feet long, and from a foot to a foot and a half thick. These are laid above the straw-mattress of the bed, and serve to raise the head and back of the patient. Over all are laid a woollen coverlet and a sheet, and a coverlet of the same kind is laid over the woman.

The assistant and the midwife live in the hospital, and are present at all deliveries. The professor does not live in the hospital, and is called only in difficult cases. There are ten male students, and as many female pupils, to whose care the patients are particularly intrusted before and after delivery, as well as during the time of labour. Six of these students are styled *intra-pratikants*, and the remaining four *extra-pratikants*. All the ten female pupils are *intra-pratikants*, and reside in the *Gebauerhaus* itself. The six students who are *intra-pratikants* reside in other parts of the hospital. The four *extra-pratikants* are not Austrians. The appointment of *pratikan* is given by the professor, and no money is taken for it openly. The *pratikants* are the only persons called

upon to be present at operations. A male and female *intra-pratikan* daily take the office of journalists, whose duty it is to examine all women applying for admission, to be present at all deliveries which take place within the course of the twenty-four hours, and to enter into a book the names of the patients who are admitted into the clinic, and of those who are delivered during that day, but without any history of the cases. The appointment of *pratikan*s continues for two months.

Children's beds are scarcely ever employed in the clinic: the children are laid by their mothers' side. Swaddling, a barbarity almost unknown in England, but which holds its ground in many parts of the continent of Europe, is not permitted. After a few hours the breast is given, the mother continuing in the reclining posture. Many of the mothers, indeed, refuse to give the breast to their children, knowing that in not many hours they are to be sent to the foundling-house. Small as the rate of two-pence halfpenny a-day is, it is surprising how early after delivery the patients leave the hospital, in order to save this expense. We have been assured that frequently on the second day, and sometimes even on the next day after delivery, they give up their child to the foundling-house, and return home. The greater number leave the hospital at the end of a week. Very few remain two weeks.

For several years past, professor Boer has given no clinical lectures. Neither is there any regular system of instruction in the practice of midwifery followed in the clinical school, nor is there any demonstration of the obstetrical instruments, nor any exercising upon the phantom or machine, under the immediate direction of professor Boer. The principal part of the instruction to be gained at this clinic, must be gathered from his occasional remarks and conversational examinations. His assistant, indeed, gives *privatissima*, both to male and female pupils, at ten or fifteen paper-guldens.

Professor Boer is a pupil and a partisan of the English school of midwifery. His forceps are nearly those of Dr. Hamilton; but he almost scoffs at instruments, and, like Dr. William Hunter, sums up his advice for difficult cases, in the word PATIENCE. He says plainly, that midwifery is better understood in England than in any other country. Little, therefore, is to be learned in the clinic of professor Boer of the artificial part of midwifery; while the best opportunity is afforded of estimating the value of the *ars obstetricia per expectationem*. To a treatise which professor Boer has published, he has given the title of "*Elementa Medicinæ Obstetriciæ Naturalis*." This work is distinguished for the classic taste with which it is written.

The medical treatment of the women who have been delivered in the clinic, is in general so extremely simple, that professor Boer is wont to say, that they cure every thing there with beer-soup, and require neither great learning nor dear drugs. The number of puerperal diseases which do occur is very small. This is probably owing in a considerable measure to a regulation, which is strictly followed, that no woman should be left twenty-four hours after delivery, without having a clyster given her, if her bowels have not been opened. In puerperal fever, professor Boer is a friend neither to blood-letting nor to strong saline purgatives; but trusts, as in many other cases, more to nature than to art, ordering little more than some powders of ipecacuanha in the commencement, clysters, some spoonfuls of tincture of rhubarb, a little of Dover's powder, and emollient cataplasms to the abdomen. In the pain of the inferior extremities after delivery, with or without œdema, professor Boer has derived great advantage from a blister applied like a garter under the knee. He maintains that abscesses of the mamma are never to be opened with the knife, but are to be treated with poultices till they open of themselves, after which neither lint nor ointment is to be applied. The cause of such abscesses, he considers to be

the want of timely putting the child to the breast, and of regular sucking. To sore nipples he applies cloths dipped in warm water, and orders the child to be continued at the breast, its saliva being the best remedy.

As soon as professor Boer sees apthæ in a child, he concludes that it has had tea, sugar, or syrup, or that it has used a sucking-cloth. Any such foreign irritation, acting upon the tender mouth of the child, causes apthæ. In the clinic, as the children get nothing but their mothers' milk, apthæ are exceedingly rare, whereas that disease is extremely common in the foundling-house. In the ophthalmia of new-born children, professor Boer rejects all collyria, as irritating and likely to increase the inflammation. He rejects also the washing of the eyes with milk, as it is apt to be sour. He places by the bed of the mother two cups of cold spring-water. In the one she dips a bit of linen, and in the other washes out the bit which she has removed. These are frequently applied over the eye-lids. Under this treatment the inflammation diminishes, the eye-lids are prevented from adhering together, and the purulent discharge is said to be averted.

The Foundling-house is also under the same direction as the General Hospital; but stands on the opposite side of the street, and has its own physician, surgeon, and overseer. Of late years it has been much improved by the care of government, and the exertions of a society of the ladies of the Austrian nobility. This is called the "Society of Noble Women for the Promotion of the Good and Useful." In 1814, the following were among the applications of their funds:

	Guldens.
Care of Foundlings, and Premiums to Nurses	9871
Institution for the Instruction of the Deaf and Dumb	2492
Institution for the Instruction of the Blind	3349
Care of Patients with Diseases of the Eye	3806
Support of poor Lying-in Women	1250

All attempts to rear the children in the hospital itself had failed. In the most favourable years, only 30 children out of the 100 lived to the age of twelve months; in common years, 20 out of the 100 reached that age; and in bad years not even 10. In 1810, 2583 out of 2789 died; in 1811, 2519 out of 2847 died. Like the cavern of Taygétus, this hospital seemed to open its jaws for the destruction of the deserted and illegitimate progeny of Vienna. The emperor Joseph II. frequently visited this hospital in person; and upon one occasion he ordered professor Boer to make a series of experiments with all kinds of food, that it might be ascertained how far diet had its share in the mortality. Twenty children were selected, and fed with various kinds of paps and soups; but in a few months most of them were dead. In 1813, the government enacted that the foundling-house should serve merely as a dépôt for the children, till they could be delivered to the care of nurses in different parts of the country. Already, this plan has in part answered the benevolent intentions of those who supported it, and given credit to the opinion of the medical faculty, who, in their report upon this subject, attributed the mortality in the foundling-house, not to the want of care, food, or cleanliness, but to the crowding together of so many children, and the unavoidable deterioration of the atmosphere which hence resulted; to the noise, and to the contagious diseases to which the children were exposed, and especially contagious diarrhœa. This hospital still continues to contain upwards of seventy nurses, and more than twice that number of children. Every nurse has her own bed, and beside it two children's beds. In general, each nurse has her own child committed to her care, and another child.

The Institution for Sick Children.—This institution owes its origin to Dr. Mastalier, a celebrated and benevolent physician of Vienna. It is at present under the care of Dr. Goelis, at whose house in the Wollzeil-street the visit is daily held from three to five o'clock in the afternoon.

afternoon. Students who previously intimate their wishes to Dr. Goelis, are permitted to attend, and have thus an opportunity of seeing the diseases of children treated with much skill and attention. The average number of patients is 500 monthly.

Dr. Goelis has undertaken the publication of a series of monographies upon the different diseases of children, to which diseases his practice is nearly confined. The vast opportunities of observation, the care in conducting this institution, and the numerous dissections of those children who die, lead us to hope much valuable information from these works, the first volume of which is already published.

The Josephine Academy, considered as a building, is one of the most splendid edifices in Vienna. The emperor Joseph II. was the founder of this institution, the object of which is to supply the Austrian army with able physicians and surgeons. On the front of the academy is the following inscription: "Munificentia et Auspiciis Imp. Cæs. Josephi II. P. F. Schola Medico-chirurgica, militum morbis et vulneribus curandis sanandisque instituta, æde et omni supellestiliæ salutaris artis instructa, Anno R. S. 1785." It was opened with much ceremony upon the 7th of November, 1785; and a gold medal of the weight of forty ducats was struck upon the occasion. The first director of the academy was Brambilla, the author of the *Instrumentarium Chirurgicum*, and other works. To him were intrusted the making of the statutes, and the arrangement of the whole institution.

The Josephine Academy is completely separated from all other schools. It is under the direction of the minister of war, out of whose treasury the salaries of the professors and all other expenses are defrayed. The number of pupils is 200, of whom fifty receive a monthly allowance from the academy. Having finished their attendance of two years, to which period of time the course of study extends, they undergo a severe examination, are promoted to the degree of doctor in surgery, and appointed to a regiment; but the academy possesses no power to grant the degree of doctor in medicine.

There are five professors and a professor in the academy. The professors belong to the army, being staff-physicians; and they bear the title of imperial counsellors. The greater number of them reside in the academy. Their lectures are delivered in German. The Field-physician-in-chief and Director is Beinel von Bienenburg.

The pupils of the Josephine Academy have abundant opportunities for the practical study of their profession, there being three clinics attached to the institution. The patients are soldiers and soldiers' wives, chosen from the Great Military Hospital, which is situated close to the academy, and is fitted up for 1200 patients. The Medical Clinic is under the care of professor Castellitz. The visit is from six to seven in the morning. The Surgical Clinic is in the hands of professor Zang, a surgeon of very distinguished merit. The visit is from four to five in the evening. Professor Schmitt has an Obstetrical Clinic, in which from 70 to 80 soldiers' wives are delivered in the course of a year.

To all the lectures and clinics strangers are admitted, who previously leave their names with the several professors, except to the obstetrical clinic, which is particularly designed for the pupils of the academy. The clinic of professor Zang is much frequented by strangers. Indeed that gentleman is looked upon as one of the first surgeons in Austria: he is at present engaged in a work, two or three volumes of which have been published, upon operative surgery, which promises to become classical in medical literature.

The library of the academy is rich in books of medicine, surgery, anatomy, botany, and natural history, and is adorned with a bust of Joseph II. by Ceracchi. It is open only to the professors and pupils of the academy. The collection of natural history contains specimens from the three kingdoms of nature; but chiefly of such ob-

jects as are interesting from their use in materia medica and practical chemistry. The collections of all kinds of surgical instruments, bandages, and machines, is extremely magnificent.

The anatomical museum is distinguished for its collections of skeletons and diseased bones, and of pathological preparations in wax; but above all for its rich collection of wax preparations illustrative of descriptive anatomy and midwifery. The preparations of this collection were executed in Florence, under the direction of Fontana and Mascagni, and are indeed an exact copy of the collection of the same kind in the Museo di Fifico at Florence. This collection occupies seven apartments. Two apartments upon the second floor contain the preparations illustrative of midwifery. This museum is open every Thursday, and is visited by all classes of the people. The Florentine collection is much admired by the crowd, whom it is well calculated to surprise. Every preparation lies under glass, upon a white silk cushion fringed with gold. The artists have not spared ornament even to the preparations themselves, which are as gay as colours can make them. It is well known that they were executed from drawings; but it may startle our readers a little to hear, that a series of engravings, taken from these preparations, is now publishing at a great expense in Vienna. Privatissima are also given by the professor of the academy, in which these preparations are demonstrated. We never could look at the collections of wax preparations in the Museo di Fifico at Florence, and in the Josephine Academy of Vienna, without acknowledging them to be excellently suited for teaching anatomy to grand dukes and emperors, or for affording an hour's amusement to any honest citizen whatever, curious perhaps in such matters. That they are of any considerable utility to professional students of anatomy, is by no means so evident.

The Josephine Academy is furnished with a botanical garden. It has a perpetual director and secretary; perpetual members or professors; actual members, or physicians and surgeons; foreign honorary members; and corresponding members.

A work of very considerable value on Hospital Gangrene has been recently published by Dr. Werneck, physician in chief to a division of the Austrian army, who has had very extensive opportunities of observing the disease during the late campaign in Italy, Hungary, Poland, and the greater part of Germany. It is only such points as are either of an original character, or such as serve to support doubtful points of theory, that require notice on this occasion. Dr. Werneck considers that the disease may appear either as affecting primarily the system, or developing itself originally in an open wound, without any specific affection of the general system. He thinks that it arises from a contagious virus, which is a modification of that producing the common typhous fever: in support of which notion he cites numerous facts, furnishing direct and very forcible arguments in its favour. Hospital gangrene, like typhous fever, he also remarks, may occur several times in the same individual, and affect persons living in an insulated manner, as well as in hospitals, transport-ships, or garrisons, where numerous individuals are collected together; and it may be cured, under either of these circumstances, with the use of no other measures than such as are proper to maintain cleanliness of the wound affected. Dr. Werneck has some hypothetical opinions about the nature of the contagious virus, that it would not, perhaps, be right to neglect to notice; though it should be understood that they are not cited here because their truth is acknowledged. He supposes that the essence of the virus is of an alkaline nature, and is to be corrected by acids, the most efficacious of which, for the implied purpose, is the acetic acid; next to this, the muriatic and oxy-muriatic acids; and, last in the list, the other strong vegetable acids.

Similar in its general character to the foregoing treatise,

tise, that of comprising a good history of its subject, with observations and arguments qualified to support those of former well-informed writers, rather than demonstrative of any thing of remarkable originality, is the work of Dr. Rust on the Egyptian Ophthalmia. His most important and interesting observations relate to the appearance of ophthalmia in the garrison at Mainz in 1818. The disease had been present in the army during the campaigns of 1813, 1814, and 1815; but it was not till the time above mentioned that it manifested itself in an alarming manner. Its prevalence occurred under the following circumstances. It affected only the men of one regiment, and, for the most part, only some Pomeranian, Lower-Rhenish, and Nassau, recruits. This regiment made a very harrassing march from the Rhine to Silesia, and back again, in the autumn of 1817 and the spring of 1818. On its return, the men were crowded into a transport with several French invalids, amongst whom were many who had lost their sight from ophthalmia. On the arrival of the regiment at Mainz, about a third part of the regiment were found to have the itch. After this was got rid of, several other cutaneous diseases appeared, as scarlet fever, measles, varioloid diseases, and nettle-rash; and, on the decline of these, the affection of the eyes first appeared. It augmented in severity from June to September 1818, when it continued nearly stationary, in regard to prevalence and severity, till March and April 1819, when its extent became more confined; but its destructive agency was far from being suppressed until after the most strict measures for preventing its infection had been resorted to.

Whilst the Prussian regiment at Mainz was suffering from this disease, the Austrian soldiers were entirely exempt from it, though they both lived under the same climate and performed similar duty. But, whilst this argument in favour of the propagation of the disease by contagion is brought forward, we must not neglect to notice those which favour the opinion of its primary origin from casual external circumstances. The whole of the facts related by Dr. Rust support the opinion of Dr. Vetch, that purulent ophthalmia originating from any common cause may become contagious; or, in other words, that a puriform secretion from the mucous membrane of the eye, from whatsoever cause, is capable of infecting, by contact, the mucous membrane of the eye of another person, and of thus producing a disease similar to that from which it originated. It should be considered that the disease first appeared in the recruits in the Prussian army; that the military discipline of the Prussian army is much more severe and harrassing than that of the Austrian army; and that this severity was further increased as the number of the sick augmented. One part of the military discipline to which those recruits were submitted, was that of having the hair cut very close over the whole of the upper part of the head, on their entry into the ranks, whilst they adopted the practice of constantly wetting the back part of the head with beer and soap, for the purpose of making their hair grow *en queue*: and a very defective covering for the head was commonly worn. These circumstances may be considered quite sufficient to produce a disposition to ophthalmia, just in the way in which it was manifested. Dr. Rust arrived at the garrison on the 5th of April, 1819. He immediately put in force the most effectual means for preventing the progress of the disease, supposing it to be communicated from one individual to another by contagion. The number of patients now decreased from month to month, till October, when the garrison was relieved, and the disease was supposed to be wholly destroyed. From June 1818, to the end of April 1819, the number of patients amounted to 1146; from this time to September 1819, only 652 new cases occurred; so that the whole number of patients was 1798, not including one regimental physician, two hospital surgeons, and twelve nurses, who were affected with the disease.

The method of applying sulphur in a gaseous form to the surface of the body, was first introduced by Dr. Galès of Paris. The result of the experiments and observations made on its employment, by a medical jury appointed for the purpose, was so satisfactory, that by order of government it was speedily introduced into all the hospitals of France, and was generally recommended in practice by the physicians of that country. It consists in applying the vapour arising from ignited sulphur to the naked body of the patient, seated for that purpose in a sort of wooden case, in the upper part of which there is an aperture for the head. To the circumference of this aperture a leather bag is attached, which is fastened round the neck, and thus prevents the fumes of the sulphur from reaching the eyes, nose, or mouth. The effect of the fumigation is to produce, in the first instance, increased action, and subsequently most profuse perspiration; greater, indeed, than we have ever seen produced by any other means. Hence, it appears to be indicated, 1st, where quick and sudden perspiration is of benefit; and 2dly, where sulphur appears to have a specific action.

The sulphureous fumigating baths were introduced into Germany by Dr. De Carro, of Vienna, whose name is already ennobled in the annals of humanity by the introduction of vaccination to the continent of Asia. The apparatus consists of a wooden case, something like a pulpit, in which a grown person can sit with ease up to the neck. This case is plastered internally. Its floor, formed by a stone of two or three inches in thickness, is raised so far above the ground as to require three steps to get into the case. Underneath are the parts necessary for producing the fumigation. The lowest story is the ashpit, the uppermost the hearth for the sulphur, and the middle contains the fire. The uppermost division communicates freely with the interior of the case, by means of holes bored in the stone floor of the case. A pipe conveys the smoke from the division containing the fire into the chimney. Another pipe passes from the case into the chimney. This may be opened or shut by means of a valve; and, after the operation is concluded, it conveys what remains of the sulphureous fumes into the chimney. From this sketch of the apparatus, the method of using it is evident. The patient, perfectly naked, steps into the case, and seats himself on a chair, which may be raised or lowered at pleasure. He places his feet upon a stool. Both the chair and stool are perforated with holes, to admit the free passage of the fumes to all parts of the body. The uppermost board, forming the head of the apparatus, is now let down, so that the patient is completely enclosed in the case, with the exception of the head. Provision is made for preventing the fumes acting on the eyes, or entering the mouth or nose, as already mentioned.

There are various methods of applying the vapour to the face, when the disease has its seat there, the most simple of which is a flexible pipe, which communicates with the sulphureous vapour. The patient remains in the bath half an hour, or at most an hour. About five minutes before the conclusion of the fumigation, the valve in the sulphur-pipe is opened, and thus all unpleasant smell is avoided on opening the door of the case. The patient now goes to bed for an hour or two.

The cases in which the sulphureous fumigation is chiefly used, are cases of chronic rheumatism, pсора, lepra, and other cutaneous affections, where sulphur is usually found of advantage. In all of these the benefit derived is very striking, and the shortness of the period necessary for the cure really astonishing. Some cases of old chronic rheumatism have yielded completely in a few weeks to this remedy. One reason of the great success attending Dr. De Carro's practice, was the judicious selection of cases which he made, whereas many practitioners have employed these fumigations far too indiscriminately, and then wondered at the failures which took place. The practice of sulphureous fumigation has been
made

made known to the north of Germany in a work by Dr. Karsten of Hanover, under the title of "Ueber die Kraetze, und deren bequemste, schnell-wirkendeste und sicherste Heilart, durch Baden in schwefelhaltigen Dampfen, und dessen vortheilhafte Anwendung zur Behandlung chronischer Krankheiten der Haut und anderer Gebilde, nebst Beschreibung eines hierzu dienlichen Apparats, von Dr. Karsten, mit 2 Kupfern. Hannover, 1818."

The practice is now generally adopted in most parts of the continent, and has extended to Russia and Poland. Dr. Assalini, of the Institute of Sciences at Naples, has published "Medical Researches on Fumigations of Sulphur, Mercury, &c. Naples, 1820;" one object of which is, to describe the improvements and additions which he has made in the construction of the stoves employed for these purposes. Of these, the principal seems to be, the having rendered the machines more portable, and their use more economical, than those proposed by Galés, Darcet, and De Carro. He has added to his work numerous examples of the beneficial effects which have resulted from their use in his own practice in private life, and in the great military hospital Del Sacramento at Naples. Although so recently introduced into that kingdom, it is at the present period very generally employed and recommended by the principal professors in the capital and provinces. The author promises speedily to produce a second volume, with additional observations and experiments on fumigations and vapour-baths, together with two memoirs on the use of thermal vapour-baths, and on oily unctions with artificial fumigation, as a preventive from, and cure for, the diseases produced by the marthy effluvia commonly known under the name of *malaria*.

The remedies of which signor Assalini treats, appear to have received but little attention in this country, although the extent of their employment in France, particularly the sulphureous fumigations in the treatment of cutaneous diseases, have been long known, and their efficacy undisputed. We are not aware of the existence of any public institution for this purpose in any part of the kingdom; and the few private ones which have been established are limited in their operation, and far from being sufficiently extended or perfect. In addition to this, where such establishments exist, the expenses necessarily attendant upon their administration are, indeed, so great as almost wholly to exclude the lower classes of society, for whom they are most frequently necessary, from the advantages to be derived from them.

Our country has always been distinguished for its charitable institutions, and at no period more so than the present. Without taking from the merits of those which already exist, we are convinced that few measures would be more humane and beneficial to the community, than the formation of such establishments as we have spoken of, for the preservation of health, and more particularly for the prevention and removal of cutaneous diseases. We feel greatly assured, that support and assistance from the public would be readily given, and that an effort, a commencement, only is wanting to secure the execution of an object so necessary and so advantageous.

We omitted to notice, in its proper place, the University and the Anatomical Museum of Strasburg. Of the Museum, an account, with a catalogue of the preparations, was published last year (1820), by Professor J. F. Lobstein.

This collection is divided into two principal sections, one of which contains those of the healthy, and the other those of the diseased, structure of the human subject, and of animals. In the first, the organs are arranged with a view to their physiology, by systems, and according to their different functions. The human organs, followed by the corresponding organs of animals, are contained and classed in twenty compartments, which

also include the preparations used for demonstration in the courses of anatomical and physiological lectures. In the second, the organs, in a state of disease, occupy eighteen compartments, and are distributed in an anatomical order, according to general systems, and according to the organs which belong to the functions of nutrition, relation, and reproduction.

The osseous system may be studied with a view to comparative anatomy, by the assistance of the entire skeletons of fifty-three different animals, fifty-seven skulls, and a great number of bones, of every species of animals. The collection of preparations which contributes to demonstrate the structure and formation of bones, is extremely complete. Among many of these, the external and internal periosteum is beautifully injected. The fine injections of foetal bones have also succeeded equally well.

The myological preparations are, at the same time, connected with the subject of angiology, as they have been made from injected subjects: by this means they have been rendered doubly instructive. In addition to these, here are others of the foetus injected for the purpose of showing their structure. These preparations, when viewed by the assistance of the microscope, display a net-work of blood vessels superior perhaps to those in the collection of Prochaska.

The preparations which relate to the function of digestion are various and extensive. The alimentary canal of the human subject, from the commencement of the oesophagus to the anus, distended with air and dried, is compared with that of fourteen kinds of animals, prepared in the same way. The organs of digestion of man in particular, commencing with the salivary glands, are contrasted with the corresponding organs of different animals. The minute anatomy of these parts has not been neglected. The intestines are so completely injected, that the pupils can conceive a perfect idea of their villous coat, as it has been distended, and the papillæ erected by the resin of the injection. Portions of the intestines of the foetus, the vessels of which have been injected with isinglass, coloured white, are not inferior to the preparations of Lieberkuhn.

Twenty preparations of the lymphatic vessels elucidate the receptaculum chyli and the thoracic duct, the right lymphatic trunk, the lacteals of the mesentery well injected, the lymphatics of the liver, the large plexuses of the pelvis and vertebral column; the lymphatic vessels of the lungs, those which pass behind the sternum into the anterior part of the mediastinum, and the superficial and deep-seated lymphatics of the upper and lower extremities. Though these preparations are sufficient to give pupils an idea of the lymphatic vessels in almost all parts of the body, the absorbent system is still every year injected in the recent subject, during the anatomical lectures. The same is done with the other preparations of minute anatomy, angiological and neurological, and those which relate to the organs of sense.

The organs of respiration, after being examined in the human body, may be afterwards compared with the similar organs of quadrupeds, amphibious animals, and fishes. The minute structure of the lungs is rendered apparent, and especially the disposition of the bronchial vessels, by preparations from the lungs of children. The larynx displays the superior and inferior laryngeal nerves on both sides, traced to their most minute branches. The thyroid gland is completely injected; and it is observed, that this is one of those organs in which the injection, when urged into the arteries, returns most readily by the veins.

With respect to the nervous system, here are perfect injections of the pia mater, and, in some instances, even the cortical substance of the brain has been reddened. The injections of the nerves are not inferior to those represented by Reil, in his work, entitled *Exercitationum Anatomicarum Fasciculus Primus, de Structura Nervorum*. All the cerebral nerves, with their distributions,

are illustrated by several preparations. Numerous researches have been made upon the brain itself, the results of which were published in the third and fourth volumes of the *Journal Complémentaire du Dictionnaire des Sciences Médicales*. The sections of the brain, made according to the views and process of M. Lauth, are prepared in acidulated water, which answers the purpose better than any other liquid.

The collection is equally rich in preparations of the organs of sense. With respect to that of touch, we may safely say it is impossible to carry the injection of the skin farther than is done in these preparations: and that none can easily be found so instructive as those which relate to the structure of the negro-skin. The nerves of the tongue are traced to their minutest branches. The pituitary membrane, subjected to maceration after injection, shows, in a very superior manner, the net-work of ramifications on this membrane. Among the preparations of the eye, we may notice the injections of the vessels of the choroid, of the retina, and of the canal of Fontana, by mercury, &c. The organ of hearing is illustrated by a very large number of preparations, and its most minute parts elucidated. As early as the year 1752, the old university possessed a collection of sixteen preparations of this organ, so beautifully arranged by hinges, and other mechanical means, that the various parts of the organ may be studied both separately and united, so as to show their relation to each other. These, the result of the great ingenuity of professor May, were presented to the Royal Academy of Sciences at Paris; and the Academy, in the historical part of its *Memoirs* for the year 1734, has mentioned it in honourable terms. These preparations, which they at present possess, have been since augmented by the addition of eighty-seven others, worthy of the originals.

The preparations which relate to the sexual system of the male and female, to pregnancy, parturition, and the products of conception, amount to 182 in number. In the injections of the testicle with mercury, the fluid introduced into the deferens has passed into the seminiferous substance. In two specimens they have succeeded in the almost entire development of the vas deferens and epididymis. The injection of the blood-vessels of the testicle with isinglass, coloured by cinnabar, has succeeded so well, that not only the pulp of it has been reddened, but, by the help of a magnifying-glass, a network of vessels can be distinguished upon the vessels themselves.

A series of fifty fœtuses shows their gradual increase, week by week, from the second month, up to the full term of pregnancy. Six preparations show the disposition and development of the fœtal organs at the different periods of its life.

The second section of this work, containing the *pathological anatomy*, forms a larger part of it than the preceding one; and we regret that our limits will not allow us to give so complete an account of its contents as we could wish. We must, therefore, confine ourselves to noticing a few of its most interesting objects.

Under the article of calculi, are mentioned some of very unusual size from the maxillary duct. The collection of horse-bezoar (intestinal calculi) is also remarkable; the largest weighs nine pounds and a half. The biliary calculi are arranged according to the classification of Fourcroy: no class established by that chemist is wanting. The urinary calculi comprehend thirty-eight series, a number of which, broken, or sawn, display their laminated structure and the different colours of their strata corresponding to the three principal elements composing them; viz. uric acid, phosphate of lime, and oxalate of lime. Prostatic calculi, which are somewhat rare, are to be seen disposed in regular series, or in a circular arrangement, in the excretory ducts of that gland. Calculi from veins, which the author calls *phlebotithes*, have been carefully collected and examined;

VOL. XIX No. 1288.

and a coloured representation, which the author considers unique, made of their laminated structure.

Under the article *caries*, a cranium is mentioned, which is perforated with apertures, in the form of a sieve, by a venereal affection. The patient from whom it was taken, was treated with mercury, and even now (as in 1758 when this preparation excited the attention of the curious) globules of mercury are seen in the little sinus, and ulcers in the internal surface of the cranium. This fact, observed by Fallopius and others, had been denied in modern times, till some experiments made at Tubingen in 1808, established its truth. In a specimen of *caries* of the pelvis, the *ossa pubis et ischii* are entirely destroyed, except the portion forming the symphysis of the former, and that which contributes to the formation of the acetabulum of the latter.

M. Lobstein observes, that it is not yet agreed what meaning is to be attached to the term *spina ventosa*. If swelling of the bone in its whole thickness, and a sponginess of its texture, such as results from cells of different dimensions, may constitute *spina ventosa*; if the cells are filled with fluids of various kinds; if there are osseous excrescences, either on the external surface, or within the above cells, the museum contains specimens of this disorganization; particularly in the *os humeri*, tibia, and fibula.

The last form of the disease of bone noticed, is that in which large masses of osseous matter entirely disappear, and no traces of them are found, except insulated fragments floating in an abundance of mucilaginous matter. The author first noticed this disease in the ribs, and described it with other analogous examples in the "*Rapports sur les Travaux exécutés à l'Amphithéâtre d'Anatomie*." Since the publication of that, he has observed it a second time on the ribs and pelvis of the same individual. The sacrum and *ossa innominata* were covered with a thick periosteum, more moist than usual; in detaching it, the compact external table of the bones could be at once removed: a reticular tissue was then seen with larger interstices, which were filled with a substance in colour and consistence very like currant-jelly. This disease, in the opinion of M. Lobstein, consists in a sponginess of the bone, accompanied by a secretion of an albumino-mucous matter. In the fluid of the numerous cysts, which supplied the place of the osseous matter destroyed, portions of bone, rendered thin and porous, were seen floating like half-dissolved sugar. The contiguous portions of bone had the same spongy appearance.

In speaking of the organic changes of *muscles*, their conversion into fat, to which the term *Myodémie* is given, is said to have been observed in two instances. In another the semi-membranous alone had undergone this change. After some remarks on the sympathetic coincidence in the deficiencies and diseases of the muscles of the two sides and extremities of the body, the author relates a case in which the biceps of each arm, and no other part, was found in a state of gangrene, in a woman who died in child-bed.

The morbid changes, &c. of the vascular system, are contained in the next chapter, from which we shall only mention a rare distribution of the aorta: its arch divides into two branches, which, by their reunion, form a space, and through this pass the trachea and the œsophagus. The irregularity is described by Hommel, in the *Commerc. Lit. Noricum*. 1777.

The remaining chapters are devoted to the pathological anatomy of the thoracic organs, those of digestion, of the urinary system, nervous and generative systems. Like the rest of the book, they are made up of a mass of valuable and interesting facts, stated with the utmost simplicity and clearness. Last of all is placed a Catalogue of the Preparations of this select yet extensive Museum. The whole number of them amounts at present to 3286, of which 1977 relate to physiological, and 1309 to pathological, anatomy. The Museum is open to the public

U once

once every week; students have access to it daily; and, with a liberality still more worthy of praise and of imitation, foreigners are admitted at all hours, and at the first application. It is with astonishment we learn, that only sixteen years have been spent in the accumulation of this admirable collection: for, in 1804, there were only 212 preparations. The very complete Museum of Berlin, cost its founder, professor Walter, fifty-four years in its collection; but it contains not more than 2268 preparations.

Three hundred bodies are annually at the disposal of the faculty of Strasbourg. Such noble encouragement and opportunities of observation; the co-operation of the professors and the practitioners of the town, who transmit, as to a common centre, the result of their particular pathological examinations; the rare and curious objects which flock from the neighbouring country; the intelligence and zeal of the professors and students; all these circumstances combined, lead us to expect from this quarter still greater contributions to medical science.

Since we have travelled out of Germany; and got again into France, we shall detain the reader a few minutes while we describe the present state of the obstetrical art in that kingdom; which we are enabled to do by the very recent publication (1821) of the "Pratique des Accouchemens," by a real midwife, Madame Lachapelle, chief operator at the Lying-in Hospital at Paris.

This volume is one to which we have nothing similar in this country. It is the production of a female practitioner, placed by public authority in a most important official situation; and is no less deserving of notice from the rare occurrence of such publications, than from the just views and accurate criticisms on the state of the science on which it treats. But these are subjects on which it is not at present our intention to dwell, as we are inclined rather to take the opportunity of pointing out the state of public instruction in this science in France, and to contrast it with the deficiency in this point, which all must admit and lament as existing in this country.

From time immemorial, the only asylum afforded by the city of Paris to puerperal women, was a miserable ward in the Hôtel-Dieu; a principal midwife, with five or six pupils, whose studies lasted but for three months, ill sufficed for the number of births which occurred. The place was still more inadequate; the women admitted were heaped together, and commonly several lay at the same time in one bed. These inconveniences were of so serious a nature as to attract the attention of the government. In the year 4 of the Republic (1797), the National Convention decided on building a house for the particular purpose of receiving parturient women. Madame Lachapelle, in conjunction with her mother, the principal midwife of the Hôtel-Dieu, was charged with the direction of the service of the new institution. The dispositions for the arrangement and order of the whole establishment were formed in concert; and it is thus that the plan originally laid down has been more extensively applied. The number of pupils as midwives has since gone on increasing, as well as the number of individuals admitted. The former at present amount to 130 annually. This increase, as well as the organization of the school, was owing to M. Chaptal, then minister. M. Baudelocque was then made professor, and assisted to render the work more perfect. M. Dubois, who succeeded him, has preserved the order adopted by his predecessor, which we proceed to describe.

The pupils admitted at the School of Midwifery are expected to employ themselves as well with the relief of the patients as with their own personal instruction: such, in fact, is the principal object in view. This necessity forces them to a practical study, to which, in particular, they are indebted for their acknowledged superiority over the pupils of every other school. All pass a whole year at the hospital; and about a fourth part of their

number twice this period, serving in the second year to direct the new pupils. The newly-arrived pupils are separated into as many divisions as there remain old pupils who double the period of their stay. These last direct the division entrusted to them, assist at simple labours, and point out to their companions the particularities of examination, &c.

The patients admitted are first examined by the principal midwife, who rejects or retains them according to circumstances. The period fixed is the end of the eighth month. Simple deliveries are all performed by the pupils, in the presence of the division, and under the direction of the elder one, who serves as chief. Each pupil has the subsequent care of the woman whom she has delivered. On the occurrence of the least difficulty, the principal midwife is called in. If the use of instruments should be required, it is she who operates; if the delivery be difficult, although the hand alone suffices, she still has the charge of it; but easy manual deliveries are terminated, under her inspection, by one of the old pupils, so that almost all have, before the end of their second year, performed an artificial delivery. Very complicated cases, such as require the use of a cutting instrument, call for the presence of the professor.

Peritonitis too often prevails in the wards: a host of other diseases may also attack parturient women. It is then that, after being carried to the infirmary, they are entrusted to the care of the experienced and learned professor Chauffier, principal physician. Under his inspection, several female pupils note daily, and with most scrupulous exactness, the symptoms, periods, termination of the diseases, and the effects of remedies; they thus become accustomed to recognize danger, to prevent it, and, if not to remove it, at least to have recourse early to the assistance of medicine. Three times in the week the professor explains the theory of the science of midwifery. A lecture is given every day by the principal midwife; and a similar one by Mademoiselle Hucherard, for eight years acquainted with the principles of the art, and honoured with the title of "principal pupil," who also exercises the others on the model, in the use and application of instruments. Amongst the old pupils, those who have most facility in expressing themselves, and capacity for instruction, are charged with giving repetitions to the new comers, of the lectures of the professor, the midwife, and principal pupil. Amidst all these attentions to the principal object, the acquisition of accessory knowledge is not neglected. Under the direction of the principal physician, the apothecary lays down to the pupils the general principles of botany, and makes them acquainted with the most important plants and drugs. In the same manner the student in medicine attached to the institution makes some demonstrations on general anatomy, on that of the viscera, on the principal functions, on the muscles of the abdomen, and, lastly, on vaccination and venæsection. For these two operations the instructions are not solely theoretical; the pupils bleed and vaccinate as often as there is an opportunity, but always in the presence of the student in medicine. Such are the means of instruction presented to the pupils in midwifery; the wisdom of the administration has added useful encouragements. At the end of each scholastic year, several prizes are given by competition, on subjects relating to the science of midwifery; the principal is a golden medal: prizes are also given for clinical vigilance, the observation of patients, the study of botany, and for vaccination.

It is a circumstance perhaps only to be understood by the consideration of the inconsistency of human proceedings, that, while laws and regulations were early devised for the protection of the public from the pretensions of the ignorant and unprincipled in the practice of medicine and surgery, midwifery, a science connected as it is with the tenderest feelings and best interests of society, should be left in the hands of the lowest and most uninformed people,

people, at least as far as it regards the great mass of the public in every country. Nor has this delusion been confined merely to the careless and indifferent observer; even those whom their abilities might have been expected to have exempted them from the errors of common minds, seem but too often to have thought, that information on difficult and complicated subjects might be acquired, as it were, intuitively; and that mechanical unobserving experience might supply the defect of early and well-grounded instruction. It needs but little either of intellect or inquiry, to see at once the fallacy and absurdity of such an idea.

We are aware that at the present period, in this country, a considerable portion of the male practitioners in midwifery, are individuals whose *compulsory* professional education may be fairly supposed to render them adequate to the performance of the duties they undertake; but it is notorious that such is not the case with the females, on whose care and skill the lives or the future comfort of women in the lower classes of life, and in remote parts of the country, are so completely dependent. Nor can it be unknown, that in every part of the kingdom, even in the metropolis, no security exists against the ignorance of those who may choose to enter upon the practice of this most important branch of the healing art; that an acquaintance with, or course of instruction in, its principles, forms no part of the qualifications required by the three corporate bodies, whose members and licentiates form the greater part of private practitioners in England. Nay, on the contrary, at least two of these are more disposed to discourage than to countenance the extension of this division of practice among their members.

After an attentive consideration of the difficulties and the inconveniences we have alluded to, it surely requires no argument to convince every uninterested individual, whether professional or otherwise, of the necessity for some regulation of this branch of the profession, and of the important advantages which would accrue to the public from the organization of a class of *female practitioners*, well qualified for the performance of the duties they are intended to discharge. To the institution of such a class in this country, we can see no well-founded or disinterested objection; and it must be allowed that nothing seems better adapted to attain the object in view than the system which has received so ample a trial in France, and of which we have given an account. Of this at least we feel convinced, that a trial only is required to exhibit its excellence, and ensure its adoption. Should such a plan be ever put in execution, it would doubtless be most advantageous to combine its employment, as has been done in France, with the internal management of the lying-in institutions already in existence, especially in the metropolis. But here we must check ourselves, as it must be confessed, that it is much more easy to proclaim the existence of defects than to apply appropriate remedies, and as it is far from being our intention to assume a task that we hope to see in more competent hands.

GREECE and TURKEY.—In turning to the consideration of *Greece*, the land of heroism and classic recollections, we find that 3000 years have glided over without any improvement in medicine beyond the practice of the Father of Medicine. Indeed in many instances we might almost wish that the practice of Hippocrates only was followed, without variation or *improvement*; but the physicians of Greece and of Turkey are much occupied in discussing the theories of Brown or of Boerhaave; and, though occasionally a flash of ancient fire and of the true philosophy of the pristine Hellenian has animated the Greeks, yet the major part are contented with these vain and fruitless enquiries. This state will not probably last long: the despotic government of the Turks may be considered as the cause of the long supineness of the Greeks; and, whether the struggle for their independence be successful or not, a spirit of emulation and en-

quiry exists at present in that nation, which cannot fail of producing much advantage to philosophy.

Of the mode of visiting and treating patients in *Turkey*, an amusing account is given by Dr. Neale, late physician to the British embassy at Constantinople.

After adverting to the belief of the Turks in predestination, Dr. N. proceeds thus. "Still, fatalism and apathy have their limits; and the proud infidel, in the hour of sickness, does not disdain to invoke the assistance of the *Giaour* to delay the approach of death. Of this I had a memorable instance within a few days after my arrival at Terapia, when, very unexpectedly, I received a message from the emperor Selim the Third, to visit his mother the sultana Valide. Mr. Pisani, the senior dragoman (interpreter), was the bearer of this request; and the following morning I set off by water for the seraglio, accompanied by one of the junior dragomans. We were put ashore at a quay near Baktchi Capoussi, where we found a bostanji in waiting, to conduct us to the house of the principal court-physician, who lived in a narrow street adjoining the wall of the seraglio. On arriving there, we were informed that he had already gone to see his patient, having left instructions that we should follow him, which we did, entering the gardens by the little white gate near the chapel of St. Irene. We passed a guard-house of bostanjies on our left, and then proceeded under an avenue of lofty cypress-trees, towards a second guard-house, whence we were conducted to a detached pavilion, in which we found the Hekim Basha, or Turkish physician, Mahmoud Effendi; a Greek physician, named Polychronon; the Kiflar Agassi, a hideous Ethiopian, the chief of the black eunuchs; the Hazni Vekili, also a black eunuch, keeper of the privy purse; and some der-vives and muftis. After being introduced, and going through the usual routine of pipes, coffee, sherbet, and sweetmeats, Polychronon, conversing in Latin, entered into a detailed statement of the malady with which the sultana was afflicted, namely, an inveterate quartan ague, of upwards of eighteen months' standing. From this she had recovered more than once; but had relapsed as often, owing, in part, to her own want of due caution, and to the officious interference of a set of muftis who beset her, and forced upon her large draughts of iced water, in which they immersed talismans, assuring her that they would establish her convalescence; but, on the contrary, these draughts invariably brought back the cold fits of her ague. Upon the last relapse, some days before I saw her, she had, during the cold paroxysm, been suddenly bereft, in her lower extremities, of all power of motion and sense of feeling; and it was upon this point, and some others also, that my opinion was requested. Indeed I was to decide, as I found, between three of her physicians who called themselves *Boerhaavians*, and four others who professed themselves strict *Brownonians*, as to the expediency of prescribing a cathartic medicine; the former pressing the absolute necessity of such a remedy after five days' constipation, and the latter most foolishly declaring it to be perfectly inadmissible, according to their interpretation of the doctrine of Brown. This being premised, we all accompanied the Kiflar Agassi to an adjoining kiosk, in which was the sultana. After exchanging my shoes at the door for a pair of yellow slippers, we entered the royal apartments. On a mattress, in the middle of the floor, was extended a figure covered with a silk quilting, richly embroidered. A female figure veiled was kneeling at the side of her pillows, with her back towards the door of entrance; and the Kiflar Agassi beckoned to me to kneel down by her side, and examine the pulse of the sultana. Having complied with this request, I expressed a wish to see her tongue and countenance; but that I was given to understand could not be permitted, as I must obtain that information from the report of the chief physician. The most profound silence was observed in the apartment, the eunuchs and physicians conversing only by signs. The Hazni Vekili

then

then took me by the arm, and turned me gently round, with my face towards the door of the entrance, over which was a gilded lattice, concealing the emperor, who had placed himself there to witness the visit. Our stay in the room did not exceed fifteen or twenty minutes. The four large windows were shaded externally by gilded lattices, and the intervening pannels were covered with mirrors and arabesque tapestry. The divan, which encircled the chamber, was veiled with crimson cloth, richly embroidered with gold, surrounded with cushions of the same description; and the floor was covered with a superb Persian carpet. On our return to the first pavilion, I, of course, coincided with the Boerhaavians, and wrote a prescription to that effect. Indeed, had she been a princess of any other European court, it is probable that a large bleeding would have been decided upon; but, from the ignorance and prejudice of her attendants, I found it impossible to convince them of its necessity; and on considering that the mistakes, real or imaginary, of the Turkish court-physicians, are frequently visited by the bow-string, I had but little inclination to bring the lives of my colleagues into farther jeopardy. The Hekim-Bachi and Hazni Vekili therefore carried my prescription, and interpreted it to the sultan, who, in return, sent back a complimentary message, and a purse containing one hundred and fifty sequins."

In case our readers should feel interested in the fate of the patient, we must add, that the sultana sunk under her illness in the course of a week: but her age was seventy-two; and her son, far from giving way to the barbarous practice of punishing the court-physician, signified to him that the event was evidently in the course of nature, and should make no alteration in the confidence which he enjoyed. This prince, deserving of a better fate, was the unfortunate Selim who lost his life by an insurrection of the Janissaries in 1807.

GENERAL PATHOLOGY.

In the present philosophic age, it appears needless to discuss the propriety and necessity of being guided by reason in our pathological investigations. Very few professional gentlemen will now be found strictly empirical; and those few are among the least honoured and least deserving in our profession. There is something in the human mind so prone to enquire into the cause why, and the reason wherefore, that the veriest empiric in the practice of physic will never be contented with attaching himself to facts, as he professes, without regard to inferential reasoning. There is something so gratifying to one's love of science, something which so evidently leads to better information, even in the vaguest explanation of natural phenomena, that we cannot be surprised that it has been attempted in all ages.

Yet, in the course of our history of medicine, we have had frequent occasion to show how fatal has been the result of too much theory. Independently, however, of the circumstance that what is injurious to the progress of science in its infant state, may cease to become so when it is more advanced, we have found hitherto no system of medicine which has sufficiently accounted for all morbid phenomena, or in which many huge gaps and deficiencies have not been filled up by gratuitous assertions.

In the infant state of medicine there can be no doubt that theory often exerted a most decided influence on that science. But the paucity of facts, the data whence the theories of the ancients were framed, were the cause of their frequent errors. They were like labourers attempting to build a lofty palace with a few stones. In our own time, however, we have so far advanced in the accumulation of facts, that, though much remains to be done, we are compelled in some measure to generalize and systematize our knowledge, which else would become too burthenome for memory. To follow up our simile, we may be said in our own time to be in possession of

materials sufficient for building a stable edifice; and hence we may now look forward to the establishment of a system which, to use the arrogant expressions of Darwin "may not moulder, like the structures already erected, into the sand of which they were composed, but which may stand unimpaired like the Newtonian Philosophy, a rock amid the waste of ages."

We shall not pause here to enquire into the utility of systems of medicine. Our periodical medical publications have lately raised much uproar against systems. It must be obvious to every one, however, that a series of dry insulated facts, or of reasonings applicable only to a limited number of phenomena, can never be sufficiently remembered, or indeed perfectly known. Provided, therefore, we wander not into the mazes of hypothesis, provided our analogies are not forced, or our classifications likely to lead to erroneous methods of practice, it must be allowed that we are advancing our knowledge, clearing away many erroneous notions, and reconciling many contradictory opinions, by taking general and extended views of disease. See vol. xvii. p. 245.

We have said that the knowledge of the structure and functions of man should precede the study of pathology. Of the animal structure we have given an ample account in the first volume of our work, under the article ANATOMY; of the second we propose to treat under the article PHYSIOLOGY. In the mean time, the more clearly to develop the opinions we have adopted, it will be necessary to give a short sketch of the economy of man, and of the most prominent systems and most important structures which belong to his organization, the better to understand in what disease a deviation from this state consists.

In the organization of man, then, the first system to be considered is the *nervous*. It consists of the cranial brain, the spinal marrow, nerves, and ganglia. By means of this system, all mental emotions are communicated to the other parts of the animal frame, and, through its medium, all external impressions are communicated to the mind. We observe likewise a *fibrous* structure of different kinds in various parts; as muscular, osseous, &c. the most general and important of which are the *muscular* ones. To these is added a fundamental *cellular* structure, which appears to connect all parts of the other systems together; and which has various appearances in regard to diversity of substance, and indeed in regard to the secretions derived from it. The union of these three systems takes place in various modes: in some cases in tubes, or on membranes, &c. &c. and the more remarkable of these unions may be aptly divided into the digestive, respiratory, sanguiferous, fecerment, and absorbent, systems; and this physiological division we have taken as the basis of our arrangement, which agrees with the excellent one lately made by Dr. GOOD, in his Physiological System of Nology.

Many objections have been made however to all the present arrangements; the most important of which is, that, by allowing the attention of the medical practitioner to be exclusively directed to one system or to one organ, it prevents that due attention being paid to morbid catenations, which the practice of physic imperiously demands. There is nothing, however, in the nature of nology which renders this error a venial one. It must be allowed that morbid impressions are generally primarily made on one particular tissue or organ; and it must be allowed too, that a system which is secondarily affected, often suffers the most severely; or that the system secondarily affected may be the most important to life, and hence our attention should be chiefly directed towards it. We will venture to assert, that whoever has assiduously studied the structure of parts and their physiology, cannot fall into the error of confining his attention to one part of the animal economy to the exclusion of the rest.

To render this more plain, we shall proceed with some further account of the action of the different systems above mentioned upon each other. If the animal frame

people, at least as far as it regards the great mass of the public in every country. Nor has this delusion been confined merely to the careless and indifferent observer; even those whom their abilities might have been expected to have exempted them from the errors of common minds, seem but too often to have thought, that information on difficult and complicated subjects might be acquired, as it were, intuitively; and that mechanical unobscuring experience might supply the defect of early and well-grounded instruction. It needs but little either of intellect or inquiry, to see at once the fallacy and absurdity of such an idea.

We are aware that at the present period, in this country, a considerable portion of the male practitioners in midwifery, are individuals whose *compulsory* professional education may be fairly supposed to render them adequate to the performance of the duties they undertake; but it is notorious that such is not the case with the females, on whose care and skill the lives or the future comfort of women in the lower classes of life, and in remote parts of the country, are so completely dependent. Nor can it be unknown, that in every part of the kingdom, even in the metropolis, no security exists against the ignorance of those who may choose to enter upon the practice of this most important branch of the healing art; that an acquaintance with, or course of instruction in, its principles, forms no part of the qualifications required by the three corporate bodies, whose members and licentiates form the greater part of private practitioners in England. Nay, on the contrary, at least two of these are more disposed to discourage than to countenance the extension of this division of practice among their members.

After an attentive consideration of the difficulties and the inconveniences we have alluded to, it surely requires no argument to convince every uninterested individual, whether professional or otherwise, of the necessity for some regulation of this branch of the profession, and of the important advantages which would accrue to the public from the organization of a class of *female practitioners*, well qualified for the performance of the duties they are intended to discharge. To the institution of such a class in this country, we can see no well-founded or disinterested objection; and it must be allowed that nothing seems better adapted to attain the object in view than the system which has received so ample a trial in France, and of which we have given an account. Of this at least we feel convinced, that a trial only is required to exhibit its excellence, and ensure its adoption. Should such a plan be ever put in execution, it would doubtless be most advantageous to combine its employment, as has been done in France, with the internal management of the lying-in institutions already in existence, especially in the metropolis. But here we must check ourselves, as it must be confessed, that it is much more easy to proclaim the existence of defects than to apply appropriate remedies, and as it is far from being our intention to assume a task that we hope to see in more competent hands.

GREECE and TURKEY.—In turning to the consideration of *Greece*, the land of heroism and classic recollections, we find that 3000 years have glided over without any improvement in medicine beyond the practice of the Father of Medicine. Indeed in many instances we might almost wish that the practice of Hippocrates only was followed, without variation or *improvement*; but the physicians of Greece and of Turkey are much occupied in discussing the theories of Brown or of Boerhaave; and, though occasionally a flash of ancient fire and of the true philology of the pristine Hellenian has animated the Greeks, yet the major part are contented with these vain and fruitless enquiries. This state will not probably last long: the despotic government of the Turks may be considered as the cause of the long supineness of the Greeks; and, whether the struggle for their independence be successful or not, a spirit of emulation and en-

quiry exists at present in that nation, which cannot fail of producing much advantage to philology.

Of the mode of visiting and treating patients in *Turkey*, an amusing account is given by Dr. Neale, late physician to the British embassy at Constantinople.

After adverting to the belief of the Turks in predestination, Dr. N. proceeds thus. "Still, fatalism and apathy have their limits; and the proud infidel, in the hour of sickness, does not disdain to invoke the assistance of the *Giaour* to delay the approach of death. Of this I had a memorable instance within a few days after my arrival at Terapia, when, very unexpectedly, I received a message from the emperor Selim the Third, to visit his mother the sultana Validè. Mr. Pisani, the senior dragoman (interpreter), was the bearer of this request; and the following morning I set off by water for the seraglio, accompanied by one of the junior dragomans. We were put ashore at a quay near Bakchi Capoussi, where we found a *bostanji* in waiting, to conduct us to the house of the principal court-physician, who lived in a narrow street adjoining the wall of the seraglio. On arriving there, we were informed that he had already gone to see his patient, having left instructions that we should follow him, which we did, entering the gardens by the little white gate near the chapel of St. Irene. We passed a guard-house of *bostanjies* on our left, and then proceeded under an avenue of lofty cypress-trees, towards a second guard-house, whence we were conducted to a detached pavilion, in which we found the Hekim Basha, or Turkish physician, Mahmoud Effendi; a Greek physician, named Polychronon; the Kislar Agassi, a hideous Ethiopian, the chief of the black eunuchs; the Hazni Vekili, also a black eunuch, keeper of the privy purse; and some dervises and muftis. After being introduced, and going through the usual routine of pipes, coffee, sherbet, and sweetmeats, Polychronon, conversing in Latin, entered into a detailed statement of the malady with which the sultana was afflicted, namely, an inveterate quartan ague, of upwards of eighteen months' standing. From this she had recovered more than once; but had relapsed as often, owing, in part, to her own want of due caution, and to the officious interference of a set of muftis who beset her, and forced upon her large draughts of iced water, in which they immersed talismans, assuring her that they would establish her convalescence; but, on the contrary, these draughts invariably brought back the cold fits of her ague. Upon the last relapse, some days before I saw her, she had, during the cold paroxysm, been suddenly bereft, in her lower extremities, of all power of motion and sense of feeling; and it was upon this point, and some others also, that my opinion was requested. Indeed I was to decide, as I found, between three of her physicians who called themselves *Boerhaavians*, and four others who professed themselves strict *Brownians*, as to the expediency of prescribing a cathartic medicine; the former pressing the absolute necessity of such a remedy after five days' constipation, and the latter most foolishly declaring it to be perfectly inadmissible, according to their interpretation of the doctrine of Brown. This being premised, we all accompanied the Kislar Agassi to an adjoining kiosk, in which was the sultana. After exchanging my shoes at the door for a pair of yellow slippers, we entered the royal apartments. On a mattress, in the middle of the floor, was extended a figure covered with a silk quilting, richly embroidered. A female figure veiled was kneeling at the side of her pillows, with her back towards the door of entrance; and the Kislar Agassi beckoned to me to kneel down by her side, and examine the pulse of the sultana. Having complied with this request, I expressed a wish to see her tongue and countenance; but that I was given to understand could not be permitted, as I must obtain that information from the report of the chief physician. The most profound silence was observed in the apartment, the eunuchs and physicians conversing only by signs. The Hazni Vekili

then took me by the arm, and turned me gently round, with my face towards the door of the entrance, over which was a gilded lattice, concealing the emperor, who had placed himself there to witness the visit. Our stay in the room did not exceed fifteen or twenty minutes. The four large windows were shaded externally by gilded lattices, and the intervening pannels were covered with mirrors and arabesque tapestry. The divan, which encircled the chamber, was veiled with crimson cloth, richly embroidered with gold, surrounded with cushions of the same description; and the floor was covered with a superb Persian carpet. On our return to the first pavilion, I, of course, coincided with the Boerhaavians, and wrote a prescription to that effect. Indeed, had the been a princess of any other European court, it is probable that a large bleeding would have been decided upon; but, from the ignorance and prejudice of her attendants, I found it impossible to convince them of its necessity; and on considering that the mistakes, real or imaginary, of the Turkish court-physicians, are frequently visited by the bow-string, I had but little inclination to bring the lives of my colleagues into farther jeopardy. The Hekim-Bachi and Hazni Vekili therefore carried my prescription, and interpreted it to the sultan, who, in return, sent back a complimentary message, and a purse containing one hundred and fifty sequins."

In case our readers should feel interested in the fate of the patient, we must add, that the sultana suuk under her illness in the course of a week; but her age was seventy-two; and her son, far from giving way to the barbarous practice of punishing the court-physician, signified to him that the event was evidently in the course of nature, and should make no alteration in the confidence which he enjoyed. This prince, deserving of a better fate, was the unfortunate Selim who lost his life by an insurrection of the Janissaries in 1807.

But at length we have better news to communicate, and such as will be highly gratifying to our readers. For we think that all who interest themselves in the progress of science, and more particularly in that of medicine, cannot but feel pleasure in learning that in Turkey, a part of the world where knowledge has hitherto made the most inconsiderable advancement, where every thing is under the dominion of prejudice, and the most beneficial suggestions are opposed with the most obstinate animosity, the government has lately caused to be composed and printed in the vernacular language, the first work on anatomy and medicine which has been produced by the press at Constantinople. Whether we consider the aversion entertained by the Turks for the most useful knowledge which does not accord with the spirit of the Koran, or which is derived from Christians; or their implicit obedience to the oulèmas, or priests, whose interest and policy have uniformly prompted them as much as possible to enslave and paralyze the national mind; this revolution in the opinions of Mussulmen appears in an equal degree extraordinary.

The only step which the Turks have taken in civilization for the last century has been the adoption of printing, (first introduced at Constantinople so lately as 1726.) but this improvement was fast losing its beneficial effects till the reign of the unfortunate Selim III. just mentioned, who somewhat revived the declining state of dawning literature. But the prejudices and religious scruples against every kind of representation of human figures; the religion which forbids the contact of blood, as a pollution; the law against the opening of bodies; and, lastly, the belief in predestination, which ranks impotence and indifference to the accidents of life among religious virtues; all these, by their combined operation, afforded, till the present time, insurmountable barriers to the progress of anatomy and surgery. From all these obstacles then, the work of which we are about to give an account, cannot fail to excite general attention, and to constitute an epoch in the history of the Ottoman Empire.

This volume, printed at Constantinople in the Turkish language, contains about 300 folio pages; and, what is more particularly worthy of notice, it is accompanied by fifty-six indifferently-engraved plates, in which the human figure, and the various objects of anatomy, are depicted. The greater part of it has been copied by the author, Châni-Zadeh Mehemmed-Ata-Oullah, from foreign productions of a similar nature. According to some communications made to M. Bianchi by a person lately arrived at Paris from Constantinople, this Mussulman must be the son of an old and principal physician of the government, whom his father sent to Italy for the purpose of prosecuting his studies, and who at his return immediately engaged himself in writing on anatomy and surgery.

The principal physician of government, called in the Turkish language *Hekim Basha*, arrives at his dignity after having filled the office of *cadi*, or judge; and is chosen from the religious or judicial officers. It is only when he has arrived at the end of his career, and at the rank to which all his colleagues may aspire, that he is nominated as the chief physician of the empire, without having undergone any medical education which could entitle him to the office. He has, therefore, at the same time to fulfil the duties of his other employment, and to direct his attention to the study of medicine and surgery, a circumstance which will enable us to judge of his necessarily-limited acquaintance with the knowledge required for the exercise of his new profession; though he is ex-officio at the head of the medical department in the empire; as the physicians, surgeons, and druggists, subject to the Grand Signior, are nominated by the principal physician of government, a source from which he derives a considerable revenue.

M. Bianchi observes that, notwithstanding the prejudices, or rather the superstitious respect, of the nation for ancient customs, many individuals are to be found among the public officers, who have a sufficient degree of intelligence to induce them to countenance improvements calculated for the general good. He was more particularly led to make this remark, at the time of the plague in the year 1811-12, when he was commissioned by the French consul to translate into Turkish the instructions contained in the work of Guyton-Morveau, on the means of destroying the infectious properties of air by the aid of chlorine. The translation was put into the hands of the governor of Smyrna, and was received with equal pleasure and gratitude. The method was not only at once adopted by him, both as an antidote against infection, and a means of purifying contaminated apartments and goods, but he also ordered its adoption by all the members of his family, at that time engaged in the principal administrations of Smyrna, as well as by the Greek and Armenian communities of the same city. However satisfactory and beneficial the plan may be, it is at present highly probable, that the tragical death of the governor, which took place in 1817, by order of the Grand Signior, and the disgrace of all his family, will plunge into oblivion not only the plan itself, but also the salutary effects by which it was followed; a result which is inevitable in a nation, among whom instruction and information are not general, and men, disposed to protect the interests of science, have only an ephemeral existence.

It is very much to be wished, that this first appearance of a taste for medicine and surgery, by becoming more general in the East, may produce physicians in that part of the world, who would be better calculated than the present race, to assume the guardianship of the public health; for, with the exception of some foreigners at Constantinople, and the other towns of the Levant, who acquit themselves with reputation in their profession, the whole empire is infested with a mob of charlatans and adventurers, who are constantly committing devastations on mankind by the exercise of a profession, of the first elements even of which they know nothing.

The work of Châni-Zadeh, in the opinion of M. Bianchi, is written in a style which is clear, concise, and elevated: most of the technical expressions have been borrowed from the Arabic, though sometimes, and especially in the anatomical description, the author has retained the Greek or Latin word employed in the original source from whence he derived his information.

The following extracts, which M. Bianchi has translated from the text of the author's first preface, contain some interesting details on the arrangement of the book, the nature of its contents, and the motives which induced the sultan Mahmoud to permit its publication by an express edict. The author of this notice believes that the work of which he has given the outline may be of utility to those who have an idea of practising medicine or surgery in any part of the Levant. The singularity of the Oriental expression, and the rhodomontade style of the following extract, will perhaps render its perusal not uninteresting, more particularly as the production is of very recent date; we are, therefore, induced to give it in its entire state, as a curiosity in medical literature.

"Medicine and anatomy are elementary sciences, and the objects of general study. They fall within the cognizance of philosophers, literati, and the ministers of religion. Not only learned men and people of sound judgment acknowledge that the aim of these sciences is the discovery of truth, but from the remotest antiquity they have always been considered, by the highest authorities, as constituting a branch of valuable and honourable knowledge. The advantages which result from their cultivation are not confined to the human race, but, from the united testimony of the learned, their beneficent influence embraces all animated nature. The benefits of modern medicine are most obvious; and anatomy, founded on accuracy and attention, has arrived at such a degree of perfection, that every thing which now concerns the treatment of internal maladies, the dressing of wounds and ulcers, and the cure of infirmities, is, by an admirable disposition derived from the rules of art, divested of doubt and exempt from danger.

"In conformity to these considerations, Khamsei Chani-Zadeh has deposited at the foot of the supreme throne the three following books, bound into one volume.

"The excellent Judge, he who is the regulator of the laws of the state, the Plato of the Empire and of the Khalifat, the sovereign to whom fate has revealed science and wisdom, the Sultan of Sultans, endowed with the wisdom of Solomon, the monarch whose glory recalls the time of Cosroes, the King of Kings, invested with the power of the age of Djemchid, the Sultan, the Son of a Sultan, the intrepid Sultan Mahmoud; Khan, the son of the glorious Sultan Abdul-Hamid-Khan, (may the sun of his power never cease to illuminate the course of his victories and glorious enterprises!) his Majesty our Lord, having at length condescended, during many days, to examine and to make profound observations, with justice and discernment, on all the truths of the above-mentioned book, acknowledged that, independently of the great benefit which would be derived from it to the Ottoman empire (the duration of which is eternal), and also to Mussulmen, it had never yet been preceded by any work, the advantage of which could be at all compared with it; and that, as such, it was worthy of being considered among the precious and innumerable productions which have rendered his fortunate reign illustrious. His majesty, from all these considerations of general good, attached the greatest importance to the circumstance of the printing and publication of the work under his supreme auspices. This determination came opportunely to justify the precept, 'That Kings are inspired.'

"The figures necessary for the work having been arranged and corrected by the author, who procured an edict marked with the signs of wisdom and happiness, from the execution of which the work was to be printed

at the imperial press; from this instant, the old and well-attached servant of the sultan, he who was brought up in purity and sincerity, and under the shadow of the phoenix protector of his highness, one of the guards of the archives, and prefect of the imperial press, Effend Abdul Rahim, after having recited the Bismillah, ('*Bismillah errahmân errahîm*; In the name of the merciful and compassionate God,') immediately commenced the work. But what was purely the result of the miraculous power of his majesty is, that, without the necessity of having recourse to foreign means, by the assistance of Allah, and by uniting the numerous artificers to be found in Constantinople, the necessary figures were engraved on fifty-six plates of copper. On the other hand, the daily corrections of the author caused the printing of the work to be soon terminated. At length, thanks to God, who knows all things, in the month of April, 1820, the book was entirely completed and delivered to the binder. It must be acknowledged that, from the useful facts it contains, the other productions which have rendered the reign of his majesty illustrious cannot be compared to it. Doubtless it has procured for his majesty's slave, the author, under the shadow of his majesty's power, the numerous rewards with which his highness has condescended to honour him.

"May the Deity, whose power is infinite, be, till the day of the last judgment, the support of our lord and master the Emperor of Mussulmen; and may he, for their benefit, perpetuate our sovereign's power, and prolong his precious life. Such are the wishes which I form in honour of the Prince of Prophets."

Immediately after this unique preface, a table of the contents of the three volumes is given. This table is followed by a second preface, consisting of little else than a repetition of what had already been said by the author. We are there informed that the production had been before presented to the sultan Mahmoud in the year 1815-16, under the title of the "Mirror of the Objects in Human Anatomy." The author concludes by observing, that, among the causes which have contributed to the publication of the work, may be enumerated the reproach, made by many persons, of ignorance in the physicians of the empire with regard to the new doctrines in anatomy and medicine.

As to the works of the ancients on medicine, and particularly of the Arabians, they are perfectly known to the Turks, since they are to be found in all the public libraries. Toderini, in his time, reckoned more than a hundred volumes in the library of St. Sophia, independently of the works of Avicenna and Averoes. They have translated the works of Hippocrates, Andromachus, Rufus, Galen, Dioscorides, and the most celebrated masters of Greece. The works of European physicians are also not unknown to them; for, in the library of Raguib, pacha at Constantinople, there is a translation of the works of Sydenham; and it is well known that, under Mustapha III. the friend and protector of Ottoman literature, a translation of the Aphorisms of Boerhaave was produced; but, till the present time, no work on medicine or surgery had been printed.

The first volume of Châni-Zadeh's book contains all that relates to *anatomy*, and the explanation of the fifty-six plates, which, as well as all that he has written, appear to have been taken, in part, from the Italian translations of the works of Bertin and Palfin. The second volume is on the corporeal and intellectual faculties of man, or *physiology*. The third is on the nature of diseases and the employment of remedies, constituting *nosology* and *therapeutics*. This is preceded by two prefaces and an introduction: the first preface contains only a series of quotations from the Koran on the utility of medicine, eulogiums on the sovereign, and apologies of the author for the errors which may have insinuated themselves into his production.

It is principally with the view of assisting those who are studying

studying medicine, that the author, Châni-Zadeh, resolved to compose his work on the rules of science, the benefit of which he considers infinite. He therefore particularly recommends the repeated perusal of it, in the order in which the articles occur, as the best means of avoiding error and forgetfulness. As the doses of medicines have been determined from the period of infancy to that of manhood, he notices the necessity, in their administration, of considering the age, sex, and strength, of the patient, as well as the nature of the climate. It is useless, he thinks, to collect a great variety of remedies for the same disease, in order to indulge the caprices of patients; for most of the complicated preparations are to be found in "The Provincial" and other treatises on *Materia Medica*. At the end of the work there is a list of various applications, with a reference to all those complaints for which they are necessary. Independently of medical men, the author solicits the attention of those persons who may peruse his work, to dedicate the same proportional attention to the several articles as he devoted to their composition. As the work is intended equally for those out of the medical profession, its technical abbreviations may be passed over when they are not intelligible; but, in general, only simple phrases have been employed in subjects relating to general utility. The author disclaims the presumptuous thought, that the advantages of his book will extend to the whole world; though he, at the same time, flatters himself that it will be useful to some individuals. For admitting, says he, that a physician in possession of the work had no other merit than that of understanding it, he would not be capable of doing so much good as an accomplished medical man. The latter would always be superior to him, from his practical knowledge; but, on the other hand, practice alone is inadequate to constitute a learned professional character; whatever may have been his disposition or opportunities, a profound study of books will be equally necessary. Of these assertions, he considers that the present work furnishes numerous satisfactory proofs. In all instances he desires, as the recompense of his labour, not only the glory of having served his country, but also the satisfactory conviction of his having contributed, by his unremitting efforts, to the benefit of mankind.

After the second preface comes the author's Introduction to Therapeutics, the arrangement of which partakes of that of other works on the same subject: the third and last book concludes with a *Pharmacopœia* in Arabic and Turkish, containing 319 formula, applicable to all sorts of diseases.

Abridgment of the General Table of Contents.—Book I. Anatomy. Part 1. Osteology; Part 2. Myology; Part 3. Splanchnology; Part 4. Angiology and Neurology.

Book II. Physiology; comprehending Natural Faculties, divided into 22 articles.—Corporeal Faculties, in 21 articles.—Of Instinct, or the Animal Faculty, 13 articles.—Of Diseases in general.—Of the Nature of Diseases.—The Analogy of Diseases, divided into 8 articles.—On Aversions produced by different Causes.—On the Signs or Characters of Diseases.

Book III. Nosology and Therapeutics; comprehending 208 folio pages, and 55 articles, on separate Diseases.

Vaccination is treated of, as M. Bianchi says, in an interesting manner, considering that the author is a Mussulman. He dwells particularly on the importance of the discovery, and insists on its advantages over inoculation, which had been long known among the Arabians. He says, on this occasion, that small-pox, though before unknown, penetrated into Turkey at the conquest of Egypt by Selim I. The history of vaccination is given from the work of Dr. Caran (De Caro), a German physician, who, according to M. Bianchi, first introduced vaccination into the East. The author notices also the experiments made in vaccination, in the year 1800, at the palace of lord Elgin, at that time the British ambassador at Constantinople, as well as those instituted at Vienna,

in the presence of the emperor of Austria, and the encouragements afforded by this sovereign, who caused his own children to be vaccinated. He quotes entire passages from the different treatises on vaccination by Drs. Ranque, Laurens, Maudine, and Guillotin: he more particularly recommends the work of the latter to those who are willing to be convinced of the benefits of vaccination. The subject is terminated with a conclusion, which is entirely original, on the mode of performing vaccination, and what is necessary in the operation, of which the principal periods and complications are described. The vaccine lymph is observed not to be always peculiar to cows, and to be portable. He also informs us, that which was first obtained at Constantinople came from America, England, and other countries; but that it is also to be procured in the village of Aiaz Aga, in the neighbourhood of Kiadkhaneh, in the environs of Constantinople; and that from the last source many thousand persons have been vaccinated.

M. Bianchi informs us, that there have long existed, at Constantinople, hospitals for sick Mussulmen, which are called by the Turks *Tab'-y-Khaneh*. The greater number of the imperial mosques have such establishments annexed to them, but the most considerable are those of the sultan Bayezid Selim and sultan Suleyman. The following temples have also institutions of the same nature; viz. Khaffeki Djamy, Tschinili Djamy, Mihmahfultane, Djami, and Kilidj-Aly-Pacha Djami; as well as the Selimie, at Scutari. There are also asylums where patients, reclining on sofas, are dieted in a careful manner, as in hospitals properly so called; but the assistance of medicine is entirely neglected. From the word *New Idjad*, or New Creation, M. Bianchi was led to suppose that the author, Châni-Zadeh, alluded to establishments founded by the late sultan: but, as Bianchi himself had witnessed the dilapidated condition of all the hospitals, after the death of the above sovereign, and as he quitted the Levant in the year 1815, he thought proper to procure the most recent information as to the state of them. He was accordingly favoured with a communication from Dr. Maugin, physician of the French hospital at Pera, in the suburbs of Constantinople, which is chiefly devoted to the habitations of Europeans. As it contains many satisfactory details of the actual state of the charitable institutions of Constantinople, we shall insert the greater part of it.

"Sir; I send you the information which you requested on the state of the hospitals and druggists' shops of Constantinople, at the time of my departure; as well as of every thing which concerns the progress of medical science among Mussulmen.

"In the reign of the sultan Selim, two schools were instituted at the Arsenal, one for the instruction of pupils in mathematics and nautical science, another for the teaching of medicine and surgery. The first of them was under the direction of M. Brun, a French engineer; the second under that of M. Gripili, who is of Greek descent. Both these institutions flourished as long as the sultan reigned, and while his meritorious favourite, the pacha Hussein, lived; but the death of this admiral, and the dethronement of the sultan, have involved in oblivion both the noble establishments.

"Barracks were also constructed at the same time at Scutari, in the faubourg of Pera; those of the arsenal and of Topkhana were restored, and another was erected at Levent-Tchiftlik; so that each was provided with its hospital. They were all well furnished, but particularly those of Scutari and Levent-Tchiftlik; there being an European physician, and a shop for medicines, at each of them. At present no traces of such places are to be seen: the barracks and hospitals have been burnt, from the spirit of insubordination on the part of the Janissaries, at the time of the revolution of Mustapha Baraiktar, in November 1808.

"The hospitals of the Arsenal, of Topkhana, and the faubourg of Pera, are now nothing more than chambers of

of barracks, where the soldier who is ill expires of the plague, or any other complaint, unless nature is successful in the contest. There are two or three quackish practitioners, almost dying of hunger, to whom the *Miri*, or public treasury, allows forty or fifty piastres per month, (25 or 30s.) in order that it may be said that there are titled physicians at the places. They go much less with the view of treating their patients' diseases, than with that of treating themselves with wine and brandy, which they invariably prescribe for every disorder.

"When the Turkish fleet is put into commission, the disorder is somewhat less; but there is a considerable increase of expense, particularly for the medicine-chests, which the physician causes to be prepared at some druggist's shop in Constantinople. On this occasion, it is a matter of speculation between the two parties, who have a perfect understanding with each other, and charge a great price for an inconsiderable number of medicines. But custom demands that each vessel should be provided with its medicine-chest, and much economy could not with propriety be instituted in such instances. But to what utility can all this tend, either on land, or at sea, when well-qualified medical men are adequately recompensed for their attendance on the sick on-board the admiral's ship alone?

"At Constantinople there are at present only hospitals for the reception of those affected with the plague, and for patients suffering either under external or internal diseases which are not of a contagious nature. The French government has two: one at Galata, for complaints of an ordinary kind; the other in the faubourg of Pera, for such of their unfortunate countrymen as are attacked by pestilential diseases. The Greeks have three great hospitals, of which two are devoted to the plague. The Latins have, in the faubourg of Pera, but a single hospital, which is destined equally for the relief of those suffering with the plague and with other diseases. There are all the hospitals which now exist at Constantinople: it must be acknowledged that, while such establishments do honour to humanity, the individuals entrusted with the direction of those for the plague are accustomed to engage in speculations, no less barbarous than insolent, on what each patient is likely to leave them: for it is a well-known fact, that they regard themselves as the universal legatees of all the unfortunate objects that are brought there, and that the death of the patients is the more certain if they are so unlucky as to possess any money or jewels. In addition to such villainy, they have the audacity to send for sale, at the bazars of Galata and Constantinople, the spoils of their ill-fated victims.

"No druggist's shop in Constantinople is directed by a Turk: most of them belong to Greeks, a few to Armenians, and some to Europeans. As this profession requires previous study, the Turks, who have no academies nor faculties of medicine, and who never travel to gain information, feel their incompetency to undertake the superintendance of such establishments.

"It was in the month of June 1820, that I quitted Constantinople; and since saw with much pleasure, and a lively interest, the work which you showed me. The great progress just made by the Turks, in the publication of this production, by order of the sultan Mahmoud himself, at once proves that the sovereign prefers discountenancing the prevailing prejudices, and that he is in possession of sufficient power to silence fanaticism, which would not have failed to advance loud remonstrances against the impiety of representing human figures: but such complaints might have been answered by the assurance that the plates were not executed with trifling or futile views.

"If reason should ever gain the ascendancy among these people, the sultan will establish hospitals, and cause lazarettos to be constructed at Proti, an island opposite the capital, in order to arrest, at the port of Constantinople, the scourge which annually decimates the Ottoman empire. Vol. XIX. No. 1288.

I have the honour to be, &c. MAUGIN.—Paris, April 1821."

GENERAL PATHOLOGY.

IN the present philosophic age, it appears needless to discuss the propriety and necessity of being guided by reason in our pathological investigations. Very few professional gentlemen will now be found strictly empirical; and those few are among the least honoured and least deserving in our profession. There is something in the human mind so prone to enquire into the cause why, and the reason wherefore, that the veriest empiric in the practice of physic will never be contented with attaching himself to facts, as he professes, without regard to inferential reasoning. There is something so gratifying to one's love of science, something which so evidently leads to better information, even in the vaguest explanation of natural phenomena, that we cannot be surpris'd that it has been attempted in all ages.

Yet, in the course of our history of medicine, we have had frequent occasion to show how fatal has been the result of too much theory. Independently, however, of the circumstance that what is injurious to the progress of science in its infant state, may cease to become so when it is more advanced, we have found hitherto no system of medicine which has sufficiently accounted for all morbid phenomena, or in which many huge gaps and deficiencies have not been filled up by gratuitous assertions.

In the infant state of medicine there can be no doubt that theory often exerted a most decided influence on that science. But the paucity of facts, the data whence the theories of the ancients were framed, were the cause of their frequent errors. They were like labourers attempting to build a lofty palace with a few stones. In our own time, however, we have so far advanced in the accumulation of facts, that, though much remains to be done, we are compelled in some measure to generalize and systematize our knowledge, which else would become too burthensome for memory. To follow up our simile, we may be said in our own time to be in possession of materials sufficient for building a stable edifice; and hence we may now look forward to the establishment of a system which, to use the arrogant expressions of Darwin "may not moulder, like the structures already erected, into the sand of which they were composed, but which may stand unimpaired like the Newtonian Philosophy, a rock amid the waste of ages."

We shall not pause here to enquire into the utility of systems of medicine. Our periodical medical publications have lately raised much uproar against systems. It must be obvious to every one, however, that a series of dry insulated facts, or of reasonings applicable only to a limited number of phenomena, can never be sufficiently remembered, or indeed perfectly known. Provided, therefore, we wander not into the mazes of hypothesis, provided our analogies are not forced, or our classifications likely to lead to erroneous methods of practice, it must be allowed that we are advancing our knowledge, clearing away many erroneous notions, and reconciling many contradictory opinions, by taking general and extended views of disease. See vol. xvii. p. 245.

We have said that the knowledge of the structure and functions of man should precede the study of pathology. Of the animal structure we have given an ample account in the first volume of our work, under the article ANATOMY; of the second we propose to treat under the article PHYSIOLOGY. In the mean time, the more clearly to develop the opinions we have adopted, it will be necessary to give a short sketch of the economy of man, and of the most prominent systems and most important structures which belong to his organization, the better to understand in what disease a deviation from this state consists.

In the organization of man, then, the first system to be considered

considered is the *nervous*. It consists of the cranial brain, the spinal marrow, nerves, and ganglia. By means of this system, all mental emotions are communicated to the other parts of the animal frame, and, through its medium, all external impressions are communicated to the mind. We observe likewise a *fibrous* structure of different kinds in various parts; as muscular, osseous, &c. the most general and important of which are the *muscular* ones. To these is added a fundamental *cellular* structure, which appears to connect all parts of the other systems together; and which has various appearances in regard to diversity of substance, and indeed in regard to the secretions derived from it. The union of these three systems takes place in various modes: in some cases in tubes, or on membranes, &c. &c. and the more remarkable of these unions may be aptly divided into the digestive, respiratory, sanguiferous, fecerent, and absorbent, systems; and this physiological division we have taken as the basis of our arrangement, which agrees with the excellent one lately made by Dr. GOOD, in his *Physiological System of Nosology*.

Many objections have been made however to all the present arrangements; the most important of which is, that, by allowing the attention of the medical practitioner to be exclusively directed to one system or to one organ, it prevents that due attention being paid to morbid catenations, which the practice of physic imperiously demands. There is nothing, however, in the nature of nosology which renders this error a venial one. It must be allowed that morbid impressions are generally primarily made on one particular tissue or organ; and it must be allowed too, that a system which is secondarily affected, often suffers the most severely; or that the system secondarily affected may be the most important to life, and hence our attention should be chiefly directed towards it. We will however venture to assert, that whoever has assiduously studied the structure of parts and their physiology, cannot fall into the error of confining his attention to one part of the animal economy to the exclusion of the rest.

To render this more plain, we shall proceed with some further account of the action of the different systems above mentioned upon each other. If the animal frame were so constructed that no intestinal motion was necessary for the continuance of its external actions, we could readily suppose it possible that the nerves would be unaffected by any change in the muscular system, and the latter might produce its functions without any impression from the former. But, when we see, that the cerebral functions can only be continued while blood, possessing certain properties and component parts, circulates according to given laws through its substance; and when we consider that the muscular system can be called into action only by the nervous system, either directly by means of nerves, or indirectly by fluids, deriving some of their properties from the nerves; then we cannot fail to have the most certain conviction of the action of the one on the other.

It is extremely difficult to know at what part to begin first, when speaking of actions which are thus always dependent one on the other, and which are always in a circle. We take, however, the heart; and, supposing it of a fibrous fundamental structure, and supplied with blood and nerves, we proceed to consider its action. A cavity of the heart called the left ventricle, having received a certain supply of blood, propels it by contraction into the aorta, and from it into the smaller arterial branches. These branches further assist the motion of the blood by contracting their circumference, the power of contraction being in an inverse ratio to the diameter of the tubes. The terminations of arteries are further assisted in propelling the blood by the property of capillary attraction; *veins* restore the fluid to the heart in a direct stream, altered however in its properties; for vessels called *fecerents* have, by means of an affinity existing between their coats and certain parts of blood, removed some parts of that fluid; and other vessels, called *absorbents*, have re-

stored a portion of other component parts previously secreted from the blood, or received from without. The most obvious change undergone during this circulation is a change in the colour of the blood; this however is restored by second circulation produced by the other cavities of the heart, and is called the *pulmonary* process. In this circulation the blood appears to be indirectly applied to atmospheric air, and hence to acquire a principle which restores its colour. But this process is under the immediate influence of the nervous system, and is discontinued when the action of that system is suspended. After this process has taken place, the blood is restored in its pristine state to the heart. The changes which secretion and absorption effect in the blood are of course deprivation of its elements on the one hand, and reproduction on the other. *Secretion* has been defined "a process which separates from the blood substances which are not found in that fluid." This proposition, as it stands, is so absurd, that we shall take no pains to confute it. Secretion is better explained by supposing that it deprives the blood of certain of its elements, and combines them in a manner different from that in which they previously existed in that fluid; and further, that our chemical analysis is not sufficiently accurate to detect the elements (strictly speaking) of this re-composition.

The number of the various secretions is too great to be here detailed. Some of them are re-absorbed, and some pass from the body by various outlets. Previous to these circumstances, however, their progress is retarded, and their nature changed, by substances called *glands*. The *absorbents* receive these secretions from the whole fundamental or cellular structure; they receive the fluid previously secreted from the blood; they further receive from certain expansions of the fundamental or cellular structure extraneous bodies. These are, the skin, the lining of the pulmonary air-cavities, and the alimentary canal. The absorption from the skin is in general probably small; though, when internal absorption is deficient, cutaneous absorption is no doubt increased. Of the pulmonary cavities the foreign matter absorbed is derived from the air. The nature of this absorbed matter is not precisely known: It is indispensably necessary, however, to the performance of life. But, the greatest portion of extraneous matter is absorbed from the alimentary canal. The whole of this canal is perhaps an absorbing as well as secreting surface; a peculiar portion of it is however much more active than the rest; and this portion is placed so far down, that the foreign bodies received have had time to suffer the changes induced by the secretions poured into the canal, and thereby to have its nutritive part separated from that excrementitious mass. The great extent of this expansion, its numerous secretions, the close relation it holds with the nervous, its intimate relation with the vascular, system, and by their means indirectly with every part of the body, render it perhaps the most frequent medium of general disturbance in the human frame; and hence it may with great propriety be considered in the first part of our pathological disquisitions.

The view we have taken of the human frame clearly indicates the impossibility of ever forming a nosology in the old and restricted use of the term; that is, an arrangement of diseases founded on the assumption that an individual part or a separate structure can be disordered without involving the reciprocal action of various other parts. When the physician, therefore, finds fever arranged under the class *Hæmatica*, he is not to suppose that we are disinclined to admit the important part which the nervous system has in this disease; and so on of many other orders, genera, and species.

In this place we must recur to our article *NOSOLOGY*, in order to offer some apology to our readers for neglecting to redeem our promise of using Cullen's system. We trust this promise will be deemed better "honoured in the breach than in the observance," when it is considered, that many errors had been complained of in Cullen's arrangement,

arrangement, even from its first publication; and that, since that period, physiology and pathology have made so much progress, that they may literally be said to be revolutionized. Nor is the system we have adopted to be considered as a crude speculation, unmaturing by experience, or unfashioned by general assent. It is founded on the clearest and most comprehensive views of the animal economy; and its projector was entirely free from that fatal error of most new system-makers, that of despising the labours of his predecessors in the same path. On the contrary, he has availed himself of all that had been done before him by Sauvages, Pinel, Linnæus, Cullen, Vogel, and many others; and has added the information which long study and experience had furnished him with. A stronger reason than all these, which has induced us to employ Dr. Good's nosology, is its classical and correct nomenclature. Our medical technicology abounds in the most barbarous and absurd appellations; which, so far from having any meaning, or affording any account of the nature or appearance of disease, often serves only to perpetuate some ancient and ridiculous notion. Often derived from the oriental languages, half latinized, they have been long censured by classical physicians; and some alterations have accordingly been made from time to time. But it was reserved for Dr. Good entirely to alter the medical nomenclature, and at once to simplify and adorn a very dry and uninviting subject. We may further remark, that Dr. Good's work is patronized by the heads of the medical profession in England.

We shall now give an outline of the different systems, or classifications, of diseases, which have successively prevailed; and the few remarks we shall make as we go on, will, we think, furnish additional reasons for the course we mean to adopt, of forming the great body of our article upon the system of Dr. Good.

Dr. Good himself very judiciously observes, that no art or science can be acquired, for none can be clearly treated or communicated, without arrangement. All nosological works, therefore, possessing any value, have an arrangement, or method as it is called, of some kind or other.

The simplest arrangement, if it be in any way worthy of the name, is the *alphabetic*, of which, in the present day, we have many copious examples, highly valuable as works of easy reference, though scarcely entitled to rank under the character of systematic arrangement. To this classification belongs the very excellent and important work of Dr. Heberden.—Another modification which has been had recourse to, is that of the *duration of diseases*, as divided into acute and chronic; it is a modification of considerable antiquity, and has descended to us in the works of Aretæus, and of Cælius Aurelianus.—A third modification has consisted in taking the *anatomy* of the animal frame as a ground-work for divisions; and consequently in assorting diseases, as has been done by Jonston, Sennertus, and Morgagni, (and since recommended by Dr. Mead in his Medical Precepts and Cautions,) into those of the head, chest, belly, limbs, and almost every other part.—A fourth invention has fixed upon the supposed *causes* of diseases as a basis of distribution; and to this has been applied the epithet *etiological*, from the Greek term *αιτια*, a cause; it has acquired more popularity than any of the preceding, and was especially embraced by the schools of Boerhaave, Riverius, and Hoffman.—Sometimes a mixed modification has been attempted, as in the nosology of Dr. Macbride, who takes *extent* for his first two general divisions of diseases, as being universal or local; *sex* for his third; and the age of *infancy* for his fourth and last.—And sometimes, and far more generally of late years, the nosological system has been built upon the *distinctive symptoms* of diseases; the peculiar marks by which they identify themselves, and, so to speak, become individualized: and such is the principle adopted by Sauvages, Linnæus, Cullen, and all the most celebrated nosologists of recent times.

This last is, in effect, the only method in any degree worthy of attention; for it is the only one that will generally hold true to itself, or on which we can place any dependence. Of the feat of diseases we often know but very little; of their causes far oftener still less; but there are certain marks or characters in the usual progress of most diseases which uniformly accompany and distinguish them, and to which, therefore, the epithet *pathognomic* has been correctly applied. It is not, indeed, to be contended that these distinctive signs are as constant and determinate as many of the distinctive signs that occur in zoology or botany. So complicated is the animal machinery, so perpetually alterable and altered by habit, climate, idiosyncrasy, and the many accidental circumstances by which life is diversified, that the general rule must admit of a variety of exceptions; and is here, perhaps, rather than any-where else, best established by such exceptions. Yet, after all, every distinct disease, occur where it may, and under what peculiarity of constitution it may, proves so generally true to its own course, and is so generally attended by its own train of symptoms, or "co-incidents," (which is the literal rendering of *symptoms*;) that he who steadily attends to these will not often be greatly deceived; "and if he should be," (says Dr. Good,) he can find no other guide to set him right."

Plater may be regarded as the morning-star that first glimmered in the hemisphere of symptomatology, as Serretus was in that of the circulation of the blood. The light of both was feeble and tremulous; but it twinkled in the midst of darkness, and led on to the brightness of day. His work, entitled *Praxis Medica*, in which he gives an imperfect sketch of a symptomatic plan of nosology, was published in 1602. Sydenham, if he did not avail himself of it, was actuated by the same quickening spirit; for his various treatises and epistles, published for the most part miscellaneously, are a practical comment upon Plater's principle, and seem chiefly to have stirred up the well-stored and comprehensive mind of Sauvages, who was peculiarly attached to Sydenham's opinions and practice, whom he is continually praising, and whom he distinguishes by the name of "Anglus Hippocrates," to that full illustration of the symptomatic method which has since appeared upon the subject.

Sauvages first published the outlines of his plan in 1731, in a duodecimo volume, under the title of "Nouvelles Classes de Maladies," after having submitted his intention to the judgment of Boerhaave. This precursory sketch descended no lower than to the division of genera; but, having been encouraged to persevere, he laboured on the species, and introduced them in their proper succession into a new and more extensive edition of his work, published in 1763, in five volumes octavo; and, continuing his exertions yet further in the same vineyard, he put his finishing hand to the great task he had undertaken by preparing a still more complete and final edition, which he did not live to publish, but which was given to the world shortly after his death, in 1768, in two large volumes quarto.

The "Nosologia Methodica," for such is the title of M. de Sauvages's work, is, indeed, an Herculean labour. It consists, in its latest and most perfect form, of three distinct arrangements, a symptomatic, an etiological, and an anatomical, so as to accommodate itself to the taste of the old school as well as of the new. The symptomatic, to which the others are professedly subordinate, is by far the most extensively elucidated; and comprises ten classes, (each introduced by an elaborate pathological synopsis,) upwards of forty orders, more than three hundred genera, and an almost innumerable host of species. "Quel nombre prodigieux d'ennemis!" exclaims M. de Ratte, alluding to this vast muster, in his eulogy on the author, delivered before the Royal Society of Sciences in Montpellier; or rather allu-

ding

ding to the somewhat smaller number of the preceding edition, for the last was not then published. We have yet, however, to add the varieties, which under several species are not few; and to bear in mind, that to every variety, species, and genus, as far as their relative characters will allow, is allotted a definition, list of synonyms, history, diagnosis, prognosis, and mode of cure; with, frequently, an exemplification of cases, and a brief statement of the peculiar opinions of other writers, before we can fairly appreciate the entire mass of matter with which the volumes of M. de Sauvages abound. He seems, indeed, to have been desirous of collecting materials of every kind and quality from every quarter to which a market was open; and of following up every deviation from health into all its possible as well as its actual shades and ramifications, so that no man might have to add a syllable to his work after him. It is not very surprising, therefore, that a work thus constituted and conducted should be considerably too diffuse. This is its leading error; yet it is not a venial one, and was by no means destitute of advantage at the time of its commission; for the very amplitude the work evinces rendered it, when first completed, a sort of nosological bazar, to which every one might have recourse who was in pursuit of this new branch of study; and where he might accommodate himself with whatever articles he stood in need of.

To the time of Cullen the general outline or classific arrangement of Sauvages was left without much disturbance; for, although the order of succession was changed, and changed differently in every new attempt, the names, in a few instances diversified, and occasionally some addition made to the number, still the ten Sauvagesian classes were substantially retained and adhered to. These classes are as follow:

I. <i>Vitia</i> , Cutaneous Diseases.	VI. <i>Debilitates</i> , Debilities.
II. <i>Febres</i> , Fevers.	VII. <i>Dolores</i> , Local Pains.
III. <i>Phlegmasiæ</i> , Inflammatory Fevers.	VIII. <i>Vesania</i> , Defects of Judgment.
IV. <i>Spasmi</i> , Convulsive Diseases.	IX. <i>Fluxus</i> , Fluxes.
V. <i>Anhelationes</i> , Difficult Respiration.	X. <i>Cachexiæ</i> , General Debility.

The ten classes comprise forty-four orders, three hundred and fifteen genera, and about two thousand five hundred species; being rather more than an average of eight to each genus.

In *Linnæus*, while the above classes remain substantially the same, their order of succession is varied, the names considerably altered, apparently from a preference of Latin to Greek terms, (as in the use of *MENTALES* for *Vesaniæ*, *MOTORII* for *Spasmi*, and *DEFORMES* for *Cachexiæ*;) and the list of classes is increased to eleven, by advancing the *Exanthematicæ* of Sauvages, which in him occurs as an order of *PHLEGMASIÆ*, to the rank of a distinct class; while the class *VITIA*, with which Sauvages opens, is by *Linnæus* thrust to the end of the series; which at length will appear as follows:

<i>Exanthematici</i> , Eruptions.	<i>Motorii</i> , Involuntary Motions.
<i>Critici</i> , Common Fevers.	<i>Suppressorii</i> , Obstructions.
<i>Phlogistici</i> , Inflammatory Fevers.	<i>Evacuatorii</i> , Evacuations.
<i>Dolores</i> , Painful Diseases.	<i>Deformes</i> , Changes in the Solids.
<i>Mentales</i> , Loss of Judgment.	<i>Vitia</i> , Changes in the Surface.
<i>Quictales</i> , Loss of Motion.	

The Sauvagesian genera are not much interfered with in respect to number. Upon the whole they are rather extended, and amount to 326. The generic names, however, are occasionally altered, and the definitions, which are formed by an almost constant reference from one genus to another, are necessarily drawn up in very different terms, in order to quadrate with such a change.

Some degree of abbreviation is unquestionably hereby produced, which is always desirable when accompanied with perspicuity. But there are few cases in which the author has not preferred the definitions of Sauvages, though frequently too diffuse; for the perpetual aim at brevity in *Linnæus* leaves him too general where he has not occasion to refer to other diseases, and too perplexed and intricate where he has.

The great object of *Vogel* was to supply what he conceived to be omissions on the part of Sauvages: and hence he gives a number of not less than 560 genera, being nearly double the number of his great prototype. But, to accomplish this, he has been compelled to elevate to the rank of genera a great multitude of affections which ought only to be contemplated as species, many of which are merely symptomatic of other diseases, and not a few, as *Rifus*, *Fletus*, *Suspirium*, *Clamor*, (some of them, indeed, derived from *Linnæus*;) which have no claim to be regarded as diseases at all. In his classific arrangement, while he takes Sauvages for his guide, he changes the line of succession as considerably as, though in a different manner from, *Linnæus*. He degrades the *Exanthematici* of the latter from a classific post, and introduces them, as well as the *Phlegmasiæ* of Sauvages, as mere orders under his class *FEBRES*. He unites into one class the *Anhelationes* and *Debilitates* of Sauvages under the name of *ADYNAMIÆ*; and, having thus reduced the number of the Sauvagesian classes to nine, he raises them to eleven by the creation of two new classes, which he calls *HYPERCÆSTHESES*, and *DEFORMITATES*; the former, properly enough, separating Sauvages's "morosities of the stomach" from genuine "mental disorders," and the latter including external deformities of a prominent character. We shall enumerate his classes according to his own arrangement in the year 1764, as follows:

<i>Febres</i> , Fevers.	<i>Cachexiæ</i> , General Debility.
<i>Proflavia</i> , Evacuations.	<i>Paranoïa</i> , Aberrations of Mind.
<i>Epiçhestes</i> , Suppressions.	<i>Vitia</i> , Superficial Deformities.
<i>Dolores</i> , Pains.	<i>Deformitates</i> , Solid Deformities.
<i>Spasmi</i> , Spasms.	
<i>Adynamie</i> , Debilities.	
<i>Hyperæstheses</i> , Depraved Sensations.	

His definitions are peculiarly concise, but convey too frequently nothing more than general and indistinct ideas: while his new-created terms are peculiarly long and cacophonous, as in the words *Hypospadiæos*, *Dionysificus*, and *Hyperartertiscus*. For his species and varieties, or rather those he has not elevated to a higher rank, he seems, like *Linnæus*, to have depended, for the most part, upon Sauvages.

The system of *Sagar* makes less deviation from that of Sauvages than either of the preceding; and may be regarded rather as an enlargement than a re-modification of it. In various respects, indeed, it alters the series of succession, but it retains the name of every class; though it increases the number from ten to thirteen, by advancing the Sauvagesian orders of *PLAGÆ* and *EXANTHEMATICÆ* to the rank of classes, and by introducing a new class denominated *SUPPRESSIONES*, designed to correspond with a considerable part, though not the whole, of the *Suppressorii* of *Linnæus*, as *Linnæus* intended this last to correspond with a considerable part, though not the whole, of the *Anhelationes* of Sauvages. *Sagar's* Nosology was published in 1776. His classes are—

<i>Vitia</i> , Cutaneous Diseases.	<i>Anhelationes</i> , Defective Respiration.
<i>Plagæ</i> , Wounds.	<i>Debilitates</i> , Debilities.
<i>Cachexiæ</i> , General Disease.	<i>Exanthematica</i> , Eruptions.
<i>Dolores</i> , Pains.	<i>Phlegmasiæ</i> , Inflammations.
<i>Fluxus</i> , Fluxes.	<i>Febres</i> , Fevers.
<i>Suppressiones</i> , Suppressions.	<i>Vesaniæ</i> , Madness.
<i>Spasmi</i> , Spasms.	

Sagar's

Sagar's definitions are mostly taken with little variation from Sauvages; but are rendered intolerably long by confounding Sauvages's generic characters with his generic descriptions, and running the two together: so that, instead of eighteen or twenty words, which is, perhaps, the utmost that ought to be allowed, and more than the Linnæan canons permit in botany, we have sometimes upwards of a hundred, filling an entire page, as in *rubeola*, whose definition, if so it may be called, extends to a hundred and ten lines; and in *aphtha*, which employs a hundred and thirteen. He is less redundant in the number of his genera than Vogel, though he makes a boast of having extended them to 351. It would have been better for him, as Cullen observes, to have boasted of having exercised, in an equal degree, his power of compression. The system of Sagar is rendered more complete than either Vogel's or Linnæus's by being filled up with his species. These, however, are deduced, with occasional alterations, from Sauvages, and exhibit the same verbosity as his genera.

The main object which Cullen proposed to himself, and a more important he could not lay down, was that of brevity and simplicity; and the Sauvagesian classification (for Sagar's was not then before the public) offended in both respects. He determined, therefore, upon changing it, and re-casting the system from its commencement. Instead of ten classes, he conceived that four might suffice, formed, as he proposed to form them, of a caliber capacious enough to swallow up all the rest. He moulded his four classes accordingly, and distinguished them by the names of

<p><i>Pyrexia</i>, Febrile Disorders. <i>Neuroses</i>, Disorders of the Nerves.</p>	<p><i>Cachexia</i>, General Disorder. <i>Locales</i>, Local Diseases.</p>
--	--

Influenced throughout the whole of his reform by the same spirit of simplicity and concentration, he reduced the forty-four orders of Sauvages to twenty, and his three hundred and fifteen genera to one hundred and fifty-one. He next carried his pruning hook into the field of species; some he found to be repetitions of the same disease occurring under different genera, and others mere symptoms of other disorders, instead of distinct or idiopathic affections; all which were steadily lopped off; and, in this manner, the reduction in the species bore an equal proportion to that in the genera. The genera and species that remained were next enlisted into his own service, mostly with the respective names assigned them by Sauvages, though the definitions were generally re-composed, and apparently modelled in consonance with the reformer's own practical observations.

Thus completed and fit for use, the new system was first started in the largest medical school of Europe, its author presiding at the head of it. It is not, therefore, surprising, that it should instantly have rushed into popularity, and become a subject of general approbation. Yet it did not stand in need of this adventitious support to introduce it to public favour. Its aim at simplicity, as well in extent as in arrangement, was noble, and bespoke correct views and a comprehensive mind; it promised a desirable facility to the student, and a chaste finish to the architecture of the nosological temple. The author showed evidently that he had laboured his attempt in no ordinary degree; and many of his definitions discovered a mastery that had never before been exemplified: pictures painted to the life, and of proper dimensions.

To this extent of praise Dr. Cullen is fairly entitled. That his system, nevertheless, has faults, and insurmountable ones, it would be absurd to deny; for they meet us at the very outset, and run through the whole of its texture and constitution. Dr. Good notices the errors and inconveniences of the system under the three following heads: 1. Defective arrangement. 2. Want of discrimination between genera and species. 3. Looseness of distinctive character in the last general division, or class.

We shall have occasion to notice only the first and last of these heads.

Of the four classes adopted by Dr. Cullen, the first two, *Pyrexia* and *Neuroses*, have considerable merit, and this merit is exclusively his own. Each term suggests to the mind at once a peculiar group of diseases, of sufficient range for a leading division, and occupies a province possessing a sort of natural outline, or *arrondissement*, as the French chorographers denominate it; in which, if the boundary occasionally fail or lose itself in the adjoining provinces, it is easily supplied by the hand of art. At times, indeed, it seems difficult, under such a system, not to overstep the natural boundary imported by these terms in their common use, and, like the late ruler of France, to give in many parts a broader and an altogether artificial outline by the invasion of adjoining districts; and, from the paucity of his classes, Dr. Cullen has frequently found himself compelled to such a transgression, and has afforded us a palpable instance of it in the very class with which he commences; for the tribe of Hemorrhages, which forms one of its orders, have no direct catenation with any idea suggested by *pyrexia* in the common use of the term; they require coercion to bring them into a state of union; and, what is still worse, Dr. Cullen, with all the force he could employ, has found himself incapable of coercing more than one half of them; and, consequently, has been obliged to leave the other half behind, or rather to banish them for contumacy to the extreme region of his fourth class. So that in his system they exhibit a wide and lamentable divorce, and afford a striking and perpetual memorial of the tyranny which pervades it in spite of its attractive exterior.

Still, however, the first two classes are substantially good; and have in some shape or other been copied by almost every succeeding nosologist. The third class has also a claim to attention, though the term *CACHEXIA*, by which it is denominated, has been used, and still continues to be used, in senses so extremely different by different writers, that it by no means suggests to the mind a connected group of diseases, with the same readiness as *Pyrexia* or *Neuroses*. As a class, indeed, the division of *Cachexia* occurs in all the preceding writers, with the exception of Linnæus; and so far Dr. Cullen can plead authority; in Linnæus it is reduced to a genus; and in Vogel it is given, with singular imprecision, both as a class and a genus, distinguished by a mere difference of number. Under every writer, however, the term is employed in a various sense; sometimes importing depraved external colour alone; sometimes depraved colour and form; sometimes depraved colour, form, and size; and sometimes, as in Cullen's definition, depraved habit of the whole or a great part of the body, without any notice whatever of the preceding qualities.

But by far the most faulty and incorrigible part of Dr. Cullen's arrangement consists in his last division, or class, *LOCALES*. It has no scientific relation to the preceding classes, no parallel or apposition with them. To have brought it into any such kind of bearing, the whole of the former should have been denominated conjunctively *UNIVERSALES*, as has been done by Dr. Macbride. But this would have destroyed the general casting of the arrangement, and have produced a division which was not wanted, and perhaps does not exist. It must be obvious to the slightest observer, that the sole object of this class is to form an appendix to the three preceding, for the purpose of receiving, like the *Cryptogamia* of the botanical system, such genera as the foregoing classes could not be brought to include. From its name and capacity, however, it is altogether inadequate to its intention; and, while the term stands insulated and without relation to its fellow-terms, its intrinsic and essential idea (that of particular "part or place") creates an insurmountable bar to the reception of a great proportion of the genera which it is directly intended to comprise.

Of these diseases, therefore, Cullen has been obliged

to give a list at the end of his Synopsis, under the title of "Catalogus Morborum a nobis omissorum, quos omississe fortassis non oportebat;" and has thought himself called upon to offer an apology in his Prolegomena. "These omissions," says he, "I confess and regret; but various reasons operated to the omission of some diseases. 1. In the first place it must be acknowledged that several utterly escaped our attention. 2. Next, there are others, sufficiently known, for which a fit place cannot be found in our system. 3. And, lastly, there are others whose history among medical writers is so imperfect, that no fit place or character can be assigned to them."

It is the second of these apologies, which we have printed in Italics, that has determined us in the course we have adopted, of rejecting the system altogether. Time and stricter attention may overcome the evils to which both the others relate. But the utter want of fit places for well-known diseases in a nosological system, and this too, in the opinion of the author of the system, is a defect from which no time or labour can ever relieve it.

Since, therefore, the distinguished reputation of Dr. Cullen was incapable of securing to his nosological system the popularity with which it was at first greeted; we need not wonder if a host of learned rivals, few of whom however have humiliated him by their competitions, should, in different parts of Europe, have endeavoured to offer schemes big with the fair promise of realising the noble object he had in view, and free from the defects he has exhibited. These rival attempts may be summed up in a few words: for such is the difficulty of the subject, that none of them have been eminently successful; while the greater part have dropped from the cradle into the grave.

The chief foreign competitors are Selle, Plouquet, and Pinel.—Selle is rather a monogrammist, to borrow a term from the vocabulary of natural history, than a writer on general nosology. His first attempt was confined to the province of fevers alone, and appeared at Halle in 1770, under the title of "Methodi Febrium naturalis Rudimenta;" and it was only to an enlarged edition of this, published at Berlin in 1786, that he subjoined a specimen of his general classes. They are altogether theoretical; and, as he has not accompanied them with their respective genera, it would be superfluous to copy the classification. The cloudiness that hangs over his division of fevers leaves us without regret that he did not complete his entire scheme. It may be sufficient, perhaps, to observe, that in his "Methodical Pyretology," rheumatism, catarrh, and exanthems, are included under a single genus.

The "Outlines" of Plouquet furnish a system that wanders less into theory; but which is far too complicated, and certainly not without its nebulousity. It was published at Tubingen in 1791, in four volumes octavo, under the following title: "Delineatio Systematis Nosologiæ naturæ accommodati." It is singularly distinguished by the author's fondness for long crabbéd words. He made a far better present to the public a few years afterwards in his "Initia Bibliothecæ Medico-præctica, et Chirurgiæ realis; or Hints towards a Medical and Chirurgical Library," extending to seven volumes quarto, in the order of an alphabetical arrangement.

To Pinel, as to Selle, we are indebted for both a monographic and a general attempt. The first is his well-known "Traité Médico-Philosophique sur l'Aliénation Mentale;" the divisions of which are clear, and the remarks of high practical importance. The present writer will be found to have availed himself, as far as possible, of the advantages which this excellent treatise affords, under the article INSANITY, vol. xi. He has not, however, been able to make the same use of M. Pinel's "Philosophical Nosography." It is too refined for popular use, and too indistinct for practical benefit. The classes are as follow: 1. Fevers. 2. Inflammations. 3. Active Hæmorrhages. 4. Neuroses. 5. Lymphatic Diseases. 6. An indeterminate class for the reception of disorders which cannot be received into the preceding classes, or

whose characters yet remain to be ascertained. This last division evinces a woeful want of skill, and is perhaps more reprehensible than the LOCALES of Dr. Cullen. M. Pinel has, moreover, betrayed a singular itch for changing established terms which, in many cases, require no change whatever; and superseding them by others which are neither more true to correct theory, nor more euphonous to a correct ear. As examples we may notice, that inflammatory fever is here denominated *angi-stenic*; bilious fever, *meningo-gastric*; putrid, *adynamic*; malignant, *ataxic*.

In turning our attention to our own country, we shall perceive that the first attempt to improve on Cullen's system was hazarded by Dr. Macbride. It was published as early as 1772, and consists of nothing more than a nosological table, embracing indeed the divisions of genera and species (except in the order of Vesanix, which is left imperfect, from an indetermination in the author's mind upon this subject), but totally void of definitions. It is the opinion of Dr. Good, that this unfinished sketch is well worthy of attention, and has not had sufficient justice rendered to it. Its chief failure consists in the nature of its classes or primary divisions. These consist of four; UNIVERSAL DISEASES, LOCAL, SEXUAL, and INFANTILE. The second, or local class, is evidently derived from Dr. Cullen, though the term is employed in a stricter sense: and the formation of a class of Universal Diseases follows naturally, and indeed necessarily, from the institution of a class of Local. A precise line of distinction, however, can never be drawn by the most delicate hand; and it is obvious to every one, that the employment of other classes after these, whatever be their names, ranges, or attributes, must be absurd; for the terms Universal and Local necessarily include every disease in nature, and leave no other distinctive class to be added. Yet Dr. Macbride appears to have exhibited as nice a skill in the arrangement of his genera and species, as he has want of skill in his primary outline. There is a clearness, a neatness, and simplicity, which, says Dr. Good, "I have endeavoured to avail myself of, wherever the structure of my own system would allow, and which I have often left with regret where it would not." Nothing can more effectually show the good taste and liberality of Dr. Cullen, than his Latin translation and introduction of the first and most extensive class of Macbride's Table into the last edition of his Synopsis, for the purpose of comparison with his own arrangement, as well as with the systems of those to whom he was most indebted.

Another Table of Diseases, distributed under a different systematic arrangement, was published not many years after, by Dr. Crichton; and, like the preceding, unaccompanied with definitions of any kind. Its classes are eight, consisting of Cullen's four, with the addition of four others, for the purpose of accommodating those genera which are chiefly under a state of restraint in the Cullenian method; and to which he has given the names of HÆMORRHAGIÆ, FLUXUS, INTUMESCENTIÆ, and EPISCHESES. This assuredly offers some improvement; but the retained class LOCALES is subject to the common objections against it; and in the subdivisions of this class Dr. Crichton has no reason to boast of being more successful than his predecessors. He seems sensible, indeed, of the difficulty, and appears to shrink from it; for in the fourth, fifth, and sixth, orders of the local class, entitled Prolapsus, Luxatio, and Tumores, he has withheld his species; and in the three ensuing orders, entitled Vlnus, Ulcus, and Fractura, he has equally withheld his genera. For the most part his generic and specific distinctions exhibit far less precision than those of Dr. Macbride, whilst he has most unaccountably restored the symptomatic species of diseases which Cullen laboured so meritoriously to suppress. It is somewhat singular, therefore, that Dr. Crichton should have best succeeded where Dr. Macbride principally failed, and chiefly failed where Macbride has been most successful.

Dr. Darwin's system of nosology, published indeed some years before Dr. Crichton's, is founded, not on symptoms, but on theory. The author of Zoonomia was a man of great genius, daring imagination, and extensive reading. See p. 43. Unfortunately for him, he was perpetually stung with a desire of distinguishing himself by seeing things, weighing things, and combining them, in a manner different from every one else. All his works give proof of this; and show evidently that he would at any time rather think wrong with himself than think right with other people. His nosological system is founded upon his physiological principles; which, stripped of extraneous matter, may be told in few words, so far as they are applicable to the present subject. The brain, as a collective organ, is the fountain of life and sensation, and sends forth fibres of different kinds and for different purposes; which are excited, and communicate perceptions to the organ whence they originate, by four different classes of stimuli, those of simple irritation, of sensation, of volition, and of association; every part of the animal frame having a greater or less degree of influence upon every other part, and operating this influence by the medium of sympathy; in consequence of which, Dr. Darwin was desirous that his own theory should take the name of the sympathetic. "Every idea," says he, "is a contraction, or motion, or configuration of the fibres which constitute the immediate organ of sense;" and hence it seems difficult for the friends of Dr. Darwin to repel the charge, that ideas, under this explanation, must be material substances. Health he contemplated as consisting in the natural correspondence, and degree of correspondence, of the various organs of the body to their respective stimuli, and disease as an effect produced by any, even the slightest, deviation from such correspondence in any part. Hence every such effect, in his opinion, constituted a disease; and what is commonly so denominated, and which consists of a combination of symptoms, as a fever or a colic, he regarded as a group or bundle of diseases; a sort of Pandora's box, where they muster their secret or collective strength, and whence they issue simultaneously. In forming his nosological arrangement, he made these effects, and the parts or organs in which they manifest themselves, constitute his genera and species; while he derived his classes and orders from their proximate (or rather what upon his theory are supposed to be their proximate) causes, and the peculiar characters which these causes exhibit; the number of the classes being four, derived as may be easily conjectured from the four sources of stimulation just referred to. "I have taken," says Dr. Darwin, "the proximate cause for the classic character. The characters of the orders are taken from the excess, or deficiency, or retrograde action, or other properties, of the proximate cause. The genus is generally derived from the proximate effect. And the species generally from the locality of the disease in the system."

By proximate cause, however, Dr. Darwin does not mean what is generally understood by this phrase, namely, the most striking or characteristic symptom of a disease; but what should seem to be the proximate cause upon his own theory, and which in every instance must be a different and often a directly opposite thing. Thus in nictitation, the proximate cause, in the common sense of the term, is a "rapid and vibrating motion of the eye-lid," which ought, therefore, to constitute the character of the disorder. In the vocabulary of Dr. Darwin, however, this, instead of being the proximate cause, is the proximate effect; while his proximate cause is "increased irritation," which is the remote cause, as the phrase is commonly explained. We are not now inquiring which is the more correct use of the terms cause and effect, but only pointing out the variance and the confusion that hence necessarily ensue. The perplexity hereby produced must have been an effectual bar, had there been no other, to Dr. Darwin's system ever becoming popular. Unfortunately there are many others, and of as formidable an aspect. The en-

tire basis is theoretical; in several parts visionary: the whole may, therefore, prove hereafter to be unfounded; a considerable portion of it evidently is unfounded at present. But the direct death-warrant of the system consists in his making every single proximate effect (in common language proximate cause, or symptom) a distinct disease; for, as the same proximate effect, or symptom, may be produced by several, or by each, of what Darwin calls proximate causes, and which constitute his classes, it follows that the very same species or specific disease must in such cases belong equally to some order or order of several or of all the classes of his system. And such, to the student's embarrassment and surprise, he will find upon examination to be the real fact. Thus while Variola (small-pox) is arranged under cl. ii. ord. 1. gen. iii. Eruptio Variolæ (small-pox eruption) occurs under cl. iv. ord. 1. gen. ii. So Hydrophobia appears first in i. 3. i. and afterwards in iii. 1. 1. Diabetes in i. 3. ii. and again in iv. 3. 1. Palpitation of the heart in i. 2. i. and again in i. 3. iii. being twice in the same class: and so of many others.

Such perplexity sets all the ordinary laws of method at defiance; yet it is easily accounted for from the nature of the primary divisions. While, to make the system still more defective and incapable of practical use, its author has given us neither his specific nor his generic definitions, excepting, indeed, occasionally; confining himself entirely to his Latin and English names; and sending us for their descriptions to "the Nosologia Methodica of Sauvages, and the Synopsis Nosologia of Dr. Cullen, and the authors to which they refer." But such an appeal can be of no possible service: the diseases in Darwin's system do not run parallel with those referred to, and the descriptions will scarcely in any instance apply.

In the very excellent Medical Dictionary of Dr. Parr, which has now been about twelve years before the public, the reader will find, under the article NOSOLOGÆ, a systematic arrangement of diseases which ought by no means to pass without notice.

In laying down the outline of his system, Dr. Parr had his eye chiefly directed to the nosological method of Selle, and the botanical method of Jusieu. It follows, therefore, that his primary division would consist not of classes, but of what he intended to be natural orders, or families. These orders are twelve, whose names are taken from the classes or orders of Sauvages or Cullen, with the exception of one, SUPPRESSORIÆ, which is borrowed from Linnæus.

Here again, therefore, we have a great and noble aim, whatever be the success of its accomplishment. But, as a natural system, even in botany, is to the present hour, and perhaps always will be, a theoretical rather than a practical idea, there seems very little expectation that it can ever be realised in medicine. On the part, therefore, of Dr. Parr, the attempt was a bold one; and his arrangement will show that, if he has not been altogether successful, he has exhibited a very considerable degree of ingenuity. This arrangement is as follows:

Pyrexia, Fevers.	Adynamia, Debilities.
Phlegmasia, Inflammations.	Paranoia, Alienations.
Eruptiones, Eruptions.	Cachexia, General Disorder.
Proflavia, Fluxes.	Intumescentia, Tumours.
Suppressoriæ, Suppressions.	Ectopia, Protrusions.
Spasmi, Spasms.	Plaga, Wounds.

Between most of these we can trace, in the series of their descent, a verbal connexion; and between several of them a connexion of a more substantial kind. It holds nominally in the first three orders, but seems to slip from us in the three that follow; and is occasionally recovered in the remaining. Yet, when we examine the genera and species of the respective orders, we shall find the connexion is too commonly nothing more than verbal. PHLEGMASIAE has a manifest relation to PYREXIAE; but in Cæliaca, Leucorrhœa, Leucorrhœis, (discharge of white mucus

mucus from the anus,) which are diseases of the former order, the connexion is entirely lost: nor will it, perhaps, meet with general approbation that these, together with Gonorrhœa (used in the vulgar sense of the term), Cystirrhœa, and Phthisis, should be united with Coryza and Dyentery, under one common genus, to which is given the name of *Catarrhus*. This, however, is a genus upon which Dr. Parr peculiarly prided himself, and upon which he unquestionably bestowed very great pains. In like manner the order ERUPTIONES seems at first to claim a near affinity with PHLEGMASIÆ; and in the genus Exanthema it does so substantially, for here we can trace distinctly something of that febrile, or, to speak more correctly, pyretic diathesis, which unites these two orders with the order PYREXIÆ. But in the mere cutaneous eruptions, here collected into one genus, named *Efflorescentia*, the line of union becomes so fine and filmy as to be altogether invisible. Were we to pursue this prying indagation, we should soon arrive at breaks far wider and more obvious. It would perhaps be difficult to find four diseases more discrepant from each other than Dyspepsia, Amentia, Amaurosis, and Agenesia. They seem to have no one common property with each other. Dr. Parr, however, has contrived to make them all species of a single genus, to which he has given the name of *Anepithymia*, and which he has defined, "a diminution of power in the different functions;" a character sufficiently sweeping to cover at least half the diseases that man inherits; for excess and diminution of power may easily be made to embrace the whole; and are made to do so under the Brunonian theory. Yet, notwithstanding this licentious generalization, and aim at a natural arrangement, the diseases of the external senses, which seem to have a pretty close proximity with each other, are partly scattered at considerable distances over the entire system, and partly, as in the instances of Caligo, Dysopia, Paracufis, Anomia, Ageusia, and Anæsthesia, are in the unfortunate situation of Dr. Cullen's "Catalogus morborum à nobis omiforum;" and, from forgetfulness or some other cause, have no place allotted them in any section of the system.

There is, nevertheless, much in Dr. Parr's system that is highly meritorious. The distinctions of the different divisions are scientifically laid down; and, except that the genera are occasionally too extensive, accurately maintained. Dr. Parr gives the following short explanation of his own system: "In this arrangement there is a concealed methodus, which, as it is not an object of importance, we need not explain farther than by adding, that feverish complaints, increased and diminished evacuations—increased, diminished, and irregular, nervous excitement—diseased fluids, appearing either in increased or diminished bulk—the displacements and solutions of continuity—follow in order."

Dr. Young's "Introduction to Medical Literature, including a System of Practical Nosology," though limited to a single octavo, ranges through an entire course of medical education, anatomical, pathological, therapeutical, and chemical, as well as nosological; whilst in the last department it is drawn up with a somewhat different view, and is more strictly limited to the pale of the medical profession. The arrangement of Dr. Young, while essentially distinct from that of Dr. Good, will be found perhaps to make the nearest approach to it of any that has hitherto appeared. In wanting the division of orders to two of its classes, it is scientifically defective; but its systematic boundaries are as clearly seen, and as precisely maintained, as those of Dr. Parr. Yet its chief merit, perhaps, consists in offering to the student a masterly guidance, through the whole of his professional tuition, to the best authorities and sources of information; in this respect answering the purpose of Plouquet's seven quarto volumes, with a great saving of expense, a prodigious saving of time, and by a far nearer and pleasanter pathway.

A glance has already been given at a few limited noso-

logical arrangements, by writers who have confined their attention to a single family or group of diseases, detached for this purpose from the rest; and to this description of works Dr. Good has applied the name of *monograms*. To the names of Selle, Pinel, and Crichton, it is necessary to add, under this view of the subject, those of Plenck, Willan, Bateman, Abernethy, and Granville.

Dr. Plenck, of Baden, is the author of two distinct treatises of this kind; the one a methodical arrangement of the "Diseases of the Eyes;" and the other of "Cutaneous Diseases." In the former he follows the order of anatomy in the distribution of his primary divisions, beginning with the eye-brows, and descending from without inwards till he closes with the retina. In the latter, which consists of classes, genera, and species, without the interposition of orders, he employs a looser line of succession; though the general idea seems to be that of advancing from the slighter to the more prominent elevations of the skin, commencing with MACULÆ, and proceeding to EXCRESCENTIÆ; the remaining classes consisting of CUTANEOUS ULCERS, WOUNDS and INSECTS, DISEASES OF THE NAILS and of the HAIR. He is a more industrious than discriminative writer, as the reader will perhaps readily concede, when informed that he has arranged, defined, and followed, through their progress and mode of treatment, a hundred and nineteen genera, comprising very nearly six hundred species, or distinct diseases of the eyes, the genus amaurosis alone extending to twenty species; and one hundred and fifteen genera, including nearly six hundred species, or distinct diseases of the skin.

Yet compression, and a more scientific arrangement, would make either of Dr. Plenck's attempts a valuable work; and Dr. Willan has the merit of having performed this friendly office to the latter of the two, in his book on "Cutaneous Diseases;" and at the same time of having added so much valuable matter of his own, as to entitle it to the claim of being strictly an original performance. The distinctive characters of papula, pustule, vesicle, bleb (bulla), scale, and crust, are well given and maintained by the former; but the latter has expressed them more neatly, and has added many distinctions which the former does not afford; whilst he has drawn his literary and practical history, and treatment of the diseases discussed, from very different sources; and, as far as might be, from his own personal observations. That Dr. Willan did not live to finish this valuable work must be regretted by every one who has the welfare of medicine at heart; but the able and judicious manner in which it has been brought to a close by Dr. Bateman has served in no small degree to abate the general disappointment. Had Dr. Willan lived to complete the direct object of his pursuit, and then extended his views to the whole circle of diseases, he must have greatly modified his first and more restricted system before he could have incorporated it in the larger plan. As it is, indeed, it stands in need of no small degree of modification to clothe it with all the perfection it deserves; for several of his orders would make better genera; almost all his genera are decided species, while his species are seldom more than varieties, and are in many cases so denominated by himself. In this respect he might have taken a good lesson from Dr. Young, Dr. Parr, or Dr. Macbride; as he might also from the two former in giving the essential character of each disease antecedently to the admirable description with which it is followed up.

The name of Mr. Abernethy is here mentioned in reference to his methodical "Classification of Tumours." This classification is strictly symptomatic, the characters being derived, as they ought ever to be, as much as possible, from sensible phenomena.

The last *monogram* we have to notice is a "Classification of the Diseases of Children," by Dr. Granville, principal physician to the Royal Infirmary for Sick Children; and detailed by him in the London Medical Journal for De-

ember last (1820), of which work he is at present the editor.

Dr. G. in his address to the then editor, observes, "You must have been struck, in common with every other practitioner of this or any other country, with the singular circumstance of no regular classification of infantile diseases having ever been proposed by the several eminent authors who have written on that particular branch of medicine; and you will probably agree with me, that no-where is the necessity of such a classification likely to be more felt than in an extensive institution directed solely to the alleviation of those diseases, where daily and numerous occasions must occur for its use. In the Infirmary to which I have had the honour of being appointed principal medical officer, it would scarcely have been possible for the physicians and surgeons belonging to it to have preserved any degree of uniformity in the medical records of that institution, had we relied on the usual routine only, of entering the names of patients without any very precise and uniform designation of their complaints. It became, therefore, necessary to establish something like a Synopsis, by the help of which, as if with the use of a common language, we might become intelligible, not only to each other but also to the profession in general; the members of which may hereafter wish to refer, for many useful subjects of information, to the registers of the Royal Infirmary.

"How far the present attempt to form such a Synopsis may succeed in removing the difficulties which, like those experienced in general practice before any nosological arrangement of diseases had been established, must be felt in the consideration of infantile complaints, I leave my colleagues and the public to decide. I have no pretensions on the subject, and I give my present speculation as a mere attempt; happy if it serve to stimulate more competent persons to fill up the chasm which has hitherto existed in nosological science. The names of Heberden, Rosen, Capuron, Burns, and Underwood, not to mention several others, must be familiar to those who have paid particular attention to the diseases of children. The descriptive observations and practical remarks of these eminent men leave scarcely any thing to be wished for; yet it must be admitted that, had those descriptions and remarks followed some specific arrangement, the facilities for their study and their retention would have been greater than they now are.

"The plan of the present classification is as follows: I have, in the first place, considered all deviations from healthy action or healthy structure in children, as having either begun with their fetal life and formation, or developed themselves at the moment, and in consequence, of parturition. These, therefore, form a first great division, very distinct from that of any other complaint which may afflict a child subsequently to its birth and up to the adult age. To this first great division, I have applied the denomination of *Morbi Congeniti*, and I have necessarily been obliged to make two classes of it; in the former of which I have placed all diseases or deviations from healthy structure previous to, and consequently independent of, parturition; while in the second those congenital diseases have been arranged which are connected with, or dependent on, parturition. The diseases embraced by the first of these two classes of the first great division are by far more numerous than those of the second class; and, in order to facilitate their recollection, they have been subdivided into ten orders, each order containing an unequal number of genera, in all forty-five. Two orders only are contained in the second class: 1, topical; 2, universal; each being subdivided into five genera.

"Having thus disposed of all the diseases which, from their being coeval with the patient, form a well-defined and distinct division, it remained for me to arrange all those deviations from health which are known to occur subsequently to birth and as late as the adult age, whether peculiar to the period of time that lies between these two

epochs, or likely to affect children in common with persons more advanced in years. These two considerations gave rise to a second great division, which I have designated by the name of *Morbi Subsequentes*, as quite distinct from those which formed the subject of the preceding remarks." This second great section is divided into four classes, and each class into two orders; the genera are 96, which added to 55 in the first grand division, make a sum of 151 genera of diseases with which children are afflicted. How numerous the particular *species* may be we are left to conjecture, as the author says, "I have not extended my consideration to either species or varieties, as this would have carried me too far."

This Synopsis has been printed on a card, for the convenience of students. Omitting the names of the genera, the classification will appear as follows:

I. MORBI CONGENITI.

Class I. ATOCICA. Congenital Diseases independent of Parturition.

- Order 1. *Atresis*. Natural openings imperforate.
- 2. *Collisis*. Unnatural adhesions.
- 3. *Diazeuxis*. Unnatural separations.
- 4. *Elatosis*. Defective organization.
- 5. *Perisseuzis*. Superfluous organization.
- 6. *Hydrops*. Unnatural accumulation of fluids.
- 7. *Ectopie*. Displacements.
- 8. *Affymetria*. Anti-symmetrical conformation.
- 9. *Parasthesis*. Defective action of senses.
- 10. *Metrocelis*. Marks.

Class II. TOCICA. Congenital Diseases dependent on Parturition.

- Order 1. *Topici*. Partial.
- 2. *Universales*. General.

II. MORBI SUBSEQUENTES.

Class I. ZOTICA. Morbid Alterations of the preservative Functions.

- Order 1. *Pneumatici*. Affecting respiration.
- 2. *Hæmatici*. Affecting circulation.

Class II. AUXITICA. Morbid Alterations of the augmentive Functions.

- Order 1. *Cæliaci*. Affecting digestion.
- 2. *Lymphatici*. Affecting absorption.

Class III. APOCRITICA. Morbid alterations in the segregating Functions.

- Order 1. *Ecriticæ*. Affecting secretion and excretion.
- 2. *Dermatici*. Affecting exhalation.

Class IV. ÆSTHETICA. Morbid Alterations of the sensitive Functions.

- Order 1. *Neurotici*. Affecting sensation.
- 2. *Myotici*. Affecting voluntary motion.

We hail the establishment of an Infirmary for Sick Children, as likely to form a new era in favour of the rising generation; for we cannot doubt that it will have its effect in improving a branch of medical practice, of which it is not too much to say, that it has hitherto been unaccountably neglected. "In no department of our profession (says Dr. Reid) does the practice of it appear so cruelly absurd as in the mismanagement of infants. I once ventured to observe, that, of the causes of mortality in the earlier months of our existence, no small proportion consists of those who have sunk under the oppression of pharmaceutical filth. More infantile subjects in this metropolis are perhaps diurnally destroyed by the mortar and pestle, than, in the ancient Bethlehem, fell victims in one day to the Herodian massacre. I plead guilty to the charge of rashness and hyperbole, which were brought against this remark when first published; but I wish that the years of experience, which have since intervened, had convinced me that the remark was altogether destitute of foundation. When we contemplate a church-yard, the earth of which is composed in great measure of the bodies of infants, it is natural for us to fancy, but surely it is

not reasonable for us to believe, that those beings were born for no other purpose than to die; or that it is within the design of nature that the pangs of production on the part of the mother should, on that of her offspring, be almost immediately succeeded by the struggle of dissolution. Fault must exist somewhere: it cannot be in the providence of God; it must therefore attach to the impvidence and indiscretion of man. Consequences as fatal originate from ignorance as from crime. Infanticide, when perpetrated under the impulse of maternal desperation, or in the agony of anticipated disgrace, is a subject of astonishment and horror; but, if a helpless victim be *drugged* to death, or poisoned by the forced ingurgitation of nauseous and essentially-noxious potions, we lament the result merely, without thinking about the means which inevitably led to its occurrence. Conscience feels little concern in cases of medicinal murder. The too-ordinary habit of jesting upon these subjects in convivial or familiar conversation, has an unhappy tendency to harden the heart, and inclines us to regard, with an inhuman and indecorous levity, those dark and horrible catastrophes which too frequently arise from professional ignorance or mistake." *Essays on Hypochondriasis*; 2d edit. 1821.

Some other systems of inferior importance have appeared in different countries, especially in Germany. We pass over them, however; and, dismissing this uninteresting branch of our science, retrace our steps to consider the most important of the modes in which disease, or a change from the phenomena of healthy action, may arise.

An inquiry into the abstract principles of disease is a subject of acknowledged difficulty. The very definition of the word *disease* involves more trouble than might at first seem apparent, and is indeed a matter about which there exists much difference of opinion. We content ourselves, therefore, with the use of the laconic definition, that disease is *the absence of health*, acknowledging, however, that this description involves the definition of what health is. But the latter question is answered by Physiology, a science with which the pathologist is supposed to be previously acquainted.

We do not propose to enter into a consideration of the minute and remote causes of disease. It would not perhaps be difficult to show, that the first changes which take place in the various structures must operate by their relation with the vital properties. This, of course, applies principally to those causes which produce what is called the *predisposition* to disease. A *predisposing cause* is that which renders the body liable to be attacked by disease, or to be acted upon by an exciting cause; for the operation of an exciting cause alone is generally not sufficient to produce disease. Thus several persons may be exposed at the same time to the same external agents, e. g. to cold and moisture: in some, these agents will excite disease; on others they will act with impunity. In the former persons, some circumstances must have existed which rendered them liable to receive those morbid impressions; in the latter, no such predisposition was present. Again, some of those, whom the exciting causes affected, may suffer one kind of disease, and others a different one; thus, one individual may be afflicted with rheumatism, another with catarrh, a third with dysentery, and so on; facts implying the existence of some peculiar condition of the body, or of the organs respectively attacked, which is justly deemed a *predisposing cause* of the particular malady which may have occurred. In some instances, the *predisposition* is obvious and well understood: thus one attack of rheumatism, pleurisy, or any inflammatory disorder, generally renders the body more liable to suffer a second: a peculiar formation of the chest, combined with a fair and delicate skin, with dark eyes, lively spirits, &c. implies a tendency to be affected with pulmonary consumption: and a plethoric habit, large head, short neck, very florid complexion, &c. threatens the accession of apoplexy. In such circumstances the

kinds of exciting causes, which ought to be peculiarly avoided, are manifest; and by a careful attention to this suggestion, the diseases, with which the individuals are menaced, may be often avoided.

The *exciting* is the next mode of remote causation, and is of course an agent which operates for the most part by the relation it holds with the *predisposing cause*. The exciting causes of disease have given rise to many and various hypotheses. Hippocrates supposed that diet and air were the externals whence disease was principally derived; and certainly, as these are the *pabula vitæ*, as they constitute the *repair* necessary to our existence, an unusual state of them must produce a corresponding change in the sensations and functions of our bodies. We can only therefore add to these exciting causes, *mental impressions* and excessive action, or the reverse, of certain organs. But there are some exciting causes so very generally affecting mankind as to lead us to suppose that they operate independently of any state of predisposition; as the poison of syphilis, small-pox, rabies, &c. Though even these diseases do not seem uninfluenced by the state of constitution, as they exist in various degrees of intensity in different individuals.

As these exciting causes of disease can come only from without, they must operate in the first instance through the medium of those parts by which man is related with the external world. These are the organs of sense, and those unions of the three fundamental structures which have been denominated *the alimentary canal*, *the pulmonary cavity*, and *the cutaneous expansion*. As these three structures are all assimilation or absorption, and at the same time abundantly supplied with nerves, they must communicate morbid impressions, either, 1st, by assimilating substances of an improper nature; of which we have frequent instances in the reception of poisons, &c. into the blood, in the transmission of the miasmata, or the contagion of fevers, &c. or 2dly, by transmitting nervous impressions to the brain, and inducing disorder of that organ, and the nervous system generally. Each of these modes may, according as predisposing causes are in existence, produce local disease, or disturbance of general functions.

But it is very obvious, that, however firmly these notions may be established, we advance but a very little way in attaining a knowledge of exciting causes. For, so various are the modes by which externals may operate, so many inscrutable and various properties belong to food, and still more to air, and so numerous must be the derangements produced by nervous excitation, that the attempt to trace the laws of these causes will for ever remain inefficient.

The operation of the senses can of course only induce disorder of the brain and nervous system by exhausting its energies; whether that exhaustion be produced by excitement of the brain generally, or of its particular parts; or, on the other hand, by the depression of them.

To illustrate these principles, we will suppose a patient afflicted with a state of the liver *predisposed* to disease. Is mental emotion by excessive grief, that is to say, is the production and transmission of nervous energy, disturbed by the inordinate action of the brain? the process of secretion in the liver will be obstructed; and thus induce simple local plethora, perhaps the simplest form of disease. On the other hand, disease may occur in the *predisposed* liver by the immediate application of an improper material received into the blood, and acting as an unusual stimulus to the contractile power of the capillary vessels of the liver; hence, in the same way, impeding secretion, &c.

Of the application, however, of these doctrines, we shall have occasion to give very frequent illustration in the pathology of particular diseases. We have now to consider the nature of what is called the *proximate cause* of disease. The precise meaning attached to this term is, that it designates an *action* of the *body*, in contradistinction to states of impressions which constitute remote causes.

causes. The proximate causes, therefore, of diseases, must be almost as numerous as the diseases themselves; and hence they will form part of the pathological discussion we shall enter into with regard to each different malady. In this place, however, it will be proper to offer some remarks concerning the local origin of disease. That disease may, and indeed generally does, arise from loss of the balance of action between one part and the system at large, seems indisputably proved. How far, however, this part may proceed in diseased action without influencing the general health, is another and an important consideration. Having lately met with some remarks on this head by Mr. Pring, we have transcribed them from his "Indications," on account of the close reasoning with which he has illustrated the subject.

"There are but few (perhaps not any) examples of disease which is confined wholly to one part. There are many instances of disease of one part, in which the organic system elsewhere does not perceptibly suffer: but these are attended with pain or disordered motion, which is sufficient to prove an extension of the diseased state. In the organic system, however, a person may have an ulcer in the leg, or a tumour upon the shoulder, or an herpetic disease upon some spot of the skin, or a stricture of the urethra, &c. without any sensible derangement of the same system elsewhere. But even in these instances we cannot prove that the change is entirely local, unless it may be shown, 1st, that the natural condition of the seat is not a dependent one, by which disorder might originate in another sphere; and, 2d, supposing the disease to originate in its apparent seat, that no other is so connected with it as to participate in its modifications. But, if it is possible that any part should possess only an assimilating life, that no other part is dependent upon it, and that the condition of disease does not open any new or preternatural relation, then it is possible that the assimilating life of such part may become exclusively diseased.

"It happens however in most instances of disease, that this state prevails in more than one seat. In such instances these two alternatives are to be discriminated: 1st, Whether the diseases occupying different seats are not independent of each other? 2d, Whether the primary produces the secondary disease?

"If in the course of a fever an abscess should form in one axilla, and a week afterwards an abscess should form in one groin; if the eruption of the small-pox should appear first in the face, and then be extended over the whole body; if a tubercle should form in the liver, and a month afterwards a vomica should burst in the lungs; if a venereal ulcer should form in the throat, and six weeks afterwards a node on the tibia; we should scarcely in these (and there are many such) cases assert that the disease occupying the first seat was the cause of the disease occupying the second.

"But, if one half of the body should be paralyzed by the rupture of a blood-vessel of the brain; if vomiting should succeed to a blow on the head; if disordered respiration should succeed to the operation of a cause of pressure on the brain; if atrophy should succeed to disease of the mesenteric glands; if the secretion of a gland should be suspended during an inflammation of it; if convulsions should succeed the irritation of a nerve; if paralysis of the sphincter of the bladder should succeed to an injury of the spine, &c.—we have no hesitation in these cases in affirming that the primary is the cause of the secondary affection, because we know that the healthy state of the properties engaged in the secondary, acknowledge the *regular dependent relation* with those engaged in the primary seat of affection.

"Again, if vomiting should succeed the formation (or introduction) of a calculus in the gall-duct, or to the passing of a calculus along the ureter; or if a pain in the shoulder should succeed an inflammation set up in the liver; or if hernia humoralis should succeed to an affection of the urethra, perhaps produced by an injection;

or if tetanus should follow a punctured or lacerated wound; or if pain in the breasts should succeed conception, &c.—we have in these cases no hesitation in saying, that the secondary is *produced* by the primary change.

"These are examples of the classes of related disease. Disease of one part, or one state of disease, might produce another; 1st, by disturbing an habitual dependence; and, 2d, by the influence of an *occasional* cause. The first is illustrated above; as if an injury of the brain should paralyze nerves whose functions are dependent upon the brain, or as if respiration should become laborious, or perhaps cease, by the operation of any cause of pressure upon the brain, &c. The second is illustrated in those other examples, in which a relation is exhibited under circumstances of disease, which was not manifested as one of dependence for a natural office, during health.

"The affection of a dependent seat in consequence of a disordered state of the seat from whence its functional properties are derived, is by no means a regular occurrence. We know that there might be a violent pain in the head, a throbbing of all its vessels, as if the whole brain was violently disordered, and yet the function of respiration, which depends upon the brain, may be but little or not at all interrupted; at the same time, a slight pressure upon the brain shall impair or prevent these dependent functions. The reason is, that properties are not indifferently related with any cause of disorder; but their relations are precise; as, properties of the brain animate the organs of respiration, these properties related with the agency of pressure, not related with causes merely producing pain or even inflammation; the dependent function, impaired by the former, because the former is related with the properties engaged in the dependence; not related with the latter, because, although they produce a certain affection of the seat of the properties which animate the respiratory organs, they do not produce a change in the nature and relation of these properties, to expect which would be like expecting that paralysis of nerves should not occur from pressure upon a part of the brain, because it still retains some properties of life.

"It has been stated that related disease happens in two ways, which may here be repeated: 1st, by disturbing an habitual relation of the *regular dependent kind*; 2d, by a new relation which is opened between parts not before connected by intercourse of function, in consequence of a new condition which one of them has assumed: it has been stated (and examples given) that disease might occupy a succession of seats without the existence of any causative relation between them. It is necessary, before we proceed any further, to inquire after the method of distinguishing between diseases which, though occurring in a series, are independent of each other, and those in which the subsequent is produced by the preceding disease.

"In making this distinction we are liable to frequent error: the only grounds of the distinction, however, are as follow. Mere succession, as has before been insisted, can never prove causation: but it indicates causation, from the analogy of succession to those palpable instances of causation in which the dependence of the effect upon the assigned cause may be proved by the result of analysis and of synthesis; of taking away (or withholding), and of combining, the causes. Succession then, upon this ground of analogy, which has been more fully explained, may *indicate* causation; and yet we do not suffer every instance of succession to suggest ever so faintly an inference of causation.

"The succession of an effect to its true cause is *invariable*: from analogy in this respect, we infer positively the operation of a cause in all instances of *invariable succession*; thus, day and night *invariably* succeed the presence or absence of the sun. But we presume still further upon this analogy; we infer the operation of a *cause*, when the succession of the same consequence to the same antecedent is *frequent*, but not *invariable*; thus, an ounce and a half

half of laudanum taken into the stomach will commonly, but not always, produce death; we have no hesitation in assigning the laudanum as the *cause* of death, in those instances in which death takes place, notwithstanding there are other instances where the obvious circumstances are alike, in which it is not followed by death. *Invariable succession* bears so strong an analogy to causation, that we scarcely suspect the possibility of our being deceived in an inference grounded upon it; and yet we do sometimes make a false inference founded upon past *invariable succession*, as is proved by additional, or subsequent, experience. *Frequent succession* of like to like, bears an analogy to the *invariable*, and upon this analogy we found an inference of causation: the point of analogy is between the *frequent* and the *invariable*, consequently the analogy must be established or presumed upon, in proportion to our experience of the frequency of the succession of like consequences to like antecedents. These grounds of the inference of a cause, as is just stated, are imperfect, and must admit frequent error; for we cannot define what number of successions of like consequences to like antecedents, are an adequate number to prove causation. Hence then, although we infer causation from succession, we are obliged to confess that we can do this only in certain cases; before we can admit the truth of an inference of causation, we must have had an experience of a sufficient frequency of a like succession. Different men will hold different opinions with regard to what constitutes a *sufficient frequency*; and the want of a possible definition in this matter admits a great diversity of opinion upon important points, and gives room for the distinction of close and loose reasoners. But, when once we have had experience of what is considered a sufficient frequency of like succession, we then infer some difference (where it is not perceptible) in cases in which the same consequences do not succeed the same antecedents. In such instances, we balance an account between like and dissimilar succession; and we *assign a cause* only where the *frequency* of the same succession (approaching to the *invariable*) exceeds that of the exceptions. Thus, (not to quit our subject,) if the exhibition of a particular medicine should be followed by recovery from phthisis pulmonalis in one instance, this succession would, where men are disposed to catch at straws, indicate a possible causation; if the same event succeeded to its exhibition in ten instances, its credit would be better supported; if in a hundred, better still. If it should succeed in five and fail in five, we should hesitate perhaps to assign it as the cause of recovery in the first five; if afterwards it should fail in fifty cases, we should say that in the five in which it was followed by recovery the cure was owing to *other causes*. If it should succeed in a hundred and fail in fifty, we should then perhaps judge the hundred to amount to an adequate number to establish the relation of the medicine, as a *cause* of recovery; while we should explain its failure in the other fifty, by supposing some diversity of circumstances, by which its relation as a cause was modified, to have prevailed. The conclusion amounts to this: We infer that a secondary is produced by a primary disease, upon an experience of a frequent succession of the one to the other, provided at the same time that our experience furnishes us with no stronger analogies to sensible causation, by which we are rather justified in considering them distinct." Pring, ch. iv.

This succession of diseased actions in many diseases produces a curative effect; and the contemplation of this fact is what has caused so many errors to be committed in practice in regard to the operation of *nature*. Seeing that the constitutional disturbance produced a restoration of health in local diseases, Hippocrates, and thousands since his time, have been led to the adoption of that inert practice emphatically termed the "*Medicine expectante*." It has always been a popular doctrine, and it is one that carries a great deal of plausibility in the face of it, that the

main object and the sum total of the powers of medicine, consist in aiding the natural efforts of the constitution for the removal of diseases. But this proposition requires considerable qualification. If it be merely meant, that medicine can only operate through the medium of the powers or energies of the living body, and that, independently of these vital energies, medicine has no operation, the position is a *truism* which cannot be questioned. But, if it be meant that the sole power and object of the medical art are limited to the furthering of all morbid excitement, and to the removal of obstacles to the completion of the purposes of that excitement; i. e. to assisting the efforts of nature, or guarding them from interruptions; the assertion appears to be altogether gratuitous, and nothing less than an abuse of language. In the first place, it is founded on the assumption, that all diseased action is salutary; which the effects of numerous diseases directly contradict, and which has no better foundation than two other gratuitous assumptions, namely, the existence of a morbid ferment in the blood, and of an *archeus*, or rational soul, governing all the operations of the animal economy. But, secondly, admitting the salutary tendency of diseased actions, considered as the efforts of nature, by what signs are we to interpret her intentions, or to discover when she requires assistance, and when restraint? On this point the greatest practical errors are likely to be committed, and have, in fact, been constantly and extensively committed, by those humoral pathologists, who have presumed upon their knowledge of the intentions of Nature.

Another popular and general opinion arising from the observance of this succession of diseased actions, and connected likewise with the humoral pathology, is the doctrine of *metastasis*, or transposition. It is found, that, on the disappearance of an eruption of the skin, inflammation of some of the viscera often takes place; and again, that the cure of gout in the extremities sometimes produces very formidable effects on the brain. Hence it was supposed, that there was an absolute translocation of fluid to the part secondarily affected. On this subject, however, as we again find some matter of an important nature in Mr. Pring, we shall make another extract.

"That certain diseases are related with each other in the way of cause and effect, is a remark which is contemporary with the earliest records of medical observation. It is also a piece of information *popular* with all classes, that the cure of one disease, whether spontaneous or by art, is sometimes followed by the occurrence of another. Thus, it is common to expect a favourable change of some internal disease upon the occurrence of a cutaneous eruption; thus, also, it has fallen under the observation of the ignorant and unprofessional, that a cutaneous disease, cured by external applications, often produces visceral disease. The language of the vulgar in the first of these cases is, that the internal disease is *coming out*; in the second, that the disease of the skin is *thrown in*, or settled upon the lungs for instance. To all physicians the class of facts here adverted to is well known; they have been made the subject of express treatises, and have been remarked upon in every age, and explained according to the prevailing pathology of the times. But the professors of medicine have of late been rather sceptical with respect to the assigned agency of the phenomena in question, though it is not improbable that their exception was taken rather against the doctrine of humours, &c. by which the phenomena were explained, than against the more modest inferences which they might be allowed to furnish. To all physicians of the present day the class of facts, designated as those of *related disease*, is well known: by some, these facts are not suffered to furnish an inference of a relation, that is, they are considered independent of each other; others admit the relation, and explain it in the language of the vulgar; others say that one disease, instead of falling or being thrown upon another part, is *converted* into a disease

of another part: some physicians admitting the class of facts, and admitting also the inference of a relation, believe that the examples are very rare; others are inclined to think them *universal*; aye, and to allow them only one tendency, although they might tend to fifty, or five hundred, different effects. It will appear from this account that the existence of related disease has been long known, that the knowledge of it has become popular, and consequently there is no novelty in the statement of the fact. If we would improve our knowledge with respect to such diseases, it must be, not by ignorantly generalizing a single limited class, but by a just analysis of its laws, by an inquiry into its nature, its frequency, and by an accurate discrimination of its instances. The first subdivision which we have proposed of this class is that of related secondary disease, tending to cure the primary.

"Perhaps the most unequivocal examples of related secondary disease, tending to cure that which occurs in a primary feat, are those of metastasis. A person might have pneumonia clearly characterized by its symptoms: the symptoms of this local disease on a sudden shall cease, and the subject become immediately affected with phrenitis, which shall be followed by death within eight-and-forty hours. These occurrences may be confirmed after death by dissection (*quod vidimus testamur*). If we inquire into the causation in this example, there are those to whom the whole process is perfectly clear, who will reply, the inflammation left the lungs and went to the brain; was it then the *same inflammation*? and, if so, what was the object of its journey, or why did the inflammation take it into its head to travel? To analyze a little more curiously:

"Inflammation exists in the lungs; why does it cease in the lungs? either from that progressive causation (which has been described) taking place in the lungs, or from a progressive causation taking place elsewhere, by which a relation is opened between the feat of such progressive change and the properties engaged in the disease of the lungs, the end of which relation is, that disease is established in a secondary, and ceases in the primary feat. The evidence in this case, derived from the order of succession, is, that the disease in the lungs, being the antecedent, is also the cause of the disease in the brain which succeeds to it; in other words, the properties constituting inflammation of the lungs leave this feat, and are transferred to the brain. But, if the pneumonia is the antecedent to the phrenitis, what is the antecedent to the metastasis? or why does a disease leave a feat in which it is established? The alternatives which must form the answer to this question are suggested above: either a change takes place in the properties of the lungs, by which they no longer admit the state of inflammation, which is then assumed by some other viscus, already in a predisposed state to take up inflammation upon the cessation of it in another feat; or else the brain (continuing our example) assumes a state which is so related with the properties engaged in the inflammation of the lungs, as to produce a cessation of the inflammatory condition in this feat. From this view it is obvious, that the sensible succession is inadequate to determine the causation; for the brain may be the first to assume a change, by which it cures the disease in the lungs; or the disease may cease in the lungs, from causation proceeding in this feat, and be assumed by the brain, or any other feat which is predisposed to this result, under the relations which obtain upon the cessation of a disease in a feat which it had hitherto occupied.

"The alternatives here suggested must obtain in every case in which the primary ceases upon the occurrence of the secondary disease, but they do not necessarily obtain in all cases of related disease: thus we say dentition disorders the bowels; this is a case of simple succession, which, by analogies before explained, we infer to be also one of causation. If, upon the occurrence of dis-

order of the bowels, the process of dentition were suspended, we should then have to determine whether the change preparatory to the metastasis took place in the bowels or in the maxillary nerves. The progress of consumption might be suspended upon the occurrence of pregnancy; here consumption, as a related state, preceded pregnancy, yet we know, as the cause in this instance is palpable, that the feat of that change which produced the metastasis was the uterus, or secondary related feat. Thus also the catamenia may be checked by an exposure to cold, which will produce rheumatism; the change preparatory to, or causative of, the metastasis, is here also in the secondary feat. From these and many similar examples, we may perhaps conclude very generally, that the primary disease in metastasis does not produce the secondary, but that the metastasis itself is determined by a change which takes place in the secondary feat.

"Related disease, according to our reduced division, is of two kinds: 1st, as when a primary disease ceases upon the occurrence of a secondary; and, 2d, as when a secondary merely succeeds to a primary disease. The former instances have been expressed by the word *metastasis*, which implies that the disease leaves one feat and goes to another: this, however, is a conjecture without proof, for an *inflammation* of the eye may be cured by a spontaneous diarrhoea; if the identical properties of the primary disease went to the feat of the secondary, these properties, being those of inflammation, should produce inflammation of the bowels rather than a diarrhoea, which rarely occurs in inflammation of the bowels. If the identical disease of a primary is in metastasis transferred to a secondary feat, as the character of the secondary is commonly very different from that of the primary disease, it is necessary to infer that the identical nature of the primary disease is liable to be modified by peculiarities which belong to the secondary feat.

"This first class of related disease, then, viz. that in which a primary ceases upon the occurrence of a secondary disease, may be called *substitution* of disease; which merely expresses the fact that one disease has taken place, while another has ceased: the word 'vicarious,' which is familiar in medicine, expresses the same thing. The second class of related disease, viz. that in which the primary does not cease upon the occurrence of the secondary, may be called related extension of disease (the causative relation being in both cases assumed upon the grounds before stated).

"The examples of substituted disease are very numerous; and it is upon this experience of their frequency that the relation of cause and effect in some or other of its modes comes to be inferred to subsist very generally between them. We cannot, however, upon this point compel belief. Although the examples of substituted disease are very numerous, they are not sufficiently regular to admit a classification of those primary diseases which are likely to be cured (to beg an expression) by the occurrence of secondary ones. We can rarely, (owing to this irregularity) perhaps we can in no case, *anticipate* the cure of a primary disease by a secondary one; that is, we cannot pronounce that a certain secondary disease will succeed to the primary, and that the latter will then cease. We more frequently expect the *cessation* of a primary disease, when the symptoms of a secondary one, of the tendency of which we have had experience, do actually appear, than we anticipate a substitution of disease, while the existing symptoms occupy exclusively the primary feat. There is, however, an exception to this remark, when the same secondary has been substituted for the same primary disease, in one or more instances." Pring, ch. v.

Dismissing the consideration of these abstruse and obscure subjects, we next proceed to consider the *symptoms* of diseases; a subject of the first moment, and one which deserves the most unremitting observation; for, though the *cause* of the disease may be obscure, and though its

laws may be inscrutable, painful sensations and disordered functions are but too apparent. The great difficulty, therefore, which attends the study of symptomatology, is not to perceive symptoms, but their congeries or catenations; and to observe what are really the primary symptoms, and what are *sympathetic*, or secondary: for it is on these observations that the distinguishing of one disease from another depends. It was in this branch of pathology, in the *diagnosis*, that Hippocrates and Sydenham arrived at so great a degree of perfection. Indeed, in the writings of the former physician, we find so excellent a system of diagnosis, that we may even now turn to the study of it with great advantage. We have enumerated some of the leading rules of Hippocrates's symptomatology; rules which enabled him to discriminate diseases with great exactness, ignorant as he was of the knowledge of physiology, ignorant even of all that regarded the *pulse* except its most violent actions. Of late, a return to these rules has been inculcated by one of the first practical physicians of the age we live in, Dr. Marshall Hall: he has shown, that, though we had so far deviated from the rules of Hippocrates as no longer to mention them, yet that all scientific physicians had made the minutest observations on the phenomena of disease in their own minds, and had even fixed the identity of many complaints from the conviction these minute circumstances produced, without however attempting to analyze the appearances on which this conviction rested. To supply this analysis has been the object of Dr. Hall; and it must be confessed he has done it in the completest manner. To explain his meaning more clearly, we shall quote a few lines from him. He observes that there is in practical medicine a circumstance of the first importance, the *recognition of a disease*. The general appearance of a patient, the peculiar modification, the particular combination, and mutual influence, of the symptoms, give a *general* character to the whole disease, which is recognized and felt by the physician of experience and observation. "Every practitioner of medicine is continually engaged in the business of diagnosis as the very groundwork of his professional duties; and I fear the soundest and most enlightened are in the daily habit of acting upon views that they would be at a loss to describe, and have not time to analyze." This passage is quoted from the letter of a physician at once learned and experienced. It alludes distinctly to that general source of diagnosis constituted by the combination of all the circumstances of a disease. Dr. Hall adds, that he has had repeated opportunity of observing an eminent physician, on approaching a patient, and that even during sleep, expresses his sentiment respecting the nature of the affection and condition of the patient; the justice of which time and the event have verified. This circumstance first convinced him that there was something in the *general* aspect and appearance of diseases, on which the experienced physician founds a diagnosis, and which it would be of the greatest utility to analyze and describe.

Diagnosis, or the study of symptoms, is founded on the observance of various phenomena; the *external appearance*, the *sensations*, and the *impaired functions*, of the patient; not to speak of the more remote circumstances, which should never be forgotten as the probable cause of the disease; the liability to certain diseases from age, sex, temperament, &c. the effect of medicines, &c. With regard, then, to the *appearances* of the patient, the first and most obvious is the countenance; the countenance is principally composed and derives its expression from the action of the muscles; as the muscles are capable of rapid contractions, are numerously supplied with nerves, are the agents which particularly manifest the state of the mind, it is evidently a part in which morbid changes, either in the circulatory, muscular, or nervous system, will become apparent; hence it indicates many important circumstances to the eye of the practitioner. Dr. Hall observes that the following particulars are to be

noticed with regard to the face. 1. The colour, general or partial. 2. Tumidity or shrinking; general or partial. 3. Fulness or emaciation. 4. Action or inaction of the muscles; general or partial, continued or occasional, irregular or spasmodic. 5. The circulation. 6. Dryness or moisture; general or partial. 7. The temperature. 8. Particular features. 9. General expression.

The acute author justly directs our attention, however, to the previous study of the natural state of the countenance under various circumstances. He has directed us to consider the delicate and tumid state of complexion in the *infant*, the smallness of its features, the abundance of cellular tissue, the small development of the facial muscles, their unmarked degree of expression, the larger and fuller size of the eyes, the smallness of the features generally. In *youth*, he shows that their states become gradually changed, and approach more nearly to the appearance of the adult countenance. He says, however, that it is the nature and force of the circulation, and the condition of the cellular membrane, which impart the character to the countenance of youth. The circulation is strong and arterial; the cellular membrane injected, firm, and elastic. It is at this period and under these circumstances, that the tumidity and shrinking, observed in the different forms and stages of fever, and the changes from fulness to emaciation, in certain organic diseases, are most remarkable. The *adult* countenance is remarked to have a greater development of the muscular system, and the various expressions of pain, anxiety, &c. are extremely well defined. The disorder of the circulatory system, as indicated by redness, lividity, or pallor, is likewise well defined. In *old age*, on the contrary, the leanness, the flaccidity of the face, the want of colour, &c. are to be noticed. *Sex* further influences the countenance. In the female, the muscular system is less developed, the cellular more so. In the states of conception, of the first month of pregnancy, during the flow of the catamenia, a peculiar tumidity and enlargement of the features is observable. In advanced pregnancy, on the other hand, we often see thinness, anxiety, and uneasiness, visible in different degrees in the female visage.

The *temperament* falls next under consideration, as its principal characteristics are manifested in the face. *Mental emotion*, too, should not be forgotten. Its influence is sometimes exerted on the muscular system, sometimes on the circulation, and sometimes on particular features. Seriousness, gaiety, moroseness, are characterized by their particular effects on the countenance, produced principally by means of the muscular system. Continued and deep thought causes this system to be affected with an unusual degree of contraction. Expectation and surprise induce a relaxation of the muscles. Anger, shame, fear, affect the circulation principally; the first moves the blood upwards, and suffuses the forehead; shame diffuses a blush over the cheeks; fear renders the countenance pale and shrunk, and induces dryness of the tongue. Joy and grief equally occasion a flow of tears. Enthusiasm animates the countenance as it does the breast; despondency depresses the expression, as it makes the heart beat more feebly. External causes often influence the countenance in a manner that it is necessary to be apprised of, in order to prevent an erroneous diagnosis. The immediate effect of bodily exertion and of external heat is to suffuse the countenance; exposure to cold contracts the features, and frequently induces an appearance of lividity. Repletion of the stomach occasions an appearance of heaviness and of propensity to sleep, with a degree of suffusion over the face. Want induces an opposite effect, an appearance of mental and bodily depression. Wine suffuses the eyes and face, and, according to its quantity, enlivens or obliterates the expression.

The next part which falls under our contemplation in diagnosis

diagnosis is the GENERAL SURFACE, in which the following circumstances are to be attended to; viz. 1. The surface in general; as to colour, tumidity, or shrinking of the integuments; œdema or anasarca, corpulency or emaciation, roughness or smoothness of the skin, dryness or moisture of the skin, and temperature. 2. The hands and feet in particular. 3. The elementary cutaneous affections.

And here again the circumstances of age, sex, and temperament, are to be noticed with the same minuteness as in regard to the face. That part of the cutaneous expansion which envelopes the *tongue* has always been noticed as an important indication of the existence of disease. It should be viewed with regard to, 1. Its moisture or dryness, whether general or partial. 2. Its being with or without fur, clean or loaded, swollen or indented. 3. The enlargement or disappearance of its papillæ. 4. Its colour. 5. How protruded. 6. The internal mouth in general, and the taste and breath, should likewise be examined.

The *attitude* in disease is next to be considered. This subject comprises a view of, 1. The position. 2. Changes of position. 3. The caution observed in moving; or the opposite state of writhing, or of jactitation. 4. The state or effects of muscular action; and the state of muscular power or debility.

The healthy posture of infants during sleep is various. The young infant usually lies on its back, often with its hands and arms raised above its head, or laid upon its chest, or spread open, and with its lower extremities drawn upwards. When it is laid on its side, the upper and lower limbs are still placed in a state of complete flexion and relaxation. The posture usually remains unchanged, unless the infant be disturbed by external objects of sense, internal emotions, or disease.

In the healthy and undisturbed sleep of adult persons, the usual posture is that on one side, the body being frequently inclined rather to the prone than to the supine position. The head and shoulders are generally somewhat raised, and, together with the thorax, bent gently forwards. The thighs and legs are in a state of easy flexion. The position is apt to be changed from time to time, the person lying on one or other side alternately.

The attitude, motions, and manner, are considerably influenced by the temperament, the degree of bodily strength, by the state of the mental operations, and by the passions. In a state of great debility, whether from age or disease, the body uniformly falls into the supine position; and the recovery of the usual position of the side is always a sign of returning strength.

These, then, are the morbid appearances which are to be regarded in symptomatology. As to the second head of morbid symptoms, uneasy or painful sensations, they are the most frequent concomitants and signs of all diseases. Few diseases are free at least from uneasiness: for, as there is a degree of pleasurable feeling belonging to the healthful action of all the organs of the body; so, when these are interrupted and disturbed, the sick man suffers pain, anxiety, and various disagreeable sensations. Besides the various modifications of pain which we describe by comparing them with the sensations produced by different causes, such as a burning, stinging, stabbing, gnawing, pain; a shooting, throbbing, binding, pain, and so forth; itching, tingling, a sense of lassitude, of torpor, or numbness, of stupor, of heat, of cold, of weight, nausea, giddiness, faintness, ringing in the ears, and a multitude of uneasy feelings, indicate the varieties of disease. Sometimes the severity of these feelings constitutes the principal part of the disease; and they agitate and distress or terrify the patient so much, that they become more dreadful than even the apprehension of death; indeed, in many cases, these painful sensations are by no means destitute of danger, from whatever cause they originate, as they may wear out the powers of life by their incessant irritation.

The third means of diagnosis is the consideration of impeded or deranged functions. This is a subject of the greatest use in practical medicine; for, as the knowledge of healthy function is the grand desideratum in all our investigations of the animal frame, so a knowledge of their derangements may be considered the principal part of the study of disease. These derangements often constitute individual disease; often, on the other hand, they are indicative of general or remote disease. It is for the latter purpose that we now consider them; and it need hardly be remarked that the two previous methods of diagnosis which we have considered, are, in a great measure, subservient to this. In regard to derangement of the *digestive function*, independently of the examination of the tongue, breath, &c. before enumerated, we have to consider, firstly, the function of the pharynx and œsophagus, as it affects deglutition. Secondly, Of the stomach; and herein of the appetite, thirst, hiccup, eructation, nausea, vomiting, and the matters rejected. Thirdly, Of the bowels; as constipation, diarrhœa, tenesmus, involuntary stools, flatulency, borborigma, distension; the state of the fœces; discharges of mucus, blood, or pus.

The function of *respiration* is next in order; and this subject comprises a view of, 1. The mode of respiration. 2. The effect of a full inspiration. 3. The kinds of cough and of expectoration. 4. Sneezing, gaping, &c. 5. The state of the voice. 6. The phenomena manifested by the stethoscope, and the pulsation of the heart.

In the *circulatory system*, the most important diagnostic appearances are to be noticed with peculiar care. That alternate dilatation and contraction of the arteries, which is called the *pulse*, is the chief mean by which we are guided in ascertaining the nature of acute diseases. The following divisions of this phenomena have been made. The *slow pulse*, the *quick pulse*, the *soft pulse*, the *hard pulse*, the *intermitting pulse*, and the *full pulse*. Many other varieties have been enumerated by different authors, by Galen, Bordeu, Nihel, Bellini, and Maslaria; but they are entirely fanciful.

Before we proceed to describe the varieties of the pulse, it will be necessary to speak of the many discrepancies it exhibits in health. These anomalies had not escaped the penetrating eye of Celsus. He aptly observes, "Venis enim maxime credimus, fallacissimæ rei; quia sæpe istæ leniores celerioresque sunt, et ætate, et sexu, et corporum natura: sæpe eas concitat et resolvit sol, et balneum, et exercitatio, et metus, et ira, et quilibet alius animi affectus: adeo ut, cum primum medicus venit, folicitudo, ægri dubitantis, quomodo illi se habere videatur, eas moveat. Ob quam causam, periti medici est, non protinus ut venit, apprehendere manu brachium; sed primum residere hilari vultu, percontarique, quemadmodum se habeat: et si quis ejus metus est, eum probabili sermone lenire; tum deinde ejus corpori manum admovere. Quas venas autem conspectus medici movet, quam facile mille res turbant!" Lib. iii. cap. 6. In our own time, Dr. Falconer has paid much attention to these circumstances; and has shown that, before we can derive any information from the pulse, it will be necessary to observe the varieties which exist in its natural standard, and also the changes to which it is subjected by common causes. The standard natural pulse has been variously estimated: perhaps the exactest computation is that which reckons 73 beats in the space of a minute. The pulse is generally, however, quicker than this in women, in persons of sanguineous temperament, and in young children. The increase of pulse in women appeared to be in the ratio of one seventh more than in man. As to children, according to Dr. Heberden, "the pulse of a healthy infant asleep on the day of its birth is between 130 and 140 in one minute: and the mean rate for the first month is 120; for during this time the artery often beats as frequently as it does the first day, and I have never found it beat slower than 108. During the first

first year, the limits may be fixed at 108 and 120. For the second year at 90 and 100. For the third year at 80 and 108. The same will very nearly serve for the fourth, fifth, and sixth, years. In the seventh year, the pulsations will be sometimes so few as 72, though generally more." From the twelfth year, then, except that the pulsations are much more easily quickened by illness or any other cause, they differ but little from those of a healthy adult, the range of which Dr. Heberden states to be from a little below 60 to a little above 80 in a minute. From an average of five-and-twenty boys, observed by Floyer, between the ages of twelve and sixteen, the pulse was about 83; in all of them above 80. With regard to the diminution of pulse which has been said to be observable in the decline of life, Dr. Falconer is disposed to believe, though not very confident in his opinion, "that the pulse in a healthy person becomes gradually slower from about forty-five years of age to about sixty, after which period it begins again to grow quicker, and to become, as several other circumstances in the system do also, more resembling that of children. But to this," he adds, "there are undoubtedly many exceptions."

It has been generally supposed that stature had a great influence on the pulse; and Senac, from observations made on a hundred men in the royal guards, deduced the following estimate of pulses in proportion to stature: namely, at two feet, pulse 90; at four feet, pulse 80; at five feet, pulse 70; and at six feet, pulse 60. Dr. Bryan Robinson has likewise made a computation, but it differs from Senac's; and, upon the whole, this point does not seem to be satisfactorily ascertained. Haller especially mentions, in opposition to this opinion, that the Swiss people, who are generally tall, have quick pulses; and further instances the fact, that he was himself six feet high, and that his own pulse beat 78 in a minute.

The pulse is moreover influenced by the time of day. In the morning the pulse is generally slowest, and becomes accelerated towards evening. This is most remarkable in persons in whom a high degree of nervous sensibility is apparent. The principal causes which accelerate the pulse are food, exertion of every kind, (even speaking or standing,) warmth, the passions of hope, joy, and anger; and sometimes, the reaction which supervenes to sudden shocks and impressions on the nervous system. On the other hand, the pulse is depressed by abstinence, sleep, fear, anxiety, and grief; and by certain degrees of cold. But the operation of all these causes is subject to great variation, and is often counteracted by the influence of opposite agents.

In feeling the pulse, the degree of *quickness* is of course easily determined by a stop-watch; the degree of *force* is estimated by the resistance which the artery opposes when compressed by the finger. In order to ascertain this resistance, the pulse should be strongly compressed by three of the fingers until no pulsation is experienced; after which, by gradually relaxing the fingers, we shall ascertain its proportion with a tolerable accuracy. It is to be remarked, however, that the obesity of certain persons alters this circumstance; for not only is it more difficult to feel the degree of resistance of the vessel when covered with a thick layer of fat, but fat persons have likewise slower pulses than lean ones. Another distinction of the pulse is taken from its *hardness*: this term is used to imply a peculiar sudden vibration, like the sensation communicated by the tense cord or wire of a musical instrument. "Some books," Dr. Heberden remarks, "speak of *intermitting* pulses as dangerous signs, but I think without reason; for such trivial causes will occasion them, that they are not worth regarding in any illness, unless joined with other bad signs of more moment. They are not uncommon in health, and are perceived by a peculiar feel at the heart by the persons themselves every time the pulse intermits." We have generally considered these intermitting pulses as of dyspeptic origin, and have seen them removed, in fevers, by

a purge. Where the pulse intermits, and is very unequal in its beats, and there is at the same time palpitation of the heart, oppression of the breathing, lividity of countenance, or other serious symptoms, then the intermission is probably one among the signs of some affection of the heart; but in ordinary cases, occurring with symptoms of indigestion, or slight feverishness, it is perfectly void of danger. It is curious, indeed, that irregularities of the pulse are sometimes habitual, and disappear only with good health. Dr. Heberden says, "many persons will likewise have unequal pulses without any other sign of ill health. I have met with two, who, in their best health, always had pulses very unequal, both in their strength and the spaces between them; and, upon their growing ill, their pulses constantly became regular; and it was a never-failing sign of their recovery, when their arteries began again to beat in their usual irregular manner." The writer of this article can add to these, an instance of an old lady of his acquaintance in whom the same appearances as recorded by Dr. Heberden are very strikingly marked.

The propriety of these divisions was formerly much questioned, as implying an unnecessary and frivolous degree of minuteness; but it seems scarcely worth while to make any remark on this subject, as their necessity is now generally admitted, and is easily proved by the grand criterion of medical theory—its practice. It must be admitted, however, after all, that the pulse, as Celsus says, is "*fallacissima res*;" and it is only by regarding it in conjunction with the other modes of diagnosis that we are enabled to make practical use of its various phenomena.

The circulating system presents further points of consideration in regard to morbid changes in the blood. These alterations are little understood. It is probable that many exist of great importance, which are nevertheless not cognizable to our senses. The most obvious change in the blood is that which constitutes what is called *syzy* or *inflammatory blood*. It takes the former name from a tough buff-coloured coat which forms on its surface after coagulation, and which, according to Hewson, consists of albumen and a portion of fibrine; and the latter, from its being peculiar for the most part to inflammatory diseases. Changes of less magnitude have been observed in various other diseases; as a peculiar blackness in the blood of scorbutic patients, the want of red colour in, and the dilute quality of, the blood in some stages of dropical and chlorotic affection, &c. But we forbear to enter into any further notice of this subject at present. The reader may consult, for more particular information on this head, the works of Hewson, Fourcroy, and Thackrah.

The state of the *excretory system* is principally examined by analysis of the excreted substances; as of the urine, sweat, uterine discharge, &c. but in many instances the investigation of these substances is very obscure.

The last system which remains to be noticed as affording certain information in respect to diagnosis, is the *nervous*. The operation of the five senses, the elevated or depressed state of the spirits, the ratiocinative and imaginative functions, afford notice of the degree of danger of some maladies in a most certain manner; and hence deserve to be studied with diligence and attention.

We now proceed to speak of *THERAPEUTICS*, that branch of medicine to which all the other branches stand in relation only as auxiliaries; auxiliaries, it must be confessed however, the attainment of which is absolutely necessary ere we can practise this branch in a philosophic manner. Unfortunately this truth has till lately been unknown. The long, the tedious, and (to untutored minds) the uninteresting, path of anatomical research, of observation, of experiment, and of cautious deduction, suits not the taste of mankind in general. Hence they have attempted to cure their infirmities by shorter and pleasanter methods; and hence, even now, the wonder-working specific claims unmerited attention; and the therapeutical

therapeutical branch of medicine is purged of fewer of its ancient errors than any other of the pathological sciences.

The removal of disease may be effected by various agents. The first, the most obvious, and indeed the only ones of which the modus operandi is clearly understood, are those which act according to the common laws of matter. These agents are few in number: they consist of the surgical operations; of those substances which operate chemically, as solvents of stones in the bladder, clysters dissolving scybala, &c. The second are those which act on the various parts of the animal system by means of relation with the vital properties. But, as these properties are little understood, it is very evident that we cannot trace with any accuracy their relation with medicinal substances. Hence much of the therapeutical branch of medicine rests on inferences of a very loose and uncertain character. The action of most of the articles of the *materia* may be supposed to affect principally the contractility of fibres or of vessels. Those which increase the action of that power are called *stimulants*; those which diminish it, *sedatives*; and medicines producing visible effects on the sensibility of the nervous system are called *narcotics*.

The difficulty now to be overcome is to class the numerous substances of the *materia medica* under each of these heads; a difficulty at present insurmountable; for not only we do not know but the impaired state of sensibility may arise from altered action of the contractile forces, or that those forces may not be influenced originally by the altered sensibility; but, further, we require a long series of experiments to be instituted ere we can admit into our classification one half of the drugs contained in our Pharmacopœia. For this reason, deeming it more consonant with true philosophy to confess our ignorance than to perpetuate erroneous doctrines; it is our intention, when we come to that part of our article which more particularly relates to medicines and their doses, to adopt the simple order of the alphabet. And indeed, the pompous arrangements of the *materia medica* into classes and orders, with other subdivisions, are now derided by the faculty. Some medicines possess very different powers, so that their proper places are not easily ascertained. They must therefore be repeated under different heads; and it is evident how many repetitions such arrangements must occasion; since, when an article is properly placed, an increased dose of the same would often carry it into another division, and the same drug will have a different effect in different cases or states of disease. At p. 44, we have given the outline of Darwin's arrangement, which is the most concise; but it does not satisfy our minds. Kirby's Tables contain 18 classes, each, of course, divided into at least three sections, to include animal, vegetable, and fossil, substances; and Dr. Cullen has 23 classes, which are these:

Astringents.	Diluents.	Sialogogues.
Tonics.	Attenuants.	Expectorants.
Emollients.	Inspissants.	Emetics.
Corrosives.	Demulcents.	Cathartics.
Stimulants.	Antacids.	Diuretics.
Narcotics.	Antalkalines.	Diaphoretics.
Refrigerants.	Antiseptics.	Menagogues.
Antispasmodics.	Errhines.	

Of those who have copied Dr. Cullen's arrangement with some modification, there is perhaps none that deserves more attention than the anonymous author of the "Thesaurus Medicaminum," and a "Practical Synopsis of the Materia Alimentaria and Materia Medica." This author distributes the articles of the *materia medica* into 12 classes. 1. Evacuants, comprising errhines, sialogogues, expectorants, emetics, cathartics, diuretics, diaphoretics, emmenagogues. 2. Emollients, comprising diluents and emulcents. 3. Absorbents. 4. Refrigerants. 5. Antiseptics. 6. Astringents. 7. Tonics. 8.

Stimulants. 9. Antispasmodics. 10. Narcotics. 11. Anthelmintics; and 12. Heteroclitics; this last being formed to include those articles that could not properly be reduced under the former heads.

Mr. Murray's arrangement, which is very ingenious, is founded principally on the doctrine of *universal stimulus*, and he thus explains the principles on which it is established. "Those stimulants, which exert a general action on the system, may first be considered. Of these there are two well-marked subdivisions, the diffusible and the permanent; the former corresponding to the usual classes of narcotics and antispasmodics; the latter, including likewise two classes, tonics and astringents. In these there is a gradual transition passing into the one from the other, from the most diffusible and least durable stimulus, to the most slow and permanent in its action. The next general division is that comprising local stimulants; such are the classes of emetics, cathartics, expectorants, sialogogues, errhines, and epispastics. These all occasion evacuation of one kind or other; and their effects are in general to be ascribed, not to any operation exerted on the whole system, but to changes of action induced in particular parts. After these, those few medicines may be considered whose action is merely mechanical or chemical. To the former belong diluents, demulcents, and emollients. Anthelmintics may perhaps be referred with propriety to the same division. To the latter, or those which act chemically, belong antacids or absorbents, lithontriptics, escharotics, and perhaps refrigerants. Under these classes may be comprehended all those substances capable of producing salutary changes in the human system. Several classes are indeed excluded which have sometimes been admitted; but these have been rejected, either as not being sufficiently precise or comprehensive, or as being established only on erroneous theory." Murray's Elements.

Mr. Murray's arrangement will best be understood from his own Table.

A. GENERAL STIMULANTS.	
a. Diffusible.	{ Narcotics. { Antispasmodics.
b. Permanent.	{ Tonics. { Astringents.
B. LOCAL STIMULANTS.	
	Emetics. Cathartics. Emmenagogues. Diuretics. Diaphoretics. Expectorants. Sialogogues. Errhines. Epispastics.
C. CHEMICAL REMEDIES.	
	Refrigerants. Antacids. Lithontriptics. Escharotics.
D. MECHANICAL REMEDIES.	
	Anthelmintics. Demulcents. Diluents. Emollients.

Dr. Parr alters the arrangement of Dr. Cullen's classes, and increases them to 26, as below:

Emetics.	Refrigerants.	Antalkalines.
Cathartics.	Antispasmodics.	Antiseptics.
Diaphoretics.	Tonics.	Emollients.
Diuretics.	Sedatives.	Corrosives.
Expectorants.	Attenuants.	Astringents.
Errhines.	Inspissants.	Antidotes.
Sialogogues.	Alterants.	Lithontriptics.
Emmenagogues.	Demulcents.	Anthelmintics.
Stimulants.	Antacids.	

Whilst Dr. Cullen's classification has been thought too diffuse, and Dr. Darwin's much too contracted, and adapted merely to his own exceptionable system of nosology, Dr. Kirby, in his small tract, entitled "Tables of the Materia Medica," has inserted seventeen classes, which are, upon the whole, judiciously selected; and his arrangement has been adopted by most of those modern writers who are of opinion that the materia medica are so numerous as to require a *methodus*. The classification is as follows; and, as hinted before, every class is subdivided, as far as possible, into an animal, a vegetable, and a mineral, section.

Class I. Emetics.—Emetics are such medicines as are calculated to excite vomiting, and thus discharge the contents of the stomach.

II. EXPECTORANTS.—Those medicines are called expectorants, that are employed to promote the excretion of pus or mucus from the windpipe and lungs. In general they are emetics given in smaller doses, though there are several medicines, especially some of the gummifera, that are considered to act in this way, without any tendency to excite vomiting.

III. DIAPHORETICS.—Diaphoretics are those remedies that are intended to promote, keep up, or restore, the excretion of perspirable matter from the skin; and of these some act but feebly, and only increase the insensible perspiration, while others act more powerfully, and, under favourable circumstances, excite sweating.

IV. DIURETICS.—These are such medicines as promote or increase the excretion of urine.

V. CATHARTICS.—Cathartics are those medicines which promote or increase the evacuation of excrementitious matter, or of serous fluids, from the bowels.

VI. EMMENAGOGUES.—Medicines which are supposed to act on the womb, and to promote the discharge of the menstrual flux; but it is more than doubted if any drugs whatever have that peculiar action.

VII. ERRHINES.—Those medicines are termed errhines that are employed to promote an increased discharge of mucus from the nostrils.

VIII. SIALAGOGUES.—These are employed either to promote an increased flow of saliva, or to produce such an action on the gums as shall indicate their having been received in sufficient quantity into the circulation. Under the former division are ranked several vegetable substances; under the latter are included only mercury and its preparations.

IX. EMOLLIENTS.—The medicines commonly called emollients consist either of diluting liquors, formed of simple water; or certain vegetable infusions; or mucilaginous and oily matters that have the mechanical property of defending the parts to which they are applied, from the action of acrimonious substances that pass over them, or of softening and relaxing the skin and other external parts. The first of these are commonly called *diluents*, the second *demulcents*, and the third simply *emollients*.

X. REFRIGERANTS.—Under this term are comprehended those remedies which are employed with a view to diminish the preternaturally increased heat that takes place in the body during fevers and several inflammatory affections.

XI. ASTRINGENTS.—Astringents are defined by Dr. Cullen to be such substances as when applied to the human body produce a condensation and contraction of the soft solids, and thereby increase their density and force of cohesion. If they are applied to longitudinal fibres, the contraction is made in the length of these; but, if applied to circular fibres, the diameters of the vessels, or the cavities which these surround, are diminished.

XII. TONICS.—Tonics are those medicines which are suited to counteract debility, or to give strength and energy to the moving fibres.

XIII. STIMULANTS.—Most of the articles of the Materia Medica might, in an extended sense, be called *stimu-*

lants; but this term is, by the general consent of physicians, restrictively applied to those medicines which possess the power of sustaining or increasing the vital energies; of raising and invigorating the action of the heart and arteries; and of restoring to the muscular fibre, when affected with torpor, its lost sensibility and power of motion.

XIV. ANTISPASMODICS.—Those medicines which have been found by experience to put a stop to convulsive motions, or spasmodic contractions of the muscular fibres, are called *antispasmodics*. Most of them are stimulants, some narcotics, and some are considered as specific antispasmodics.

XV. NARCOTICS.—This term has been usually applied to those remedies which are calculated to relieve pain and procure sleep. They have also been termed *anodynes* and *hypnotics*; and most of them were formerly ranked in the class of sedatives.

XVI. ANTHELMINTICS.—Those medicines which are employed with a view to expel worms from the bowels, are called anthelmintics.

XVII. ABSORBENTS.—Medicines which are taken inwardly for drying-up or absorbing any acid or redundant humours in the stomach or intestines. They are likewise applied outwardly to ulcers or sores, with the same intention.

That each of these systems was framed by their authors in consonance with their peculiar and erroneous theories is a sufficient reason for their present dismissal. Granting, however, that the effects of the substances thus classified were correctly detailed, it is very evident that most of the classes are easily resolvable into the class of *stimulants*; for supposing that any medicines can produce expectation, that process can only be accomplished by stimulating the exhalent vessels of the bronchial expansion; and the same remark is applicable to most of the other classes above mentioned. With respect to stimulants, the most proper pathological division appears to be according to the particular structures on which they exert their effects. Of these the most general are purgatives, emetics, diuretics, and diaphoretics; not to mention emmenagogues and a host of others, the separate and independent action of which does not appear to be well known.

PURGATIVES.—Many errors have been committed in the administration of this useful class of substances. The heterogeneous mixtures which have been made of them, and their indiscriminate application, sufficiently prove that the physicians of the last century did not properly understand the use of them. To Dr. Hamilton and Mr. Abernethy we are indebted for pointing out the general and salutary effects produced by the exhibition of purgatives. Those authors have clearly shown, that many nervous affections, and even chronic diseases of the secreting and vascular functions, may be cured by these remedies. Dr. Hamilton's success in treating febrile and hysterical diseases has been truly great; and Mr. Abernethy has demonstrated their singular utility in local diseases, as obstinate ulcers, &c. Accordingly the benefit of cathartics is now very generally estimated; and we are perhaps in danger of falling into an error quite opposite to our predecessors, that of placing too much reliance on their use.

Sufficient attention however has not been paid to the particular action of different cathartics. Practitioners have been too much in the habit of prescribing them indiscriminately, without sufficiently alluding to the effects which each drug is capable of producing on the different parts and structures of the alimentary canal. Mr. A. Carlisle first directed the attention of his professional brethren to this point. "Cathartics," he observes, "appear to operate in the following ways; viz. either by exciting the peristaltic motion of the intestines to an unusual degree, and thereby causing them to protrude their contents more quickly through the alimentary passage;

or by increasing the fluidity of the alimentary mass by substances which are obnoxious; or to induce these two effects. The first kind of cathartics probably act upon the muscular fibres of the intestines, and the second kind seem to act upon the vascular parts of the intestines. Some cathartics induce an unusual flow of bile into the intestines; and in this respect they resemble, in their *modus operandi*, the natural stimulus of the bowels, which is the bile. Other cathartics stimulate the exhalent vessels of the intestinal membranes, and thereby give an excess of fluidity to the volume of their contents: or all these several modes of operation may be united by a suitable mixture of cathartic medicines. Again, some cathartics act especially upon the stomach, and upon the upper portions of the intestinal tube; and others seem to stimulate particularly the lower and larger intestines. Some operate by emptying the bowels only, without diminishing the animal vigour; whilst others sink the strength of the patient by emptying the sanguineous system at the time they hurry away the nutritious aliment."

With respect to the substances capable of producing the above-mentioned effects; the ingenious author is inclined to think that rhubarb acts almost exclusively on the stomach and on the large intestines; on the former organ especially when combined with ipecacuanha. Mercurial salts (of which those in most common use are the blue pill and calomel) operate in two ways: by inducing secretion of bile from the liver, and hence furnishing the bowels with their natural stimulus to action, or by their direct effect on the coats of the larger intestines inducing secretion from the surfaces of those organs. Mr. Carlisle supposes that the neutral salts act by exciting watery discharges; but the action of these substances is modified by the quantity of fluid in which they are taken, and by the previous condition of the alimentary canal; for they may be decomposed by the morbid secretions. On this latter account Epsom salts are particularly recommended by this author, because, even if decomposed, their operation is still ensured by the purgative quality of their base. In regard to the modification produced on the action of these salts by their dilution, it is a curious remark, that small quantities of salts dissolved in large quantities of water act with as much force, greater certainty, and less subsequent exhaustion, than much larger quantities in smaller menstrua. Castor oil may be considered as one of those rare purgatives which act generally on the intestinal canal; perhaps by its viscid oleaginous part on the superior portion of that canal, and by its acrimonious resin on the lower bowels. Its resinous portion is supposed by this author to be particularly obnoxious to absorption; and hence we may infer arises the certainty of its operation. Jalap is one of those cathartics which seems to stimulate exclusively the peristaltic action of the bowels, and is therefore of much use in evacuating them in acute diseases. Scammony, gamboge, and elaterium; act mostly on the muscular parts of the bowels, and perhaps the nervous; but these effects, except in combination with other medicines, are very precarious. Aloes of Colocynth are generally supposed to act on the lower parts of the intestines; but that effect probably arises rather from the insolution of those substances until they arrive so far, than from their specific action on those parts.

It seems scarcely necessary to remark on the advantageous mode of using various sorts of purgatives in conjunction, as that practice has very generally obtained, and is very successfully applied to all kinds of medicinal substances.

Cathartics may be administered in the form of *clyster*; and in many instances this method has great advantage over the ordinary method. The French employ "*lavements*" on almost all occasions. They are chiefly useful in cases in which the stomach is unable to retain, or would be injured by, irritating medicines; as in *gastritis*, or inflammation of the stomach, and in febrile complaints

attended with extreme debility, especially in the latter stages; since by this mode the contents of the lower parts of the intestines are simply evacuated, without any stimulus to the secreting vessels, and with little or no irritation of the system at large. It is also to be observed, that considerably larger doses may be safely employed in this way. It is of advantage to employ some emollient substance, combined with the purgative, to defend the intestine in some measure against the acrimony of the medicine. Thus, if the electuary of senna is used, it may be conveniently rubbed up with a little oil; and the whole will then mix uniformly with milk or any other liquid. When clysters are employed as purgatives, it must be remembered that they cannot pass higher up than the valve of the colon, and consequently that they can only act directly upon the large intestines. Therefore, they can seldom entirely supply the place of purgatives by the mouth, which pass through and excite the whole intestinal canal; but they prove most useful auxiliaries, particularly in those cases of intestinal disorder that are attended with much vomiting and irritability, where, besides emptying the lower bowels, they act as topical fomentations, and very often induce ease and sleep when other methods fail. In such cases, therefore, they should be in pretty large quantity, not very stimulating, and as warm as the patient can bear them. As vermifuges, also, clysters have a peculiar and local use, where the worms are lodged in the lower intestines; particularly as very highly stimulating medicines are often required to dislodge these troublesome animals, which, if given by the mouth, might produce a good deal of inconvenience and irritation.

The reader will clearly perceive how insufficient these observations are, and how much the investigation of the remote *modus operandi* of various purges still remains a desideratum. The subject, however, is confessedly surrounded with much difficulty; yet a series of experiments might probably be devised to throw further light on this interesting subject, which should likewise extend to a much larger number of cathartics than those we have hitherto considered.

EMETICS, or those substances which operate a rejection of the contents of the stomach, are of various kinds. Most of the common poisons are emetics; and many other substances, not deleterious in themselves, do, when administered in excessive quantities, produce sickness. Some disputes have been made public concerning the action of these substances; some physiologists supposing that they produced their effect by stimulating the stomach to contraction, others that the abdominal and costal muscles were the agents concerned, and which produced vomiting, the stomach performing no contraction. Many experiments have been made on this point; and the result renders it probable that both the above-mentioned powers are concerned in the act of vomiting, and that the oesophageal part of the stomach is first acted on.

The use of emetics in what may be termed a restrained or limited degree is frequently attended with the most powerful effects. The sensation of *nausea*, that sensation which occurs previous to the act of vomiting, is in the highest degree debilitating: it reduces the action of the heart, and is attended with very general secretion from the mucous expansion of the nose, eyes, fauces, air-cells, and stomach. Hence doses of emetics capable of producing this effect and no more are used in acute diseases: for it is worthy of notice, that beyond the above-mentioned point (that of nausea), when vomiting succeeds, the system appears *stimulated*, and the cerebral circulation increased. So that to produce nausea, and to produce vomiting, is a very different matter, and worthy of particular attention.

The action of the urinary system is increased by increasing the natural quantity of fluids swallowed, or by the use of DIURETICS. The number of substances which have been praised by different writers, as possessed of diuretic

retic powers, or capable of stimulating the action of the kidneys, is very great, especially from the vegetable world. Many of them, however, are very inefficacious; and it is the common imperfection of the whole of this class to be very uncertain in their operation: sometimes the more feeble diuretics will succeed, when the stronger have failed; and often, after every variety of kind and combination has been tried, the secretion of urine remains unaltered. Digitalis, squill, mercury, and crystals of tartar, separately or combined, are the most efficacious of the class; but the alkalies both fixed and volatile, some of the neutral salts, the nitrous ether, the terebinthates, &c. are by no means useless as auxiliaries. There is perhaps no class of medicines, in which a combination of two or more substances, possessing similar powers, is so frequently important, as in that of the diuretics. Thus the use of potash, joined with bitter vegetables, is recommended by sir John Pringle, as an efficacious medicine: and, as the alkaline substances may be often prevented, by purging, from reaching the kidneys, so their diuretic effect may be often more certainly secured by giving an opiate at the same time, according to the practice of Dr. Mead. A combination of the squill, with digitalis, and some of the less purgative preparations of mercury, as the common blue pill, is occasionally very active in its diuretic operation; and, in children, or in old and feeble people, the union of the spirit of nitrous ether, or of other diuretic substances, with the bark, or other vegetable tonics, appears to be often very serviceable.

Diuretics, moreover, receive great additional power from perfect solution; and it was remarked by Cullen, that the union of diluents with these substances was productive of the best effects. Diuretics are most generally had recourse to for the purpose of determining fluids to the kidneys which were liable to be effused; and indeed they have been supposed to act an important part in removing them when that process had occurred. If the latter supposition be admitted, we must suppose that a diuretic possesses immediately the power of promoting absorption; and of that we have no direct evidence. On the other hand, that diuretics can prevent the further accumulation of effusions is a fact of which we have strong inference, and which is accordant with the inexplicable law of *derivation* so generally observed.

DIAPHORETICS are those substances which promote insensible perspiration, or sweat. Their *modus operandi* may be inferred to arise, either by direct application, or by nervous consent. If diaphoretics are assimilated, pass into the round of the circulation, and are applied directly to the cutaneous vessels, they may produce increased contraction, or the reverse: or otherwise, the powerful sympathy observed between most parts of the mucous expansions, and especially between the stomach and skin, authorise us to believe, that the contraction or dilatation of the vessels of the skin may be produced by nervous excitement, first impressed on the stomach, thence propagated to the nervous general communication, and lastly to their vessels; or, in other words, the effect may be produced by sympathy.

The older practitioners took great pains with these medicines: the sudorific plan of treatment was the fruitful source of miliary eruptions, and a variety of troublesome complaints. The use of diaphoretics is at present much restricted, particularly those which increase the general circulation.

There are two means, by which perspiration may be induced, and the action of sudorific medicines promoted; namely, by application to the skin, and ingesta. When the skin is not in a state unfavourable to perspiration, the application of heat to the surface of the body, without any assistance from powers internally applied, is sufficient to produce sweating; and the application of cold, i. e. the abstraction of the heat, can almost certainly prevent the same, though considerable powers are employed within. Thus sweating may be obtained by the heat of

the air, applied as in what is called the *dry bath*, or by increasing the heat of the surface by previous warm bathing, or by accumulating the warm effluvia of the body itself upon its surface. This last may be done by covering up the body very closely with such coverings as may both prevent the escape of the warm effluvia arising from them, and at the same time prevent the access of external cold. But, farther to favour the diaphoretic action, a quantity of warm liquid may be taken into the stomach, which not only excites the general circulation, but particularly, by consent of the vessels on the surface of the body with the stomach, excites the action of those vessels which pour out sweat. The use of warm liquids alone, especially in the morning, while in bed, where there is a general disposition to perspiration, is in slight febrile cases an ample sudorific. These two means, of covering up the body closely, and taking warm liquids into the stomach, are what we call the sudorific regimen; which will often answer alone the purpose of exciting diaphoresis; is often necessary to the operation of sudorific medicines; and will always render their operation more complete and permanent. *Cullen's Mat. Med.* vol. ii.

The combination of opium with sudorific medicines is valuable in two ways: the opium aids the operation of the sudorific, on the one hand; and, on the other, the sudorific, by determining to the skin, renders the anodyne effect of the opium more certain and complete, and prevents some of its unpleasant influence on the head: for opium, given when the skin is dry, or not accompanied by perspiration in the course of its operation, is very apt to occasion restlessness rather than sleep, and to produce a slight approach to delirium, by its influence on the brain: hence the acknowledged value of the combination which is universally known by the name of *Dover's powder*, as a safe and active diaphoretic and anodyne; it consists of opium combined with the diaphoretics, ipecacuanha, and sulphate of potash.

Guaiacum too has been much praised for its sudorific properties: Dr. Cullen considered it to be one of the most valuable of the stimulant diaphoretics, because it affords a matter which passes more entirely to the extreme vessels, and seems to stimulate the exhalents more in proportion than it does the heart and great arteries. By this means it is both a more safe and more effectual sudorific than those which stimulate the latter almost only: but acute rheumatism, or rheumatic fever, as it is called, is almost the only acute disease in which it can be recommended; and it is a disease in which the sweating is spontaneously profuse, and bears stimulants better than phlegmonous inflammations.

EMMENAGOGUES.—It has not been thought necessary to treat particularly of emmenagogues, as they are most of them *general* stimulants, and are so uncertain in their action that they can scarcely be viewed as stimulators of the uterus in particular.

A few other minor divisions, are also commonly made; as *ERRHINES*, which act on the mucous membrane of the nose, &c. but these consist of so very small a number of the pharmacopœal articles, that the mention of the substances themselves would be less tedious than their classification.

There are some articles in the *materia medica* which have been denominated *general stimulants*, from their effect on the system at large. They are little used at present in the practice of physic, but were strongly recommended by Brown, and consequently came into very general approbation during the time that author's theories were triumphant. They obtained this distinction partly because Brown was practically and individually acquainted with the healthy feelings they excited, but mostly because their use naturally grew out of his theory of debility and excitement before noticed.

Most of these substances appear to influence the body by means of the nervous system; for the rapidity with which their action is elicited cannot allow us to suppose their

their absorption, and local application to the circulating powers. This remark will likewise apply to many of the *SEDATIVES*; for, though these latter substances are for the most part absorbed and carried into the circulation, and thus operate immediately on the contractile powers of vessels, others exist of which the instantaneous action allows of no explanation except the supposition that they act on the nervous system through the medium of the stomach. It is obvious however, that, strictly speaking, all medicines acting on the nervous system should be comprehended in another division; but, as we before observed, the *modus operandi* of the respective articles in the *materia medica* is not sufficiently established to allow us to arrange them thus closely according to their effects.

We must observe, in this place, that many stimulants attended with discharges may indirectly produce sedative effects by removing plethora; as purgatives, diuretics, &c. The establishment of the opposite fact, viz. that some substances produce *directly* sedative effects, is a grand feature in the new Italian doctrine, and in which that doctrine is opposed to the Brunonian theory, which, as we have before shown, supposed that all medicines were stimulants, and only produced debility by promoting discharges. This opinion is not to be dismissed with quite so little ceremony as many parts of Brown's doctrines; for, though not admissible to its full extent, it is rational to conjecture that many substances do produce inaction of particular parts or organs by excessive stimulus on others, and thus that the class of direct sedatives is very limited indeed.

The most powerful sedative agent that we use in medicine is *Bleeding*. This operation is however scarcely capable of being arranged under any division; for, in the first place, if the system is gorged with blood, there can be no doubt that such a state may arise as will preclude the rapid action of the heart; and in this case, by diminishing the quantity of blood to be moved, the motive power remaining the same, the velocity will necessarily be increased. Thus, bleeding is a *stimulant*, on the other hand the rapidity of the heart's action is in certain states *reduced*, or rendered slower, by bleeding. Thus, it is a *sedative*. Again, syncope may be induced by bleeding; and, as this is dependent on diminished circulation through the brain, the operation here holds relation with the nervous sensibility. And further, the emptiness of the sanguineous system produces increased action in the *absorptive* powers.

According, then, to the various states of disease, this operation produces different effects, which are still further varied by the time and manner of its performance. With regard to the *time*, this has great influence on the curative results. Thus in inflammations of all kinds, it is necessary to bleed in the early stages, lest the continuance of that disease should terminate in change of structure, or at least in permanent dilatation of vessels. The manner of bleeding respects the abstraction of blood from small or large orifices, by frequently-repeated and small, or by large and sudden, evacuations. Topical bleeding is another mode of abstracting blood which is usefully employed in a great number of inflamed or excited parts, when previous exhaustion or other causes preclude general bleeding. With regard to the mode of performing venesection, arteriotomy, acupuncture, &c. see the article *SURGERY*.

The action of the absorptive system is increased with a view to the removal of many solid depositions, fluid secretions, and extraneous bodies, &c. Like the circulatory system, it may have its contractile phenomena increased or diminished. The first indication is attempted by mechanical pressure, and by certain medicines called stimulants; and it seems further increased in direct proportion to the exhausted state of the heart and arteries. The second change, or the diminution of the activity of absorbents, is not found to attend with certainty the exhibition of particular drugs; but it is produced by various

morbid alterations, by heat, by the defect of mechanical pressure, and by the reduction of nervous sensibility.

To return however to the use of stimulants; *mechanical pressure* is an agent which exerts great and general influence over the absorbent system. In their course through the extremities of the body, the absorbents are compressed by the distension of the arteries, and during the contraction of muscles; within the cavities of the abdomen and thorax, they are subjected to the pressure of the ingesta, of the distended air-cells of the lungs, the movements of the diaphragm, and of the respiratory and abdominal muscles. Atmospheric pressure, as well as the weight of clothes, &c. is likewise to be taken into estimation. It is obvious that, as absorbents are furnished with valves which prevent the return of fluids towards their open mouths, *pressure* must accelerate the flow of their contents towards their venous terminations.

It must here be remarked, that the effect of long-continued pressure is probably two-fold; operating on the one hand to increase absorption, on the other to prevent deposition. Medicines which increase absorption operate for the most part by increasing contraction. But they may further, in some instances, render solid depositions less difficult of absorption, by producing solution of their constituent parts. That an empty state of the sanguineous system generally renders absorption more active, is a fact which we should be inclined to admit *a priori*; and it has received full confirmation from the well-known experiments of Majendie. It explains how purgatives, diuretics, &c. to which the older physicians attributed absorptive powers, may really bring on absorption, by causing depletion; and it further renders plain the circumstance, that a great number of medicines do not manifest their salutary operation except in exhausted depleted patients.

In our therapeutical indications, one of the most important is the imitation of nature in the production of opposite diseases. That disease in one part or structure of the body often ceases on its production in another, is, as we have before shown, a general law in pathology, subject however to many exceptions. It is in expectation of producing this salutary change that we use many of the most powerful stimulants. Thus blisters, mustard-cataplasm, embrocations, moxa, &c. are employed with the intention of *converting* diseases, i. e. of inducing action in a part not essential to life, for the purpose of removing it from one in which its dire effects are known and apparent. It is to be observed, however, that contra-irritation is a mean which can only be resorted to with advantage in certain degrees of inflammation; for it is known that, in inflammations of the highest magnitude, blisters, when applied before bleeding and evacuations have been premised, increase general irritation without alleviating topical disturbance; and this holds good in regard to most other substances of the same class.

As appendices to the usual and common remedies, we have to mention medical electricity, and the inhalation of gaseous fluids. Each of them has received an ephemeral and excessive degree of praise; and hence, like many of the surprising remedies perpetually arising, have fallen into undeserved contempt.

The cure of the most violent and inveterate diseases has been ascribed to *electricity*. All that now remains certain with regard to it is, that it is a powerful stimulant, and one which is the more strongly recommended, because it can be applied to a variety of parts, when the common methods of stimulation cannot be employed. The mildest modes of using electricity are those most in vogue at present, as its violent application is reprobated by the best practical writers. Its use in suspended animation, in chronic glandular enlargements, in atony of the organs of generation, are well known.

Animal electricity, or Galvanism, is in some respects similar to common electricity in its effects, and in others different; but, in a medical view, it has not answered the expectations

expectations which at first were formed of its action. All those animals which possess excitability are affected by Galvanism as they would be affected by any other violent stimulus; and, if the excitable part be at all muscular, the fibres are vigorously contracted. This causes, in a living and conscious animal, a sensation not unlike an electric shock. The shock is more like that of common electricity, as the plates of the battery are smaller and more numerous. When the plates are of very large surface, a sort of vibratory motion is felt through the part, attended with a sensation of heat; and this, in a powerful battery, is felt so long as the connection is kept up. The best mode of taking the shock is first to moisten the hands, or the part where the effect is to be applied; grasp in each hand a piece of metal, such as two spoons, and touch each end of the battery with the other ends of the spoons at the same time. If it is intended to be applied to any other part, let two plates, of about two inches in diameter, be each attached to the wires coming from the battery, and let the plates be applied to some two parts: if the effect be too severe, let some inferior conductor be placed between the plate and the skin. Sir H. Davy found, that, when an animal substance was placed in the circuit of a galvanic battery, the different compounds contained in it were decomposed. This was more especially the case with the saline bodies contained in the animal fluids; the acids of the salts were found on the positive side of the battery, and the bases of the salts on the negative. Should it be ascertained that any redundancy of saline matter is the cause of disease, Galvanism might be employed with great success in separating those bodies from the system. See the article ELECTRICITY, vol. vi. p. 409, 445, & seq.

Pneumatic medicine, or the use of gases in the cure of various internal complaints, was very fashionable at the time chemistry formed one of the most ardent pursuits of the French nation, and when they attempted to explain the vital properties according to the laws of oxygen, &c. And in this country, Beddoes, Rollo, Cruikshank, and others, made many interesting experiments and trials on this subject. Of late its use has declined. See OXYGEN, vol. xviii. p. 167.

The diversified experiments of Sir H. Davy on the respiration of nitrous oxide and some other gases, so interestingly described in his scientific researches in 1800, in a great measure dissipated the general apprehensions of fatality resulting from the inhalation of compound gases, and satisfactorily demonstrated that many of the aerial fluids, before considered as destructive to vitality, might be breathed with perfect safety.

The following case, showing the beneficial effects of oxygen gas in restoring suspended animation, occurred in the year 1814, in the laboratory of the Dublin Society, and excited considerable interest. It was communicated by Samuel Whitter, esq. who made the experiment on himself. He introduces the account by observing that, when a mixture of carbonate of lime and zinc, or iron-filings, is exposed to an intense heat, the peculiar gaseous substance named carbonic oxide is disengaged, which has been stated to bear the same relation to carbonic acid than nitrous gas does to nitric acid. But agreeably to the striking observations of Mr. Higgins, professor of chemistry to the Dublin Society, in his work recently published, (wherein his claim to the discovery of the atomic system is unequivocally established,) it would appear that, in the combination of oxygen with different gases, it is the atom of oxygen only that is found multiplied, as is beautifully exemplified in all the metallic oxides, acids, and gases. An apparent anomaly has been noticed with respect to nitrous oxide, which the experiments of Mr. Higgins on the composition of nitrous gas tend to obviate, and sanction a comparison of the proportions of carbon and oxygen in carbonic oxide with those of azote and oxygen in nitrous oxide, rather than the atomic coincidence of carbonic oxide and nitrous

gas. Carbonic oxide was discovered and described by Mr. Cruikshank in 1801; it is highly combustible, burning with a fine blue flame, but it is utterly incapable of supporting animal life.

"Desirous of witnessing the progressive effects of carbonic oxide when freely respired, with a view to comparative analogy in reference to nitrous oxide, I was tempted a few days ago to inhale a portion of it as copiously as possible. The consequence had very nearly proved fatal to me. A considerable quantity of the gas having been carefully prepared by Mr. S. Wharmby, the very ingenious and able assistant to Mr. Professor Higgins, a series of experiments on its respiration were proposed. Mr. Wharmby first noticed some points of resemblance it bore to the nitrous oxide, particularly the singularly sweetish taste; and, having made two or three inspirations, was seized with a degree of convulsive tremor and giddiness that nearly overpowered sensibility. These violent effects were but transient, though considerable languor, head-ache, and debility, remained for many hours afterwards. Anxious to pursue the experiment still further, I next made three or four hearty inspirations of the gas, having first exhausted my lungs of common air as completely as possible. The effects were an inconceivably sudden deprivation of sense and volition. I fell supine and motionless on the floor, and continued in a state of total insensibility for nearly half an hour, apparently lifeless, pulsation being nearly extinct. Several medical gentlemen being present, various means were employed for my restoration, without success; when the introduction of oxygen gas by compression into the lungs was suggested, the effects of which may be fairly contrasted with those of the carbonic oxide. A very rapid return of animation ensued, though accompanied by convulsive agitations, excessive headache, and quick irregular pulsation, and, for some time after mental recovery, total blindness, extreme sickness, and vertigo, with alternations of heat and shivering cold, were painfully experienced. These unfavourable spasms were succeeded by an unconquerable propensity to sleep, which, as might be expected, was broken and feverish. An emetic of tartarized antimony finally removed these alarming symptoms, and the only unpleasant effects felt on the ensuing day were those occasioned by the fall.

"I very much regret that the confusion arising from the idea of my death, so disturbed the arrangement, that no accurate determination could afterwards be made, either of the quantity of gas respired, or the change it underwent in the process; and the experiment is rather too hazardous for repetition. Nevertheless, the extraordinary efficacy of oxygen gas in cases of suspended animation produced by carbonic acid, choke-damps, and other suffocating gases, is fairly deducible, and I conceive cannot be too forcibly recommended to the faculty, in such instances. I therefore sincerely hope that the results of this experiment may be of practical utility in those cases, which are so frequently occurring, and are often so awfully fatal; it being the decided opinion of the professional gentlemen present on this occasion, that the free use of the oxygen gas was solely instrumental in restoring me to life.

"Mr. Higgins himself had nearly once fallen a victim to a similar experiment with sulphuretted hydrogen, the effects of which, after recovering from a death-like insensibility, were painful and oppressive for many days."

This very short sketch may appear scarcely a sufficient account of GENERAL PATHOLOGY and THERAPEUTICS. The pathological reader will be immediately struck with the omission of all notice of Spasm, of Inflammation and its consequences, &c. But we have rather deemed it prudent to investigate these subjects under their separate heads, and have merely inserted these observations as being of too general a character to be reduced under any of our divisions. We therefore at once proceed to the

CLASSIFICATION OF DISEASES,

According to the system of Dr. MASON GOOD.

- Class I. **CŒLIACA.** Diseases of the Digestive Function.
 Order 1. *Enterica.* Affecting the alimentary canal.
 2. *Splanchnica.* Affecting the collatitious viscera.
- Class II. **PNEUMATICA.** Diseases of the Respiratory Function.
 Order 1. *Phonica.* Affecting the vocal avenues.
 2. *Pneumonica.* Affecting the lungs, their membranes, or motive power.
- Class III. **HÆMATICA.** Diseases of the Sanguineous Function.
 Order 1. *Pyretica.* Fevers.
 2. *Phlogotica.* Inflammations.
 3. *Exanthematica.* Eruptive fevers.
 4. *Dysthetica.* Cachexies.
- Class IV. **NEUROTICA.** Diseases of the Nervous Function.
 Order 1. *Phrenica.* Affecting the intellect.
 2. *Æsthetica.* Affecting the sensation.
 3. *Cinetica.* Affecting the muscles.
 4. *Systatica.* Affecting several or all the sensorial powers simultaneously.
- Class V. **GENETICA.** Diseases of the Sexual Function.
 Order 1. *Cenotica.* Affecting the fluids.
 2. *Orgasfica.* Affecting the orgasm.
 3. *Carpotica.* Affecting the impregnation.
- Class VI. **ECCRITICA.** Diseases of the Excrement Function.
 Order 1. *Mesotica.* Affecting the parenchyma.
 2. *Catotica.* Affecting internal surfaces.
 3. *Acrotica.* Affecting the external surface.
- Class VII. **TYCHICA.** Fortuitous Lesions or Deformities.
 Order 1. *Apalotica.* Affecting the soft parts.
 2. *Stereotica.* Affecting the hard parts.
 3. *Morphica.* Monstrosities of birth.

CLASS I. **CŒLIACA,** [from the Gr. κοιλια, the belly.]
 DISEASES OF THE DIGESTIVE ORGANS.

THERE is no class of diseases which more imperiously demands the earnest and attentive consideration of the pathologist than this; and certainly there is no class of diseases which has of late received more attention from the medical world. We have before remarked on the connexion which the alimentary canal holds with the rest of the system; and on the media through which this connexion is supported. We have shown, that, if the sensorial powers be disturbed, the nervous productions which expand on the mucous membrane of the alimentary canal will have their office altered or suspended, and deficient secretion will be the result: that, on the other hand, every part of the muscular and nervous systems may be affected by the disordered state of the alimentary canal, since the impressions of the latter, conveyed to the brain, may affect, through it, all other parts. This reciprocal dependence and relation, then, we are quite willing to admit; but we have here to pause, and to consider a doctrine which is founded on this relation, but which we are unwilling to admit. It is the doctrine, that the primary cause of disease rests immediately in the stomach and bowels. Now it is very obvious, that, in tracing the origin of diseases, the order of succession observed by its symptoms is the only guide which we can adopt; and it requires little experience to prove that the succession of symptoms affords in many diseases direct contradiction to the doctrine above mentioned. For instance, the effect of studious and sedentary habits on the human frame, by inducing long and excessive action of the brain, is to exhaust sensibility; hence the due transmission of nervous power will be interrupted, and the fecerent system will be deranged in various ways.

It is true, the stomach and bowels are generally the parts in which this derangement is principally made manifest; but this does not occur invariably. The secretion from many glands is sometimes disturbed, while the gastric and enteric fluids present no sensible change. Again; a blow on the head, though it frequently produces vomiting, yet that effect is not uniform. And again; in the effect of temperature, whether diminished or increased, we are able to trace the order of succession through the circulating to the nervous system, without meeting with any implication of the digestive function in disorder; and so on. That the alimentary canal is a medium through which morbid materia and impressions are conveyed to the rest of the system, we have before stated; yet such conveyance may not derange these organs, but may produce secondary effects on other structures; effects which may require remedies of a nature quite different from those calculated to relieve stomachic or intestinal derangements. Strong objections too are in force against another part of the same doctrine, viz. that of considering the stomach as a *centre of sympathy*; that is to say, when those terms are used to express a peculiar property of the stomach, a property different from what is observable in all mucous expansions. For assuredly the size or intensity of power in the nerves, will sufficiently account for the ready and general sympathy observed with regard to that organ, and other parts of the body, without resorting to this gratuitous hypothesis.

An argument is advanced in support of the origin of disease in the stomach, which we are inclined to regard with greater respect than any of the rest; namely, that the *cure* of many local and constitutional complaints is effected by means which procure copious secretion from the alimentary canal. We may observe, however, that, while we allow the fact, the hypothesis which is founded on it need not be admitted. The alimentary canal may be considered (in a greater or less degree in its various parts) as the *emunctory* of the sanguineous system. Thus even the bile, besides its use in the separation of chyle, is carried downwards in large quantities with the feces. The bowels, too, pour large quantities of fluids, which vary in their smell, colour, and consistence; and, to a certain degree, without the health being affected. Hence secretion from these parts may act in various ways; either by removing certain states of plethora, or by eliciting from the blood noxious particles. In this way, emetics thrown into the blood, are separated from that fluid by the digesting secretions, and produce vomiting. We are aware that this seems to approach, in some degree, to the *humoral pathology*; but it is now become admitted, that our pathological theorists have perhaps too closely discarded the explanation of disease which this doctrine afforded. The proximate cause must, indeed, be looked for in the action of the solids; but the medium through which disease is propagated is, undoubtedly, very often the blood. The violent effect produced by the injection of a small quantity of air, or of other kinds of fluids, seems very direct confirmation of this opinion.

We must further remark, that the promulgators of these doctrines have overlooked the manner in which the derangements of the collatitious viscera alter the state of the stomach and bowels; an effect which takes place either by means of the application of morbid secretion, or by continuity of diseased action. With regard to the remote causes of disease in the digestive organs, the following are stated by Dr. Nicholls in his *Elements of Pathology*. "The process of digestion may be imperfectly performed, owing to a variety of causes; among which we may reckon,—Food of an improper quality, or in improper quantities; imperfect performance of the process of mastication, in which case the food will not be sufficiently mingled with saliva, nor will it be sufficiently broken down and divided; diminished secretion of saliva, or discharge of that fluid from the mouth; increased secretion of saliva; diseased states of the fluids which flow into

into the fauces; an altered state of the gastric or of the pancreatic juices; the presence of an increased or diminished quantity of these fluids; an altered state of the bile; an insufficient quantity of that fluid, whether arising from diminished secretion, or from some obstruction to its influx into the duodenum; the presence of too great a quantity of bile; the flow of too great a quantity of that fluid into the stomach; diseased condition of the stomach, whether consisting of simple plethora, of inflammation, diminished capacity, inordinate distension, thickening of its coats, partial rupture, ulceration, or displacement; disordered conditions of the cardiac or pyloric orifices; obstructed states of the intestines; hurried action of the bowels; increased secretion of enteric juice; diminished or depraved secretion of that fluid; collections of feces; worms; diminished sensibility of the nerves of the stomach, whence may ensue diminished secretion of gastric juice, and diminished action of the muscular fibres of that cavity; an interruption of the communication between the cerebral and the anti-cerebral extremities of those nerves; increased sensibility of the nerves of the stomach, whence may ensue, increased secretion of gastric fluid, pain referred to the stomach, and the production of vomiting; altered states of the cranial and spinal brain; deficiency of nervous power; long absence of sleep; an increase or a diminution of temperature, generally or locally; powerful sensations; passions, especially those of the depressing kind; powerful exertion of the faculties, &c. &c.

The first cause of disease, then, which we have to treat of, is the *food*. On this subject we propose to speak somewhat fully, because it regards one of the principal agents in therapeutics. The diseased actions of the alimentary canal, of the collatitious viscera, and lastly of the state of the nervous power, will constitute the next subjects of discussion.

That the natural food of man is equally the product of the animal and vegetable kingdom; that his digestive powers accommodate themselves, in a certain degree, to various kinds of sustenance; that, *ceteris paribus*, vegetables and water are capable of nourishing men of the most powerful muscular and sensorial developments; and that the opposite practice is attended with equally good effects; are truths so generally admitted and firmly founded on the historical records of every country, that they need form no part of our present discussion. On the other hand, that the partially-refined and half-civilized state in which we now live, our frequent meals, their quantity disproportioned to our exercise, and the various combinations which the culinary art affords us, may be said fully to counteract the useful and accommodating constitution with which we are endowed, are remarks so trite and familiar, that nothing but their importance, and the want of attention paid to them, excuses our repetition of them. The diet of man requires a certain adaptation to the varieties of climate; and here *instinct*, (or, as some call it, *nature*,) untutored by education and refinement, seems the best guide; for we find most savages preferring in hot climates the vegetable sustenance, in colder regions animal food; and this method of life experience proves to be most conducive to longevity and strength. Not that we are very favourable to the mode of life called *natural*, being fully persuaded that man's natural state is that of the highest civilization, since to that he is continually tending; and hence we should not have used this fact as an argument unless it had been supported by our own experience.

The subject of diet, in reference to our own climate, and in cases of disease, has occupied very general attention; but the difficulty with which this subject is attended, precludes us from presenting our readers with any philosophical view of it; for most writers have been occupied with detailing the good or bad effects of particular substances, founded, it is to be feared, in too many instances, on partial views or individual feelings. Thus we are

continually hearing, even from medical men, that such a thing is easy of digestion, and another difficult, and so on; while our indiscriminate application of these rules soon teaches their fallacy: it soon shows that what agrees with one person produces violent effects on another, and that different states of disorder in the stomach require regimen of very opposite powers.

In the natural and healthy state of the body, we must regard in some measure the Hippocratic advice; not to carry our dietetic arrangements to a too great degree of refinement, because any occasional irregularity will produce the more unpleasant effects; but at any rate the state of health is best consulted by partaking of few articles at a meal. The proportion of exercise, too, becomes a matter of consideration; but instinct points out the true path; for, as less exercise is taken, less appetite is experienced. The habit of meeting our friends at meals, the variety of provisions which kindness and hospitality present to and urge on us, are perhaps the most frequent causes why these instinctive calls are so seldom attended to. But, though to those who take frequent exercise, this relaxation and enjoyment is productive of scarcely any inconvenience, yet it is severely felt by the sedentary and the studious; and hence to the latter are rules and regulations more generally addressed.

It has been held of late years that *drinking* at meals is an unnecessary, and indeed improper, custom. This opinion receives support from observing the habits of animals, few of which drink while digestion is going on in the stomach. In Greece, this custom of dry feeding is said to prevail; and Xenophon says, that the ancients did not drink till the repast was finished. We have not sufficient proofs to enable us to engage in proving or disproving this dogma; but we may observe, that its application should of course be somewhat regulated by habit and inclination, and by the nature of the food and the state of the atmosphere. In the Dictionnaire des Sciences Medicales, the sentiments of Hallé and Nyssen on this subject are thus expressed: "La quantité de boisson à prendre pendant le repas doit être en proportion d'autant plus grande ou moindre, que les alimens eux-mêmes sont plus secs ou plus humides; qu'ils se laissent plus ou moins aisément pénétrer par les liquides salivaires et gastriques; qu'ils forment, par leur viscosité, une masse plus ou moins ténace; qu'ils ont plus ou moins la propriété de distendre l'estomac et d'y séjourner un certain temps. Les boissons doivent aussi être prises en quantité plus ou moins grande, suivant les constitutions individuelles qui, en raison de leur degré de sécheresse ou d'humidité, présentent des différences très-grandes relatives à la quantité et au degré de liquidité des sucres salivaires et gastriques. Les personnes sèches et bilieuses, dont les organes sont très-irritables et dont la chaleur propre est plus ardente, dont les évacuations intestinales sont plus habituellement dures et sèches, qui sont ordinairement constipées, ont besoin d'une plus grande quantité de liquides aqueux et frais. La proportion des boissons aux alimens doit enfin varier selon l'influence des saisons et de l'état de l'atmosphère. On peut cependant poser en principe, 1^o, qu'une quantité de boisson qui excède trop la mesure des besoins naturels, énerve les digestions, et favorise les altérations spontanées des alimens qui séjournent dans l'estomac, surtout quand ce viscère a peu d'activité; 2^o, qu'une quantité de boisson insuffisante prolonge le séjour des alimens dans la cavité gastrique, et entretient le sentiment de plénitude qui en est la suite. Mais il faut surtout, à cet égard, se mettre en garde contre l'habitude qui outre-passe plus souvent la mesure qu'elle ne reste en-deçà; connaître, par son expérience, quelle quantité de liquide est la plus favorable; savoir que la soif que donne l'usage des substances sèches, en épuisant sur-le-champ les organes salivaires, n'est souvent que momentanée, et se dissipe en peu d'instans par le renouvellement de la salive. Ces observations sont importantes pour ceux dont les digestions sont lentes, imparfaites;

imparfaites; pour ceux qui sont fujets aux aigreurs, et chez qui les fonctions de l'estomac sont aisément troublées par la superfluité des liquides." (Tom. iii. p. 222.) It is supposed too, that the rapid drinking of fluid is less salubrious than gradually swallowing it, as the former practice tends to produce *dilatation* of the stomach; but of this dilatation we have no very unequivocal proof.

Of the bad effects of too great a quantity of food we have frequent instances, both in sudden and chronic affections; and we have every reason to believe that mankind offend in general by taking *too much* food rather than by taking that of an improper quality. A neglect of attention to the *quantity* of the food, proportioned to the necessity of each individual, is sooner or later followed by the most serious consequences. To the strong and robust inflammatory diseases happen, and all such as proceed from plenitude, as the gout, apoplexy, &c. To the more tender and delicate, it is the parent of a numerous progeny of distempers, affecting both body and mind; there is scarcely a malady that can be named which is not increased by excess of food, till the disease at length bids defiance even to temperance itself, and all prescription. The *how much*, indeed, must be determined by every individual; but those who are happy enough to abstain at the first sensation of satiety, have made great progress in the art of maintaining such a command of appetite, as, under most chronic indispositions, is one of the great aids of recovery; and, in health, is one of the surest preservatives against them.

To the delicate and valetudinary the consideration of the *quantity* of the food is of still more importance. They do not rise from rich and varied repasts with the same freedom from uneasy sensations as the robust; they are affected with uneasiness, some in one way, some in another, by the unnatural load. And we often hear them complaining of the ill effects of this or of that particular kind of diet, when, perhaps, their sufferings arise from the quantity of all, rather than from the disagreement of any. What renders an attention to the quantity of food in invalids still more necessary, is, that they are often subject to a false appetite; to a craving that does not arise from the demands of health, but from the morbid condition of the juices in the stomach, which prompts them to eat more, and more frequently, than nature requires. Hence it happens that such people are often disposed to take in much more than can be digested, to devour their food rather than eat it; by which means their sufferings are increased, disease gains ground, defeats every purpose of the physician, and leads them into some permanent and incurable malady.

The *time* of eating is another grand consideration. It is well ascertained that a periodical action exists in the different secreting parts of the body; and that the stomach acts with different degrees of energy at different times, and according to fixed laws, can admit of no dispute; for not only does its being only required to act at certain times indicate this, but the hunger we feel at the hour of repast, and its absence after a short time if not satisfied, afford further corroboration of it. The customs of various countries changes too in respect to time; and, provided the same periods are observed each day, this does not seem to influence our health in a great degree. Mr. Abernethy states the proper interval between each meal at six hours, which reduces the meals to three in a day; and this seems to be the most judicious arrangement which can be made, and which has indeed been generally adopted among the affluent classes in this country, supper being for the most part discarded; or perhaps we should rather say, that the meal of dinner has been discarded, and an early supper substituted. But two very moderate meals, at a suitable distance of time, would doubtless be digested with much more ease than one full meal, when the stomach has been debilitated by long fasting, and has suffered fatigue, together

with the body at large, from the exertions of a long day. So that, as Dr. Fothergill has observed, "when people assure us they eat no suppers, from observation I am led to suspect, that it would be better for them if they did, than to oppress nature with a cumbrous load that may be much more detrimental." This, indeed, seems to be pretty well understood with respect to invalids and convalescents, who are generally supplied with small light meals at proper intervals, rather than have all their diet crowded into one late dinner.

We shall just insert a general view of the more common substances used at meals, for the purpose of consulting the health of those persons who, though not ill, find the gastric functions easily disturbed. The general breakfast of people, from the highest to the lowest, is tea, coffee, or chocolate. There are, of course, many exceptions; some for one reason, some for others, making choice of other substitutes, as their experience or opinions guide them. To these articles, bread of some kind, with more or less butter and sugar, is commonly joined to make up the meal. From many incontestible proofs that butter in considerable quantities is injurious to constitutions not strong, it is sparingly used in many families. It is found by many to be very difficult of digestion, especially when toasted before the fire, or fried, as well as in sauces. Many people, apparently robust, and whose organs of digestion are strong, often find themselves much disordered by large quantities of butter. Nothing more speedily and effectually gives the sick head-ache, and sometimes within a very few hours. After breakfast, if much toast and butter has been used, it begins with a singular kind of glimmering in the sight, objects swiftly changing their apparent position; giddiness then comes on, head-ache, and sickness. An emetic, and warm water, soon wash off the offending matter, and remove these disorders. These are circumstances which very often happen to people who are inattentive to the quantity of butter they eat at breakfast. A moderate quantity of fresh butter, with bread exposed as little to the fire as possible, or not at all, appears to be wholesome, and is capable of becoming, with the other aliments, as soft and inoffensive chyle, perhaps, as any part of our diet.

The same thing may perhaps be said of coffee as of tea; the heat, the strength, and the quantity, make it unwholesome or otherwise. There are nations who almost live upon coffee, as others do on tea; and among neither are any diseases prevalent that can justly be ascribed to these ingredients in the common course of living. There are, however, individuals of peculiar constitution, in whom the Indian tea excites various unpleasant symptoms, as head-ache, restlessness, &c. and several British plants have been recommended as substitutes, and used with advantage. But Dr. Reid, in his Essay on Hypochondriasis, says, "I am inclined to think that there are many cases in which a taste for tea ought to be encouraged rather than condemned. This taste has a tendency to preclude the more prevalent, and after all more mischievous, propensity for vinous stimulation. Many persons, distinguished for their longevity, have been known to indulge habitually in the use of tea; which we may account for, not from its being in itself a wholesome beverage, but from a fondness for it generally implying a distaste for potatoes of a much more decidedly pernicious nature. Tea will produce, in some very irritable frames, an artificial state resembling intoxication; but it is a cloudless inebriety. Tea removes the film from an eye that has been obscured by a gross and stupifying intemperance, and tends to improve a susceptibility to the true relish of social and intellectual enjoyment." It should be recollected, however, that every vegetable infusion of this sort, is but warm water, rendered more palatable by the aroma of the herbs so infused; and that there is little or no nutriment conveyed by them to the body, except what is contained in the small portion of milk and sugar added to them. These liquors, then, should be considered

dered as the mere beverage, by which the solid portion of the breakfast, the bread, &c. is to be diluted, and its digestion assisted; and it would be advisable for the delicate and valetudinary to curtail the liquid and augment the solid part of a meal, which is to support them during the exertions of the day, rather than to fill the stomach with a diluent and narcotic liquid, at once failing to nourish the body, and depressing the action of the stomach, where little is taken besides.

But the effects of improper conduct in respect to those things which now constitute our breakfasts are of little consequence, compared to those which arise from the well-covered table at *dinner*. The indulgences of breakfast supply but very few materials for destruction; but the repeated excesses at dinner are serious affairs. And although, as we have before stated, the quantity of food is the point to be principally regarded; yet the quality is by no means a matter of indifference to the valetudinary. The principal admonition which the late Dr. Herberden deemed it necessary to impress on the minds of delicate persons and invalids, was to avoid all those artificial stimulants of the appetite, which excite the desire for food beyond the simple call of nature, and therefore beyond the natural powers of the stomach to digest. Such are all made dishes, and condiments of the more poignant qualities; nor is variety of dishes less pernicious, upon the same principle. It is probable that, in their nature, aromatic vegetable condiments, or spices, are less pernicious to the organs of digestion, than the various modifications of alcohol, or spirits; but the mischief which they occasion indirectly, by leading to excess, is unbounded. This excess is still more pernicious, now that the hour of dinner is postponed to the evening; for the stomach is enfeebled by the long absence of stimulus, and by sympathizing in the fatigue of the body, so that its power of digesting a copious and heterogeneous mass is greatly diminished. It is loaded, and distended, and oppressed; and the body, in its turn, suffers with the stomach. Hence, we see the flush of the countenance succeeding to a late and copious dinner; the indisposition to any exertion, mental and corporeal; the general oppression of the animal powers; the general sensation of heat; the hurried pulse; dry or clammy tongue; and other symptoms of feverishness. It is most obvious, that the daily, or even frequent, repetition of such a disorder, (for it is, in fact, a morbid condition which is thus produced,) cannot be suffered, without injury to the constitution.

Some of the common articles of diet require a little attention. Bread, the staff of life, is not the most easy of digestion; if taken in considerable quantity, very strong organs are requisite to convert it into nutriment, and more especially when it is new, for then it is of a glutinous and heavy nature, and extremely difficult of solution. Cafes have been recorded, indeed, in which an immoderate quantity of fresh-baked bread proved the cause of death. (See London Med. Journal, vol. i. p. 333.) In weak stomachs a large proportion of stale bread is indigestible; it turns sour, produces the heart-burn, flatulencies, and interrupts the perfect concoction of every thing else. On this principle, the necessity of paying much attention to this capital article of diet ought to be inculcated on valetudinarians in general; never to abstain from it wholly, but to use it with moderation; to consider it as one of those things which, sparingly used, is extremely necessary and beneficial: if otherwise, the fruitful source of many complaints, which are little suspected from this cause.

In this country, animal food, of one kind or another, constitutes the chief part of our nourishment. That there are some kinds of more easy, some of harder, digestion, is well known to every one; so that it is unnecessary here to particularize them. The young of animals is generally considered as more easily soluble than the old; but in stomachs disposed to acidity, this does not appear

to be the case. Animal food is rendered more digestible, by approaching to a state of beginning putrefaction; hence, the flesh of animals recently killed is less easy of digestion than that which has been kept for some time; and hence, also, the flesh of an animal which has been hunted, or has used any violent exertions before death, is more tender and wholesome than one which has been in confinement; for, after such exertions, the muscular or fleshy parts are disposed to go speedily into a state of putrefaction. It must not be forgotten, however, that this remark is applicable only to cases where the stomach is quite healthy; there being every reason to believe, that, if any degree of gastritis is excited, putrifying meat would prove violently stimulating.

In respect to vegetables, the best rule is to use those which best agree with each particular constitution. All the vegetables brought to table, which have been rendered soft by boiling, are readily digestible. The raw vegetables, used in salad, &c. are somewhat less so; but, unless where the stomach is much disposed to acedency, they are generally wholesome. "On this head," says Dr. Fothergill, "I have only one short caution to give. Those who think it necessary to pay any attention to their health at table, should take care that the quantity of bread, and of meat, and of puddings, and of greens, should not compose each of them a meal, as if some were only thrown in to make weight; but carefully to observe, that the sum of all together do not exceed due bounds, or incroach upon the first feelings of satiety."

With respect to fruit, it is doubtless wholesome in its ripe state; especially if taken in the forenoon, or instead of a meal. But, like other agreeable and nutritious substances, it must prove injurious, when added to the load of the stomach, after a plentiful meal.

Much might be said about the comparative advantages of the different kinds of liquor used at table. The great object of drink at our meals is to dilute the aliment taken into the stomach, and thus render it more capable of digestion. It is too often, however, used for a very different purpose; namely, to stimulate an imperfect appetite, and to enable the stomach to receive with relish what, in its unstimulated state, it would loathe and reject. Inasmuch, then, as drink is conducive to excess in eating, it is pernicious to take large and frequent draughts of any liquid during a meal. Dr. Fothergill has laid down a few simple rules in respect to drink. "The less quantity of fermented liquors we accustom ourselves to the better. Abstain from spirits of every kind, however diluted, as much as may be. Where mild well-brewed beer agrees, to keep to it as a beverage. Where water does not disagree, to value the privilege, and continue it."

By those who recommended drinking not *at*, but *after*, meals, the interval usually fixed upon is about two or three hours; and we are moreover recommended by Mr. Abernethy to rest for a considerable time after a meal, some experiments made on dogs having proved that the digestion of food in the stomach takes place most readily when the muscular system is in a state of inaction. This has been objected to, however, by a Mr. Hare; but, as that gentleman has not tried the experiment over again, his objections are not valid. It seems to us, that the natural disinclination to move which we all feel after partaking of food, and the frequent eructations, &c. which exercise produces when used during the same period, sufficiently prove the correctness of Mr. Abernethy's opinions on this subject, without any appeal to experiment. The day, then, according to the view taken by the distinguished gentleman just mentioned, will be thus divided: The early part of the morning is to be devoted to exercise. Half an hour's rest being premised, breakfast is to be procured. Rest again becomes necessary for two or three hours. Exercise again should then be had recourse to, until within half an hour before dinner, the latter period being as before devoted to quiescence.

cence. The same round of employments to be continued until the third meal of the day, which is supposed to constitute the last. According to this arrangement, the intervals between breakfast and dinner, and between dinner and supper, (or tea,) will be each six hours. See Abernethy on the Constitutional Origin of Local Diseases.

We have to give our small tribute of encomium to this plan of life, being well assured by experience of its salutary and beneficial operation. It is very remarkable, but no less satisfactory, to find, that the habits which experience has proved to be most conducive to health, coincide completely with the practice founded on reasoning; the trainers of our pugilists having long submitted their pupils to rules very similar to the dietetic ones just mentioned, and truly we can scarcely find any-where else such strong proofs of their propriety. A bloated drunken fellow, whose hours are perpetually occupied with debauch, and whose frame evidently betrays the baneful effects of intemperance, subjected to three months *training*, that is, to the influence of regular and powerful exercise, salubrious air, wholesome and sparing supplies of food, restricted in drink to water, and perhaps a few glasses of wine, becomes developed in his muscular structure to an astonishing size: he affords a study for the painter which almost equals the boasted statues of Italy; his skin acquires a fairness which might add beauty to our fashionable females; and indeed the whose appearance of the man is changed "quanto ab illo Hectore."

In recommending, however, the above, we are aware, that they require much modification in their application to morbid states, because the digestive functions are influenced in various and in opposite modes, according to sex, age, habits of body, and habits of life.

Though the results of chemical analysis, in regard to the nutritious parts of our diet, do not furnish much practical information, it may be proper to advert to them with a view to future generalization. The food of man consists of several unchangeable principles, foreign to the business of nutrition, combined with others in which the nutritive power resides. The latter varies in its characters and proportions. Mucilage, gelatine, gluten, albumen, fecula, fibrine, sugar, and the base of oxalic acid, are the general modifications under which the nutritive substance presents itself. Each of these varies according to the nature of the heterogeneous principles with which it is associated.

In the numerous plants which do actually, or which might, serve for food, mucilage sometimes exists alone, or mingled with extractive, colouring, acrid, bitter, or odorous matters; or diluted with various proportions of water. It is often united with oxalic acid and sugar; sometimes with a very active volatile principle of a very acrid taste and penetrating odour. Lastly, it furnishes the matter of gums and vegetable jellies; in one of which the nutritive principle is imperfectly formed, while in the other it is brought into a very small volume. Gum tragacanth, feneca, cherry-gum, &c. are examples of this matter. It is no-where cultivated, nor even collected, for food; so that we might be apt to consider it as incapable of affording any nourishment, if it were not known that the caravans crossing the sandy deserts of Africa, over which they have brought gum feneca, have in many instances lost their way, exhausted their provisions, and been obliged to live on this gum for many weeks, having nothing else but water alone, and a very sparing supply of that. Mucilage is also contained in most vegetable juices, and in the stems and other parts of plants.

In the flesh of animals which we use for food, the gelatine is united with fibrous, extractive, saline, and earthy, particles. It is mingled with fat, and with serous or lymphatic fluids. It is found in various degrees of tenacity and consistence; in which it determines all the sensible differences of the white organs, which contain an abundance of gelatine. In a word, it forms the animal

jellies, which constitute a mild, light, and wholesome, food.

Vegetable gluten is always found combined with other substances soluble in water, without which it could not be dissolved in, and blended with, our juices. It abounds in the gramina, where it is united with fecula, extractive principle, colouring matter, mucilage, and an earthy substance. The albumen of animal matters resembles, in many points, the vegetable gluten. The whole white, and a great part of the yolk, of an egg, are a composition of albumen, and colouring and oily principles. The caseous matter of milk is a modification of albumen: which, together with the principles of butter and sugar, composes that soft emulsive liquor, so favourable to the constitution of infancy. The most nutritive plants are those whose base and prevailing principle is the amylaceous fecula. It exists sometimes completely pure, and free from extraneous admixture; sometimes united with mucilage, oils, or gluten; sometimes with sugar, extractive or colouring matters; sometimes with earthy, acid, or saline, principles; and very rarely with noxious or poisonous matters. Wheat is composed of gelatinous matter and fecula. These two principles, acted on by the fermentative process, form bread, the nutritive qualities of which are not surpassed by any vegetable substance. It is so much the more proper for animalization, inasmuch as the fermentation has already brought it into a state fit for decomposition.

The principle now alluded to, which constitutes the farinaceous matter of vegetables, is contained, perhaps, in the largest proportion, in rice; and wheat is the next to this. Other grains are only substitutes for these; except maize, which is easily cultivated, and contains much farinaceous matter. The legumina contain much of the same principle; as also nuts, and the seeds of the cucurbitaceæ and poppy, although not used for food. It exists, probably, in the stems of some plants, as the palmæ, from the expressed juice of which sago is formed; in the roots of many classes, as the potatoe, yam, and pignut, in which it is very abundant.

The fibrine of the muscles and blood partakes of the properties of gluten and fecula: it admits of a very speedy assimilation, and exerts a more marked, rapid, and extensive, influence on the strength in general, than any other food; yet it resists the digestive powers, when, deprived of gelatine or dried, it is reduced to a hard coriaceous substance. It forms a close and firm, but delicate and divisible, texture, in the muscles of healthy animals, which form a light and succulent kind of food. An extractive colouring matter generally adheres to the fibrous substance; and the differences in its quantity or quality probably influence the appearance and nutritive powers of our various animal foods.

Sugar, and the oxalic base, which can hardly be separated from it, are produced by both kingdoms. The vegetable acids are convertible into a sugary substance, which bestows on them whatever nutritive powers they may possess. Other acids, beside the oxalic, are unfit for nourishment; and they only acquire that property by an admixture of the latter or of sugar or mucilage. The same principles exist in various proportions in the fruits employed for food. The respective quantities of mucilage, sugar, acid, and water, indicate how far they are susceptible of digestion, and, consequently, nourishing. Sugar exists in most vegetables; but is most abundant in the sugar-cane, from which alone it is furnished to any great amount, in the sugar-maple, and the beet-root. Excepting what is supplied from the vegetables above mentioned, and which hardly forms the food of any person, its sources for the purposes of food are not very general, being confined principally to dates, grapes, figs, and some other fruits. Fruits indeed, in general, contain sugar; many of them in sufficient quantity to afford considerable nourishment. But the three species just enumerated are those

those on which many individuals live almost entirely; the sugar being nearly their only nourishment: this observation holds with regard to dates in some of the African tribes, grapes in some parts of Portugal and Spain, and figs in Greece and the Grecian islands.

Expressed oils, found in vegetables, are also capable of being digested; the seeds containing them, and especially nuts, are in many instances the principal food of the inhabitants of a country, as cocoa-nuts in America and the East. These seeds indeed contain farinaceous matter, but in too small proportion to afford nourishment of itself. The oily animal fluids also afford nourishment; the most common source of these is the fat of meat and butter, but some of the Russians and the Greenlanders drink with avidity spermaceti and train oil.

As rules for diet and exercise are attended to chiefly by valetudinarians and the aged, we shall notice a publication which appeared in the year 1758, called "The Old Man's Guide to Health and longer Life." The author very properly divides his old men into two regiments, the thin and the gross, to each of which he prescribes a different regimen; the following rule, however, being common to both; "Use no butter at breakfast, if you wish to preserve an appetite for dinner; and, in proportion as you use more or less (butter), so will your feelings be." The author goes on; "The gross old man should take his exercise chiefly in the forenoon, with as little nourishment as possible; the thin old man should have a light breakfast, but take his exercise after dinner. The thin old man cannot sleep in the morning; the gross man cannot rise early, unless he sleeps in the day-time."

The frequent notices in newspapers of individual instances of extreme old age, as well living as dead, have led us to think that much useful information might be elicited from a narration of the most essential circumstances and habits of life of those who have thus so greatly exceeded the ordinary limits of human existence; such particulars, for instance, as quantity and quality of food; degrees of abstinence and indulgence in animal or intellectual enjoyments; of exercise and labour, or of sedentary inactivity; and lastly, the proportions of health and sickness. Now, although great uncertainty may arise in ascertaining the accurate truth of many facts, through the traditionary nature of the sources from whence they must be collected, yet, among those who furnish editors of newspapers or other publications with cases of long life, enough might be obtained, by any one interested in the subject, to throw great light on the at-present disputed question of *relative causes*, and might tend to establish, at least with greater probability than yet exists, the quantum of influence which the moral and habitual operations and regulations of the animal economy possess over the peculiar idiosyncrasy of that economy itself. We are not, certainly, so sanguine as to expect from any combination of facts, however numerous and well attested, that mankind will ever regain the art of living to Methuselah's age; no, certainly not; those were the days of miracle, long since found useless: but if, from a comparison of a multiplicity of various and opposing truths, some certain general principles could be discovered, on which the preservation of human life, and, what is still infinitely of more importance than mere length of life, its healthful security from the afflictions of bodily disease and moral suffering, could be proved to depend; then, instead of merely exciting a momentary feeling of wonder, like the present barren statement of the years an individual has held his being, such a concentration of prominent circumstances attendant on lengthened existence would become the precursor of a new era, both in the science of medicine and in that of the happiness and well-being of universal man. We are aware that the relater of any instance of longevity could do little more than collect the circumstances connected with it: to combine and deduce must be the work of a mind in full possession of the

aggregate mass of particulars, and qualified to draw inferences from them.

After diet and exercise, the remaining numerous causes of disease in the digestive organs resolve themselves for the most part into the effects of sympathy with or dependance on the action of various other parts. The cerebral structure forms one of the leading and most important. It were of little importance to speak here of the numerous complaints incidental to men of studious habits. It must be expected that, seeing that muscular contraction acts a very important part in the human frame, and that the force of that action is increased (within certain limits) in proportion to its exercise, therefore indolence must be productive of hindrance to the due performance of vascular and absorbent functions of the body. It is further to be considered that nervous influence is necessary to secretion; and on secretion the hunger, digestion, &c. may be said to depend. Now, it is well known that the intense action of the brain in performing mental phenomena do essentially and sometimes completely disturb the transmission of nervous influence. Of this we have the most frequent examples. Every one knows how often enthusiasts in science are led to forget the precise hours of refreshment, and how much the man of literature in this respect differs from the bon vivant. It would seem (to use a figurative expression) that the brain was so absorbed in the sublimity of thought, that it had no time to perform its corporeal and coarser functions. But of course these functions are requisite in the highest degree, and the non-performance of them subjects the studious man to difficult and uneasy digestion; and should therefore be encouraged by regular habits and by muscular action.

On the other hand, the want of due action in the ratiocinative powers seems to allow increased nervous supply to the secreting organs. Thus many mentally-indolent persons have voracious appetites; and indeed we cannot help thinking that the amazing digesting powers manifested by our peasantry (in the generality of whom we see corresponding inactivity of mind) depends in a great measure on the unexercised state of the intellect. This proposition it would be perhaps difficult to demonstrate, because the facts under consideration may be explained on other grounds. It is worthy of remark, however, that we see none of this excessive desire for food manifested by men who, engaged in occupations equally laborious and healthy as the ploughman's, are called upon moreover by necessity or stimulated by education to the exertion of their minds.

It has been asserted more than once, that abstinence fits the mind for increased exertion. This notion can only be admitted with some restriction. To a great degree it is undoubtedly true, because, according to our present methods of life, it may be reckoned that the generality of persons are inclined to a plethoric state of the vessels of the head, and hence a low kind of living may, to a certain point, tend to revivify the exhausted brain. This beneficial result may arise too from tranquillity being restored to the extensive nervous expansions of an irritated stomach, which propagated their morbid condition to the brain; or, again, it may prevent for a time the supply of noxious materia to the vascular system of the brain. In the latter mode especially it is probable its effect is very frequent; for there is strong ground to conjecture that many mental disorders arise from the last cause. The effect which the deranged liver produces on the brain can only be accounted for on the same supposition; i. e. that of absorption and local application.

This agency of the liver on the head is corroborated by the respected testimony of Dr. James Johnson. See his work "On the Diseases of Tropical Climates," p. 189. He says, speaking of hepatic derangements, "The whole of the literary world, from the poet in his garret to the learned president in his hall, feel more or less of its effects.

fects. This deficiency in the secretion of bile, the consequence of mental exertion and corporeal inactivity, is evidently the *morbus eruditorum*, 'which sicklies o'er, with the pale cast of thought,' the countenances of the studious, who waste their hours and their health by the midnight lamp! To them I need not describe the malady; they are too familiar with its various symptoms. But few of them are aware how far material causes can influence intellectual ideas. If I wish to exert, on any particular occasion, the whole force of my memory, imagination, perception, and judgment, I know, from repeated experience; that by previously emulging the liver and its ducts, and carrying off all bilious colluvis from the alimentary canal, by mercurial purgatives, which also excite a brisker secretion in the chylo-poietic viscera, I am thereby enabled to avail myself of those faculties above mentioned, to an infinitely greater extent than I otherwise could. This is no theoretical speculation; it is a practical fact. It may help to explain the great inequality which we often observe in the brightest effusions of fancy; and shew us why even the immortal Homer sometimes nods."

The stomach is influenced by sympathy with other parts to a very great degree: 1stly, by the state of the skin; 2dly, and most materially, by the state of the lungs; and, lastly, by the state of all the collatitious viscera. Among these the most striking is the liver. It is scarcely fair to infer, however, that affections of the alimentary canal are produced by the collatitious viscera through the medium of the nervous system; since the unnatural secretions poured into it by them may produce all the disturbances we have occasion to witness. From the nature of this structure it is very evident, that each of its secondary processes is dependant on the due performance of the primary ones. Thus the saliva cannot mix with the food in a proper manner until the teeth have performed their office; the stomach cannot act if any impediment exists in the pharynx; nutrition cannot take place if the action of the stomach is suspended or materially depraved; and so on. Hence, then, the best mode of considering these diseases is according to their anatomical relation to each other; so that diseases of the teeth, saliva, pharynx, and so on, will form the order of our arrangement.

Before entering on them, however, we have a few remarks to make on some grand divisions in regard to the pathology of the mucous membrane of the stomach and bowels. To these derangements the sweeping term *indigestion* has by most writers been applied, with a view of comprehending the whole of this varying and numerous class. We are indebted to the continental writers for some very material elucidations of the nature of gastric affections. We find, in the work of Broussais especially, a most able exposition of the chronic inflammation of the stomach; a disease which had been greatly overlooked, and perhaps confounded with those inexplicable modes of action which have been accounted for on the unsatisfactory assumptions of *want of tone, laxity, weakness, or delicacy, of stomach, &c.* It is to be doubted if the use of these vague expressions has not induced many to adopt the stimulating, the purgative, or the stomachic, plan, to the manifest injury of their patients, when cooling and un-irritating measures were more appropriate. Gastritis, in the common signification, is certainly a disease of rare occurrence, and is as dangerous as rare; but this applies only to its most acute and violent form. Broussais has established the fact, by repeated dissection and observation, that this inflammation exists in various forms; that it is capable of going on to produce disorganization of the mucous expansion of the alimentary canal; that, on the other hand, it may produce symptoms and effects resembling acute fevers. He has traced the gradual shades and gradations, from the violent and acute form of inflammation to which old nosologists have applied the word *gastritis*, down to those troublesome though slight ap-

pearances which we have been accustomed to call *indigestion*. The notion of a slight modification of gastritis had indeed been entertained by Cullen; for he speaks of erythematous inflammation of the stomach; but it does not appear that this idea was ever followed up by him, or applied with any advantage to practice. With respect to the existence of this affection, we should, a priori, conclude that inflammation of the stomach would be a disease of frequent occurrence, because that organ is often opposed to substances of a highly-irritating nature, because its vascular system is much developed, and because it possesses a high degree of sensibility. Indeed we are inclined to think that many disturbances in the alimentary canal may be traced to inflammation in the first instance, and that the state of *atony* of the digestive apparatus is often the result of that previous over-action. To generalise thus would, however, in the present state of our knowledge, be premature; for we should know precisely in what proportions the absorbent, the vascular; or the nervous, system, of this digestive tube, are implicated in disease, ere we could state the sweeping conclusion, that inflammation is the general forerunner of gastric disturbance. Moreover many cases will occur to the practical physician in which no inflammatory action was in the least degree apparent.

Perhaps then the most appropriate arrangement will be into, 1. Chronic inflammation of the alimentary canal; 2. into disturbed function of that canal arising from unknown modes of action; and, lastly, into sympathetic propagated disease arising from, or communicated to, other parts. It is with the second only that we have now to do. The first, as being connected with general inflammation will be treated of under *gastritis*; and the third will receive frequent illustration in almost every disease in our catalogue. It is however of the utmost importance that the two states of atony and excitement should be well discriminated; and on that account we cannot avoid giving in this place a short diagnosis of the two kinds of disease.

Chronic gastritis differs from the simple functional disturbance of the stomach, in that a sense of pain (of various kinds however) is almost continually present, and that the sensorial functions and the pulmonary system are more powerfully affected: the skin exhibits more of heat; in the early stages, the circulation is somewhat affected; thirst and evening exacerbations are frequently present; and vomiting is seldom absent. Moreover the sympathetic irritations that arise from the irritation of the stomach, present more of an inflammatory character. It will easily be seen, that every one of these symptoms is equally present in various kinds of simple indigestion; but the connexion of the whole must be taken into consideration. The excellent effects of cool drinks, &c. in allaying the disease, seems to present another discriminating point, since that effect is seldom experienced in simple indigestion.

The same cautions are practically necessary in treating the mere functional disturbances of the lower parts of the alimentary canal, and chronic enteritis, colonitis, &c. but, as this is not the place to enter into discussions on inflammation, we merely point out the fact that discrimination is necessary in those diseases. The functional disturbances of the alimentary canal are so numerous, and so anomalous in their character, that they almost baffle description, and we shall meet with no order of diseases in which our nosological arrangement is more imperfect than in this; for not only do many of the individual diseases run into each other, but some of the species, we are inclined to think, are merely symptomatic. Cullen arranged these complaints in a very general way. Mr. Abernethy too, though he has written some of the best histories of them which we have, did not attempt to classify or arrange the different kinds, though he expressed a hope that such discrimination might afterwards be made. More recently, in the interesting work

of Dr. Wilson Philip on Indigestion, we meet with want of due arrangement. The genus *Limosis* of the present system will be made to comprehend most of these diseases, though perhaps the subdivisions are imperfect. We have not introduced any account of those various disorders which arise from, and are traceable to, derangement of these parts; for a disease cannot be much altered in its character by remote causes; and hence the terms *Dyspeptic-Phthisis*, cum multis aliis, seems misapplied; not that we forget that complaints arising from indigestion are most frequently curable, but because we hold it indispensable to pay particular attention to the state of the *laboratory* of the system in every class of complaint.

The class *Cœliaca* is divided into two orders and seven-teen genera.

Order I. ENTERICA, [from the Gr. *εντερον*, an entrail.]

Disorders affecting the Alimentary Canal.

This Order contains twelve Genera.

Genus I. *Odontia*, [from *οδους*, a tooth.] Pain or Derangement of the Teeth in their Sockets. This genus embraces seven species.

1. *Odontia dentitionis*, difficult or painful teething, is further divided into four varieties: α , lactantium; β , puerilis; γ , adultorum; δ , senum.

α . *O. dentitionis lactantium* is a disease well known, and of frequent occurrence. It is caused by the tense state of gum covering the tooth; or, on the other hand, by the too-relaxed state, which allows the tooth to push it up and press on the nerves, without producing absorption. It seems, too, that constitutional disturbance has a great share, by rendering the nervous system particularly sensible, in increasing the bad effects of dentition. Children of plethoric and irritable habits are peculiarly obnoxious to this complaint, as also those in whom costiveness is present. It is remarked also, that rickety children cut their teeth at advanced periods, and with much difficulty; and it is popularly known that favourable dentition is indicative of future health.

The following are a few of the morbid symptoms of difficult teething; viz. Inflammatory swelling of the gums, tonsils, and parotid glands; redness of the eyes and cheeks; vomiting, griping pains, tenesmus, profuse diarrhoea with green evacuations, and sometimes obstinate costiveness and retention of urine. Fever, accompanied with cough and other catarrhal affections, hic-cough, universal or partial tetanus, convulsions, &c. are the symptoms by which, according to the estimate of several writers, nearly a third of children are destroyed in difficult dentition.

These are the common symptoms of difficult dentition; but occasionally peculiar ones arise, which not unfrequently subside as soon as the tooth is cut; as, for instance, gutta rosacea, (Lorry, Traçt. de Morb. Cutaneis, 1777. p. 411.) deafness; amaurotic blindness; enlargement of the knees; paralysis; and lameness of one or both legs. (Pasch, Abhandlung aus der. Wundarzney von den Zahnen, S. 25, 36.) Aphthæ of the mouth; an inflamed tubercle over the tooth which is about to be cut; suppuration, ulceration, and even sloughing of the gums. Rachitis is also alleged to have its origin sometimes from difficult dentition. But we should rather suppose that in the last instance the cause had been mistaken for the effect. The first symptoms are local, and appear to be accompanied with pain, as the child is restless, uneasy, and rubs his gums, and carries every thing to his mouth. There are also generally inflammation, heat, and swelling of the gums, and an increased flow of saliva. A general state of fever follows, which is sometimes slight and sometimes violent, and is very remarkable both for its sudden rise and declension; so that in the first hour of his illness the child shall be perfectly cool, in the second flushed and burning hot, and in the third temperate again. The local symptoms which ensue in distant parts, are various and complicated; for

the appearance they put on is in some degree determined by the nature of the parts which they affect.

It is to be recollected, that the symptoms of irritation from teething have often very closely resembled inflammatory disease, especially of the brain, so that practitioners should in all cases take particular notice of the state of the teeth. The treatment of the disease is of course simple; namely, to keep the bowels open; in plethoric children to apply a few leeches behind the ears; when much irritability prevails, a narcotic of the least stimulating kind, as hyosciamus, may be given. But the most advisable step, in addition to the above, is to divide the gum over the tooth. The incision is to be made with the common instrument, well known by the name of the *gum-lancet*, which is far better for the purpose than an ordinary lancet, as that is apt to cut the tongue and lips, especially when the child moves about much. The grinding teeth require a crucial incision: all the others a simple transverse cut completely through the gum. The wound is then to be examined with the finger, in order to ascertain that no tense fibre over the tooth continues undivided. In this country practitioners seldom apply any thing to the incision; but abroad, it is not uncommon to put to it a mixture of lemon-juice and honey. A premature incision of the gum soon closes again, and therefore does little service; but it is improbable that the cicatrix, thus produced, can be any impediment afterwards to dentition, as many have imagined; for it is an established fact, that cicatrices in general are more disposed to ulcerate and be absorbed, than the original parts of the body. Mr. Hunter, indeed, informs us, that he performed the operation above ten times upon the same teeth, where the disease had recurred as often, and every time with the absolute removal of the symptoms. No idle apprehensions should therefore deter us from dividing the gum, where there is any chance of benefit from the proceeding. At the same time this is not recommended as a prophylactic measure, but as being proper only when illness, suspected to arise from dentition, actually exists.

The use of hard applications, as biting the root of marsh-mallows, smooth corals, boars' tusks, &c. render the gums callous; but more good might, perhaps, be derived, if substances with roughish surfaces were employed.

The anomalies which we remark in regard to the backwardness, or on the contrary unusual forwardness, of dentition, do not seem worthy of notice in this place, because they are scarcely within the reach of medical assistance: it is usually remarked that healthy children cut their teeth early; while those who are rickety, or otherwise affected with chronic complaints, are equally late in performing the same process. The most common order of the first teething is as follows: In the sixth or seventh month after birth, the first or *milk* teeth make their appearance through the gums. The two middle incisors of the lower jaw are those which most frequently first come out; and, in the course of a few weeks, they are generally followed by the two middle incisor teeth of the upper jaw. At length, after some months more, the lateral incisors and the canine teeth show themselves. The anterior molares, or front grinders, do not commonly pass through the gums until the child is a twelve-month old.

β . *O. puerilis*; and γ . *O. adultorum*. These two varieties may be considered together. It seldom happens that much irritation is produced in these advanced terms of dentition. Occasionally, indeed, the protrusion of the *dentes sapientie*, or "teeth of wisdom," in adults, is so long delayed, that, the jaw having ceased to enlarge, and being completely filled with the other teeth, the pressure of the *wise teeth* on the coronoid process when they arise from the upper, and on the superior teeth when from the lower, produces a trifling inconvenience; but this is easily remedied by freely opening the gum, or by extracting these useless teeth.

The same variety, in regard to time of appearance, exists in the second dentition as in the first. The common period is from eight or nine to thirteen years of age. Many cases of three or more dentitions have been recorded on undoubted authority.

δ. O. senum. The reproduction of teeth in advanced age is another curious but well-authenticated fact. In general the teeth which appear at this period are irregular and useless. John Hunter, however, saw one case in which a complete set arose in both jaws. Dr. Good mentions two cases in which a few straggling teeth were cut at a very late period of life; and which were further remarkable on account of the patients recovering, the one her hearing, the other her sight; senses of which they had been for years partially deprived. For further cases in which teeth were produced very late indeed, the reader may consult Yfabern, Journ. de Med. tom. xxv. p. 316. Nitzsch, Ephem. Erudit. Ann. 1666, p. 175. Ephem. Nat. Cur. Dec. 11. Ann. iii. Obf. 15. and the Phil. Transf. vol. xxvii. 1713.

2. Odontia dolorosa, acute pain in the teeth or their sockets. Dr. Good makes four varieties of this disease; viz. α, cariosa; β, catarrhalis; γ, nervorum; δ, sympathetica.

α. It appears agreed by the most enlightened physiologists, that the internal part and fang of the teeth are vascular, while the enamel is an inorganic secretion. Caries therefore may arise from inflammation of the tooth giving rise to absorption of the substance and enamel; or the same process may take place from chemical solvents applied externally. We should be inclined to think that the former cause is the most common. The more remote causes of the inflammation of the teeth are various, and many of them inscrutable. Heat and cold, which are transmitted readily through the enamel, are perhaps the most frequent. Disordered secretion from the salivary glands are perhaps the most usual cause of decomposition of the enamel; for we cannot suppose that the substances we swallow, heterogeneous as they are, can produce much effect in passing so rapidly as they do through the mouth. It is scarcely necessary to remark that inflammation of the gums will generally communicate their morbid state to the teeth. By whatever means, however, as Dr. Good says, a decay or caries of the teeth may be produced, it appears to operate in three different ways: sometimes commencing in the internal cavity, and working its path outward; sometimes outward, and working its path within; and sometimes by a wasting of the enamel, and consequent denudation of the bony part. The first is the least common affection, and is discoverable by the appearance of the internal blackness through the external shell; the third is more common than the first, and the second the most frequent of the whole; evincing, at its commencement, the appearance of an opaque white spot through the enamel, which gradually crumbles away about the spot, and thus discloses that part of the body of the tooth which forms the original seat of the disease, and which, by its continuance, converts the early spot into a hole, and at length destroys it altogether, or at least down to its neck, unless the pain produced by its progress compel the patient to have it extracted before the disease advances thus far.

It is of no practical use to insert the various remedies by which the pain arising from denudation of the nerves of the teeth has been attempted to be alleviated. They are for the most part of that nature which, by excessively stimulating the nerve, entirely destroys its sensibility. Hence, perhaps, the most efficacious are the strong mineral acids, carefully applied by means of a pin or probe to the carious surface; but this requires that the gum, &c. should not exhibit any marks of inflammation. Small degrees of caries, or slight fissures, may be relieved by filing, filling up with gold, &c. Of course, however, the only radical cure, where much caries is present, is to extract the tooth; for the mode of performing which see the article SURGERY.

If inflammation have not produced caries (and there is often violent and excruciating pain irreparable to decayed teeth), lancing the gums freely, and attending to the sympathetic action whence they derived their diseases, e. g. disordered gastric or uterine function, will often effect the cure. The inflammation often extends over the whole face, and is particularly distinguished by the exasperation of the pain which warm liquids give rise to when applied internally. This is most effectually combated by cooling lotions and by purges. The ill effects of the use of the stimulating remedies in this kind of tooth-ache is exemplified strongly by the following case, extracted from the London Medical Journal, vol. iii. communicated by Mr. Fowler, of Princes-street, Hanover Square. "A gentleman whom I attended, was afflicted with the tooth-ache in the first dens molaris. Being much alarmed at the idea of extraction, he applied to an old woman, who at that time was esteemed famous for the cure of the tooth-ache without drawing. She had applied her nostrum to the tooth twice within the space of three days; and, on the fourth, he came to me, complaining of a sore mouth, telling me where he had been to get relief, and that the liquid which had been used was very caustic. From the appearance of the violent inflammation, which had taken place from the diseased tooth to the epiglottis, I advised him to consult some medical gentleman of eminence immediately; with which advice, I am sorry to say, he did not comply. Not hearing from him on the third day, I called (en passant), but he was too ill to be seen; a derangement of intellects had taken place. I called again four days afterwards, and was informed, that he had died raving on the preceding day. I had every reason to believe, that the fluid which had been inserted into the tooth with a view of destroying the nerve, had produced this tragical end."

γ. Disease of the nerves of the teeth is perhaps the most troublesome species of tooth-ache. The appearances it exhibits are anomalous; and the complaint is so frequently associated with caries of the teeth, that its precise nature is often unknown until some of the teeth have been extracted without the least alleviation. This affection arises from the same cause as other morbid affections of nerves; often from gastric, intestinal, or biliary, derangement; pregnancy, plethora, worms, &c. and is to be combated only by removing the cause, and by the use of remedies having the effect of allaying nervous irritation. As this affection seems, then, to arise from various causes, it is capable of comprehending the other varieties mentioned by Dr. Good. We shall have occasion to speak more at large on this subject when treating of NEUROTICA.

3. Odontia stuporis, or tooth-edge, has two varieties: α, à stridore; β, à acritudine. The former, which is associated in a remarkable manner with peculiar imaginations, is the sensation we feel when the edges of two knives are rubbed across, when we cut a cork, or rub our coat-sleeves together. Dr. Good mentions the curious circumstance, that a friend of his experienced this sensation in a remarkable degree from hearing a woman cry bullaces for sale. It is perhaps difficult to explain this phenomenon. It is most probably somehow connected with sympathetic action between the nerves of teeth and ear; unless we could admit the notion of Hagerup, that the nerves of the teeth are auditory, in which case this operation of harsh sounds might readily be accounted for. As connected with this point, we beg the reader to notice the conclusion of our article DUMBNESS, vol. vi. p. 117.

β. The latter variety is produced by most chemical substances that can denude or dissolve the enamel. It is felt at the edge of the teeth, perhaps on account of the thinness of the enamel at that part. Morbid secretions ejected from the stomach into the mouth frequently cause this unpleasant sensation. Mechanical injuries, as gnawing the teeth, attrite the enamel likewise; and it is said to be a symptom in rachitis, bilious disorders, &c. The removal

removal of the remote cause is of course the only plan of treatment. Warm liquors, and the chewing of almonds, have however been recommended.

4. *Odontia deformis*, deformity of the teeth, from error, shape, position, or number. The teeth sometimes grow in a very irregular manner; as from the palate, underneath the tongue, or not upright in the gums. The latter circumstance is a very general consequence of neglecting to draw the first teeth of children on the appearance of the second. It may be remedied, when in a trifling degree, by pushing the tooth from time to time towards its proper situation; or, more permanently, by means of some mechanical contrivance, as silk thread or Bruner's machine. A metallic plate answers the purpose very well; its width should be less than the height of the teeth; its breadth equal to three teeth; it is to be applied to the inside of such teeth as incline inwards, and to the out-sides of those which incline outwards; at the ends of the plate are two holes, through which the silk-threads, smeared with wax, are to be passed, and, after crossing each other, are to be tied over the oblique tooth.

When the teeth are so far removed from the gums as to render these methods ineffectual, extraction is of course the only resource. Albinus records an example, in which a tooth grew out of the maxillary process below the orbit. It was concealed until it made its way out in this extraordinary situation. *Annot. Acad.* t. 7. p. 54.

The teeth have sometimes been observed inverted, their bodies being situated towards the jaw. *Pollich, Increm. Ossium*, p. 25. *Albin.* c. 9. *Palfin*, c. 9.

Sometimes the teeth are placed too distant apart, so that between their crowns large interspaces are left. Thus, in children three years of age, the crowns of the milk-teeth are so close to each other, that they are laterally as it were in contact; but, in children seven years old, there are wide interspaces between them. The reason of this is owing to the jaw increasing in size, while the dimensions of the teeth undergo no alteration. The second or permanent teeth, on the other hand, (at least the first twenty of them,) have larger bodies than the milk-set.

Frequently the tartar insinuates itself between the crowns of the teeth, and occasions a considerable separation of them. We need scarcely observe, that the cure requires that the tartar should be taken off, and the teeth reduced into their natural position.

The deformity of which we are now treating, is occasionally ascribable in adult subjects to the preternatural breadth of the jaw, in which circumstance it is absolutely incurable.

The teeth may be too crowded together, so that their crowns are laterally in contact. This defect may extend to some or all the teeth. The frequent consequence is, that the lateral margins of these parts become carious. This deformity arises from the great width of the crowns of the teeth, and it may be ascertained by ocular examination. In some instances, all the bodies of the teeth are preternaturally wide, in others only a certain number of them. It is caused likewise by the uncommon shortness of the jaw. It may be known by observing that the crowns of the teeth are not too large, and that the alveolar arches are strikingly diminutive. The mode of cure consists in filing off a little of the lateral edges of the teeth affected.

Sometimes the number of the teeth exceeds what is the usual share of the human species in general; and this particularly occurs whenever the number amounts to more than thirty-two. Columbus has seen thirty-three; Fauchart, thirty-three and thirty-four; Bourdet, thirty-six; and Ingraffias thirty-six, including twenty-four grinders.

In some instances, the excessive number is owing to there being a double row of teeth. This malformation may happen to both jaws, or be confined to one. It has been noticed in both jaws by Munick, p. 144. *Plinius*, c. xi. p. 623. *C. Bartholinus*, p. 464, &c. *Arnold met*

with a boy, fourteen years old, who had all together seventy-two teeth in his mouth. There was a double set of the incisores, canine teeth, and three posterior grinders; but the anterior grinders were triple; consequently there were counted in each jaw eight incisores, two canine on each side, and twelve molares. The incisores were not arranged in an even double row; but each row seemed irregular, and its order as it were promiscuous. The arrangement of the canine and grinding teeth was more regular. None of these teeth were affected with caries. *Obs. Phys. Med.* p. 69. See also *Hunter*, p. 115, 199, for examples of a double row of teeth. *Bloch, Medicinische Bemerkungen*, p. 19. Triple row, *Neander, Physic*, Part II. Numerous and confused rows, *Eph. Nat. Cur.* ann. iii. vii. viii.

5. *Odontia edentula*, or toothlessness. This species consists of four varieties. α, *Peculiaris*; from constitutional defect. β, *A vi extrinseca*; from external violence. γ, *A carie*; from decay. δ, *Senilium*, from old age. In all these varieties, the affection seldom extends to the whole teeth, except in the case of old age. In the first, or that from constitutional defect, a few only in one or both jaws are left unprovided for; while sometimes an effort to this purpose is commenced, but not carried to perfection. "In the head of a young subject which I examined," says Mr. J. Hunter, "I found that the two first incisor teeth in the upper jaw had not cut the gum; nor had they any root or fang, excepting so much as was necessary to fasten them to the gum on their upper surface; and, on examining the jaw, I found there was no alveolar process nor sockets in that part." *Nat. Hist. of the Human Teeth*, p. 8. It is obvious that the only method of remedying this defect is by inserting supplemental teeth; as to which see the article *SURGERY*.

6. *Odontia incrustans*, tartar of the teeth. Tartar is an earthy crust, which adheres to the teeth. As it fills up the interspaces of several of the teeth, and occupies their external surfaces, it is seldom observed upon their insides. By the Greeks it was called *odontolithos*, from *odontis*, a tooth, and *lithos*, a stone. By others it has been termed *tophus vel calculus dentium*.

With regard to the effects of the tartar, it displaces the teeth, and renders them loose and painful; it also separates the gums from the fangs, producing caries in the latter, and a bad smell in the breath. In respect to colour, the tartar of the teeth is of three kinds, namely, dark-brown, yellow, and black.

Since many persons who never clean their teeth at all are not disfigured with these depositions of tartar, it appears that a peculiar disposing cause is necessary for the occurrence of the complaint. It is most likely that morbid states of the saliva are the most frequent; for there are certain persons, whose teeth are constantly incrustated with tartar, notwithstanding they are in the continual habit of washing their teeth and mouths. *Berdmore* relates a surprising example of this sort. A man, thirty-two years of age, had the teeth of each jaw coated with solid tartar, half an inch in thickness, both on the outside and inside of the teeth, and on the surface of the gums, so that the interstices of the teeth were altogether invisible. The gums were every-where pushed off the teeth, and painful. The incrustations upon the incisor teeth were so thick, that the lower lip was rendered more prominent. During a fortnight, *Berdmore* removed every day some of the tartar from the teeth with an instrument, and at length employed a dentifrice and brush. The retracted gums were scarified, and thus made to adhere to the necks of the teeth. The patient was obliged to brush his gums and teeth three times a-day, partly with a view of preventing the new formation of tartar, and partly in order that the regeneration of the gums might be still more promoted. But, although the patient strictly followed this plan, his teeth and gums, in the course of half a year, became again covered with an extremely-thick coat of tartar. *Berdmore* was therefore under

under the necessity of recommending the use of a stiffer brush, and a dentifrice made of siells, for the purpose of removing the tartar.

With respect to the treatment of tartareous incrustations of the teeth in general, it is essential to remove the tartar, and clean the teeth well every day. It is also needful to correct the state of the salivary secretion.

Persons who are in the habit of using acrid tinctures or powders which dissolve the enamel, and make it porous, are frequently troubled with tartareous incrustations. The cause being avoided, the mode of treatment is the same as in the preceding cases.

This affection sometimes arrives at such a pitch, that several of the teeth become concreted together. See Eustachius de Dent. cap. 2.

7. *Odontia excrescens*. Varieties: α , spongiosa; β , extuberans.

α . *O. spongiosa* is taken to apply to the disease which has been so well described by Hunter as scurvy in the gums, from its identity with one of the symptoms of sea-scurvy. It is not to be concluded however that the term is exactly correct, or that this symptom is always connected with a general scorbutic diathesis; on the contrary, the above-mentioned author has often seen scurvy of the gums in persons quite healthy, in patients afflicted with scrofula, and other complaints equally remote in their nature from scurvy. The primary symptoms of this complaint are those of inflammation; viz. pain, redness, and turgescence. The gums bleed on the slightest injury; the tenderness is first observable on the edges; the smooth skin appears denuded on the latter parts; and often, particularly in the interstices between the teeth, there shoot up irritable granulations. To this state ulceration and absorption supervene: the former process is often so extensively present as to denude all the teeth of each jaw; more commonly, however, it is confined to one part, at most to one jaw. It frequently happens in this case that the alveolar process disappears by absorption, in which event there is always a very considerable discharge of matter from the inside of the gum and alveolar process, flowing out in the direction of the tooth. In many of these cases, we find that, while the gums are ulcerating in one part, they are swelling and becoming spongy in another, and hanging loose upon the teeth; and this often takes place when there is no-where any ulceration. At length the teeth become loose, and in a few years drop out, one after the other, at short intervals, until the person is rendered toothless. It is from this complaint that many persons lose their teeth at a very early period of life. Indeed most individuals are more or less subject to it; as the gums, in some part or another, although there be no symptoms of the disease, are likely to become preternaturally red, enlarged, and tender. Therefore, whenever a tendency to this disease is observed, great care should be taken to apply such means as will arrest its progress.

The treatment of scurvy of the gums consists in freely lancing them when in the inflamed or spongy state. The use of astringent lotions too is after this of essential service. These stimuli to be varied according to the feelings of the patient. The most common are infusion of roses with the tincture of myrrh, decoction of bark, solutions of alum, arquebuse-water, &c. In some cases great benefit is derived from the use of sea-water, and Mr. Fox observes, that he always recommends it to be used warm if the gums be tender. When the gums are exceedingly tender, and have any tendency to ulceration, Mr. Fox recommends washing the mouth very frequently with barley-water sweetened with honey. In two or three days, if the soreness is diminished, the lancet is to be cautiously used with the diluted tincture of myrrh as a wash. When this treatment fails in making the edges of the gums heal, and they hang loosely about the necks of the teeth, Mr. Fox observes, that

much good will be derived from the use of a solution of the *argentum nitratum*. He says, that, if the disease be only partial, the caustic should be applied with a camel's-hair pencil dipped in the solution. This remedy is described as communicating a new action to the gums, and they generally get well in a short time. Indeed, whenever the gums are very full, and discharge a good deal of offensive matter, washing the mouth with a solution of lunar caustic is, according to Mr. Fox, a very excellent means of rendering the mouth sweet and comfortable. This remedy, when applied to the fore edges of the gums with a hair-pencil, may be used as strong as in the proportion of a dram of the *argentum* to an ounce of distilled water; but, if the mouth is to be rinsed with it, not more than one grain of the caustic should be put to two ounces of water, lest, by being too strong and getting into the throat, it should occasion an unpleasant nausea.

Persons, who are often troubled with inflammation of the gums, ought to have them scarified whenever they become painful, or are more turgid than usual. By the loss of a small quantity of blood, the affection is immediately relieved, and kept from committing the ravages which have been related. In scarifying the gums, the lancet should be applied longitudinally to those parts which are situated between the teeth, because, if the gums are cut where they cover the fangs, they will shrink in healing, and leave the necks of the teeth exposed. On the other hand, if the gums are lanced in the angles between the teeth, they will be drawn tighter in healing, and the teeth be eventually strengthened. *For on the Diseases of the Teeth.*

In addition to these measures, it will often be necessary to correct the state of the constitution, when scorbutic or scrofulous appearances are present. Frequently, too, secretions from the alimentary canal should be procured, for the purpose of removing irritation extending to the gums, as part of that structure. It is to be remarked also, that the free scarification we have urged above should be dispensed with in scrofulous cases, since, according to the testimony of Hunter, they do harm in these cases. This author speaks favourably of sea-bathing, and rinsing the mouth with sea-water.

The next variety, β , *O. extuberans*, seems closely allied with the first, as a consequence; unless indeed we admit the belief that in this the inflammation is attached to the bony structure. However this be, the tooth affected in *gum-bile* is generally found swelled, or in advanced cases absorbed at its fang, while the substance of it remains found. Sometimes, on the other hand, it is supposed to originate from a disease in the socket, or jaw, which has no connexion with the tooth, and only affects it secondarily. Upon drawing such teeth, says Mr. Hunter, they are generally found diseased at or near the point, being there very rough and irregular, like ulcerating bones. The last kind of *gum-biles* may arise altogether from such a cause, the appearance on the fang of the tooth being only an effect.

The same surgeon has explained, that these abscesses, whether arising from the teeth or the sockets, always destroy the alveolar processes on that side where the matter is discharged, on which account the tooth is rendered more or less loose. This event may be seen in many skulls, and also frequently in the living subject; for, when the alveolar process is destroyed on the outside of the tooth, if the latter part be moved, the motion may be observed under the gum all along the fang. When these abscesses have burst through the gums, they often close up, and put on the appearance of being healed; but such as discharge themselves between the gums and teeth can never heal up, because the gum cannot unite to the tooth. At certain periods, however, the discharge from them diminishes, owing to a subsidence of the suppuration; but, either exposure to cold, or some other accidental cause, occasioning a fresh inflammation, an increase of the suppuration is the consequence; and either

the old orifice in the gum becomes opened again, or the discharge by the side of the tooth is augmented. In the latter case, Mr. Hunter believes, that the affection is less severe than in the former, in which fresh ulceration is required for the passage of the matter. Thus a gum-bile goes on for years, healing and opening alternately; the effect of which is, that the alveolar processes are at length absorbed, and the tooth gets looser and looser, till it either drops out, or is extracted. Most probably, in all such cases, says Mr. Hunter, the communication between the cavity of the tooth and the jaw is cut off; yet it keeps in part its lateral attachments, especially when the gum grasps the tooth; but these attachments are less when the matter passes between the gum and the tooth; though some of them are still retained, particularly on the side opposite to the passage for the matter.

With regard to the symptoms of gum-biles, those which open through the gum may be distinguished by a small rising between the arch of the gum and the attachment of the lip. Upon pressing the gum at the side of this point, some matter will commonly be observed oozing out at the eminence. This eminence seldom subsides entirely; for even when there is no discharge, and the opening is healed over, a small rising may still be perceived, which shows that the gum-bile has been there. Such gum-biles as discharge themselves between the gum and the tooth are always discovered by pressing the gum, whereby the matter is forced out, and is seen lying in the angle between the gum and the tooth.

A fungus will sometimes shoot out of the orifice of a gum-bile, in consequence of a luxuriant disposition to form granulations on the inside of the abscess, and the opening being backward to heal. In this case, the tooth acts as an extraneous body; and, by the secretion of matter, the abscess is prevented from healing. There is no difference in the treatment of gum-biles, whether they arise from a diseased tooth, or a disease in the socket. When an abscess forms round the root of a tooth, the tooth, by losing its connexion with the other parts, loses every power of union, as it is not endowed with the power of granulating. Hence it becomes an extraneous body, or at least acts here as one, and that of the worst kind, which, says Mr. Hunter, it is not in the power of any operation in the machine to get rid of. In this case, therefore, the only cure is by the extraction of the tooth; and, as this is the last resource, Mr. Hunter observes, that every thing should be done to make the parts as easy under the disease as possible, so that this operation may be postponed.

When the abscess has burst through the gum, Mr. Hunter advises us to keep the opening from closing, with a view of preventing future gatherings. He recommends enlarging the opening, and keeping it enlarged till all the inside of the abscess is skinned over, or the aperture in the gum loses the disposition to close up. This will in a great measure prevent any future formation of matter, or at least whatever is formed will find a ready outlet, so that no accumulation can happen. The end of the fang, indeed, will be exposed; but, under such circumstances, it will not be in a worse situation than when soaked in matter. Mr. Hunter next remarks, that one method of doing this is to open the gum-biles by a crucial incision the full width of the abscess, and fill it with lint, which should be dipped in lime-water, or a diluted solution of lunar caustic, made by dissolving one drachm of the caustic in two ounces of distilled water; and the wound should be dressed very frequently, as it is with difficulty that the dressing can be kept in. If this is not sufficient to keep the wound open, it may be touched with the lunar caustic, so as to produce a slough; and the application may be repeated, if found necessary. Some difficulty is experienced in keeping on the dressings; but constant attention will make up for the inconvenience of situation. Mr. Hunter also speaks in favour of touching the surface of the abscess with the lapis septicus, and

keeping the lip from coming into contact with the part for one minute, within which space of time the caustic will penetrate to the bottom. The surface of the bile should be wiped as dry as possible, that the caustic may not do mischief by spreading.

It has been a practice to extract the tooth, then file off any diseased part of it, and immediately replace it. This method has often failed, in consequence of the tooth being introduced into a diseased jaw; but occasionally it has succeeded.

When a gum-bile is formed on a back-tooth, the treatment, according to Mr. Hunter, need not be so nice as when the abscess is situated upon any of the fore-teeth, because appearances are then of less consequence. Therefore the gum may be slit down upon the fang through its whole length, from the opening of the gum-bile to its edge; which proceeding will prevent any future union, while the healing of all the cavity of the abscess will prevent any future collection of matter. The wound afterwards resembles the hare-lip. Hence this practice is not advisable when the place of the cut would be much in view, as when the abscess is situated upon any of the fore-teeth. In these cases, when the granulations protrude from the small opening, a cure may be effected in the manner above mentioned, or the granulations may be cut off with a knife or lancet. However, in general, a permanent cure cannot be thus effected, and the granulations rise up again.

In consequence of bad teeth, excrescences also arise from the gum, near or in contact with the teeth which are diseased. In general, such growths may be easily removed with a knife, or any other cutting instrument which may be found most convenient. They will often rise, in a day or two after the operation, as high as ever; but this newly-generated matter generally soon dies, and the disease terminates well. They frequently have so much of a cancerous appearance as to deter surgeons from meddling with them; but Mr. Hunter believed, that, when they arise at once from the gum, and appear to be the only diseased part, they have no malignant disposition. However, this great surgeon had seen them with very broad bases when the whole could not be removed, and yet no bad consequences resulted from the partial removal of them. In a few years they often rise again, by which means a great deal of trouble is occasioned. The writer of this article has seen a case of this nature, in which the extent and rapid growth of the fungus rendered excision impracticable, very successfully removed by tearing out, and the use of caustic.

The few remarks we have made on the subject of diseases of the teeth and gums, clearly indicate the regulations which should be adopted for the preservation of these beautiful structures; viz. by abolishing the use of all dentifrice capable either of mechanically detriting, or chemically dissolving, the enamel, as well as of all alimentary substances which have the same effects; but at the same time of diligently removing, at least once a-day, all fordes from the mouth. Perhaps nothing conduces to the same purpose more than healthy action of the stomach; for the viscid state of the salivary secretions are well known when that organ is deranged; and we may further remark, that fine teeth are most usually observable in those who are free from gastric disturbance; and that few animals are subject to decayed teeth in an equal proportion to our own race. As a popular notion is prevalent, that the use of sugar is prejudicial to the teeth, it is proper in this place to contradict it as far as regards the circumstance of its dissolving the enamel; for general de Beaufort ate every day for forty years a pound of sugar, and lived to the age of seventy. After death, his viscera were found free from disease, and his teeth sound. (*Anecdotes de Médecine*, tom. ii. p. 35.) Plenck put a healthy tooth into some syrup diluted with water, and kept it there two months, at the end of which time it was taken out, and found to have undergone no change.

(Doctrinâ

(Doctrinâ de Morb. Dentium, p. 52.) How far, however, this substance may indirectly hurt the teeth, by deranging the gastric functions, may admit of some discussion.

Genus II. *Ptyalismus*, [from *πλω*, to spit.] Disorders affecting the Salivary Glands. This genus contains three species.

1. *Ptyalismus acutus*, or salivation, has three varieties: α , hydrargyratus; β , sympatheticus; γ , mellitus.

α . *Ptyalismus hydrargyratus*. This consists in an increased secretion of saliva from an extreme action of the salivary glands. As an idiopathic disease, it is seldom seen, and even then not until it has assumed the chronic form. It more usually makes its appearance in consequence of irritation from mercury. Other substances, however, will produce it; but this is the most common, and the only one we are acquainted with which increases this secretion with certainty and precision. Formerly the use of mercury for the purposes of salivation was carried to so great an extent, that frequent sloughings and ulcerations of the mouth were the consequence. But, since it has been known that the degree of violence with which mercury is pushed is far from increasing its curative effects, we have not to record so many of those frightful appearances.

The production of this disease is generally the work of the physician. With respect to the quantity of mercury necessary to produce it, the greatest variation is observable. While, on the one hand, it is carried into the constitution without visible effect for very long periods, or is carried off by sweat, purging, &c. on the other, the most trifling doses in different constitutions produce violent and alarming effects in a few days. The instances in which the patients have been insensible for long periods to large and frequently-repeated doses of this medicine, will be familiar to most of our readers. The opposite state of constitution is not perhaps so frequently met with; but even that is sufficiently common. The usual quantity of mercury required is about five grains of the blue pill, which contain a grain of mercury, to be repeated three times a-day; or, if calomel is employed, a grain night and morning at first, or two grains at night, guarded with a grain of opium, lest it should irritate the bowels, will be a proper dose. If the ointment is preferred, half a dram of the strong mercurial ointment may be rubbed in night and morning. In about a week or ten days, by either plan, the mouth will be slightly sore in the majority of cases; while, on the contrary, as we have before mentioned, cases are not uncommon in which two or three small doses of mercury have produced copious salivation. In debilitated habits, three grains of calomel given in the dose, or one grain on three succeeding nights, has been found to induce the discharge. It has been brought on by sprinkling precipitate on a wound (Hildanus); by a mercurial injection in a fistula; by a mercurial girdle; or by the mercurial ointment employed to kill lice. In these cases, the idiosyncrasy of the patient seems to influence the effect; and, therefore, this should be, if possible, ascertained before mercury is exhibited in any considerable quantity.

It is usual at present to produce this discharge in a very moderate degree; but some action on the gums is necessary, to show that the medicine has been introduced into the system. This is particularly the case in lues and chronic inflammations of the liver. In other complaints it is less essential if the symptoms disappear. The effectual relief of these is the only certain criterion by which we are taught to leave off the medicine; and it will be prudent to continue it for some time after these have disappeared.

Of course this is not the proper place to discuss the effects of mercury, or, generally speaking, its administration; but, as far as regards the bringing on of ptyalism, we cannot help remarking, that, as its continuance is always unpleasant, and sometimes difficult of cure, a greater degree of care is required in its institution than

the generality of practitioners think proper to adopt. Under this impression, we cannot do better than urge the rules of Dr. Hamilton on this subject; whose advice, however it may be thought by some to favour of unnecessary minuteness, is nevertheless highly useful in many cases, and has the advantage of erring on the right side in all.

"The first precaution to be adopted in this climate during a course of mercury, is confinement within doors, with a regulated temperature of the apartment. The utility and the necessity of this precaution must be so obvious, that it is unnecessary to expatiate upon the subject. Not that it is meant that the patient should be confined to an ill-ventilated room; for, on the contrary, a plentiful supply of fresh air is of essential utility. While the boldness with which Mr. Pearson exposes such patients to cool dry open air may be well suited to persons who have been immured in a crowded hospital with a mercurial atmosphere, it certainly would be most prejudicial to the better ranks of society in private practice.

"2dly. The diet ought to consist of the mildest possible food, such as preparations of milk and farinaceous matter, with weak animal mucilages. In short, all stimulant food or drink of every description, ought to be most scrupulously refrained from.

"3dly. If the individual be robust, sixteen or twenty ounces of blood should be drawn from the arm before any preparation of mercury be exhibited. Where, from the delicacy of the patient, blood-letting cannot be advised, confinement within doors a week previous to beginning the mercury, and during that time one or more doses of cooling physic ought to be taken.

"4thly. The mercury must not be given in such quantity, or with such activity, as to produce a sudden effect upon the system. This is certainly one of the most important practical improvements, suggested by Mr. Abernethy and others, and confirmed by the late experiments; for irreparable mischief was often committed by the hurry with which the system was loaded with mercury. If the other precautions be implicitly adopted, the more slowly the mercury is administered, the more certainly, and perhaps speedily, will the primary sores heal.

"5thly. Although, in particular cases, some of the more active mercurial oxydes may be useful, the blue pill or the blue ointment furnish in general the safest and mildest preparations of mercury.

"6thly. Salivation is to be guarded against by lessening the dose, or suspending the medicine, whenever the brassy taste in the mouth is perceived. The same measures are to be pursued if any irritation of the bowels threatens.

"7thly. Some vegetable diluent ought to be drunk in large quantities, for the purpose principally of preventing the peculiar state of the blood, which mercury is so apt to produce. The decoctions of sarsaparilla, guaiacum, fassafra, &c. answer this purpose; and perhaps they are all equally efficacious, if drank tepid, and in sufficient quantity.

"8thly. It is extremely difficult to establish any general rule for the duration of a mercurial course, as that must be regulated very much by the circumstances of each particular case. From two to three months may perhaps be sufficient in the majority of cases.

"9thly. The daily use of the warm bath, where that can be conveniently commanded, is found particularly beneficial.

"10thly. If any irritable feelings occur while under the influence of mercury, the use of the medicine should be instantly suspended, and the most active measures for checking the progress of such complaints ought to be carefully adopted. Preparations of camphor, of the spiritus ammoniæ aromaticus, of opium, of cicuta, &c. are feverally useful, according to the circumstances of each case.

"11thly. After the mercurial course is finished, the patient ought to remain within doors for at least a fortnight, improving the diet, (though still abstaining from wine

wine and stimulating liquors,) and taking gentle exercise, progressively increasing it according to the return of strength.

“Lastly. The flannel and woollen dress, in which those under a course of mercury should be, literally speaking, encased, is to be changed daily; and, besides the ordinary precautions of having those articles of dress well washed, it is necessary that they be exposed for at least twenty-four hours to the open air, and afterwards to the influence of a large fire, before being again used.”

Salivation is used as a curative means in lues, liver-complaints, in some fevers, &c. in our account of which we shall take further notice of it. It has been recommended, moreover, as a cure for phthisis by Dr. Ruff; and a case was published in the 3d volume of the London Medical and Physical Journal, strongly corroborative of this treatment, by Dr. Peiffer. We may here remark that there is every reason to suppose that case, as well as several others recorded in support of the same opinion, were not genuine phthisis, but rather that form of pulmonary disease which supervenes on disordered states of the hepatic system, and in which mercury undoubtedly exerts a salutary influence.

With regard to the treatment of mercurial ptyalism, it is generally remarked, that, as soon as the mercury ceases to be administered, the spitting ceases of itself. At all times, however, this does not take place; and accordingly we have many methods recommended by various authors for its removal. Those most in repute are purgative medicines, opium, and sulphur. If any mercury remains in the system, these will sometimes relieve; but these medicines are not all of equal efficacy. Mr. Hunter thinks purgatives useless, and Dr. Parr has not found them highly beneficial, though he thinks they sometimes lessen the discharge. Opium is highly useful, particularly in the form of Dover's powder. Sulphur is known to lessen the activity of mercury out of the body; and, as it enters the circulation with little change, it may have the same effect on the circulating system. But this, like other finely-spun theories, deceives us in practice. Sulphur is by no means highly useful in these circumstances. Diuretics, which seem to excite what appears to be a vicarious discharge, have been employed but with little effect. We believe every practitioner, by the means mentioned, has been able to mitigate salivation; but by no remedies, in every instance, to conquer it wholly. See Hunter, Swediaur, Bell, and Howard, on the Venereal Disease; Stahl de Salivatione Mercuriali; Alberti de Hydrargyrosi; and Hamilton on the Use and Abuse of Mercurial Medicines.

As a critical discharge, salivation is for the most part salutary, and often terminates the disease that excites it. This is frequently the case in fevers; and the following instance is perhaps worth relating. A lady, aged twenty-four, and of a delicate constitution, was attacked with the typhus in the spring of 1788, under which she gradually drooped for nearly three weeks. Dr. Good thought her in great danger; but on the twentieth day a sudden and copious ptyalism supervened that evidently afforded her considerable relief. “This continued for upwards of a week, the daily secretion being never less than a pint, and twice not less than a pint and a quarter. Yet, instead of adding to her debility, it appeared to give fresh vigour to the system: the digestive function resumed its office; she daily improved in strength, and, on its cessation at the above period, was in a state of convalescence.”

We have numerous histories in which it has proved equally serviceable about the acme of small-pox; and the fluid of dropsies is said to have been frequently discharged by this channel. An extraordinary instance of this is related by Dr. Huxham, in Phil. Trans. for 1724. vol. xxxiii. The patient was a man aged forty, of a spare bilious habit, who had an attack of jaundice, followed by a paroxysm of colic, this last being produced by

drinking too freely of cider. Among other medicines was given a bolus, containing a scruple of jalap, eight grains of calomel, and a grain of opium. Copious dejections followed, and a few hours afterwards the patient complained of pain and swelling in the fauces, spat up a little thick brown saliva, which was soon considerably increased in quantity, of a deep colour, resembling greenish bile, though somewhat thinner. This flux of green and bilious saliva continued for about forty hours, during which time the quantity discharged amounted to four pints. The colour of the saliva then changed to yellow, like a solution of gamboge, with an increase rather than a diminution of the quantity. It continued of this colour for the space of forty hours more, after which it gradually became pellucid, and the salivation ceased as suddenly as it came on. During the flow of the saliva, the teeth and fauces were as green as if they had been stained with verdigris, and the teeth retained the same colour for a fortnight after the ptyalism had ceased. The patient had a few years before been suddenly attacked by a spontaneous salivation, so excessive as to endanger his life. In the present instance, therefore, it is probable that the dose of calomel co-operated with the peculiarity of the constitution in exciting the discharge: but, whatever was its cause, it proved critical both of the jaundice and the colic; for, from the moment it took place, the pain of the bowels ceased, and the greenish colour of the skin began to subside, the urine being at the same time secreted more abundantly, and of a blackish hue.

A very remarkable case is related in the London Med. and Phys. Journal, vol. xxx. p. 37, by Dr. Yeats. The subject was a female, in whom a ptyalism was excited for the purpose of improving the state of the menstrual discharge. This attempt, however, brought on very great derangement of the digestive organs, manifested by immediate rejection of every kind of medicine or aliment, by acid gastric secretion, &c. The cure of this state resisted every means suggested by the experience of Dr. Yeats, until he again induced ptyalism, when every unpleasant symptom abated, and the patient gradually and perfectly recovered. Remarkable as this case appears, and difficult as it is to trace the mode of curation established by the resuscitation of ptyalism, we perfectly coincide with Dr. Yeats in attributing the recovery of his patient to that process. The reader will meet with some important remarks on this subject in the Med. Observ. and Enquiries, vol. iii. by Sylvester and Dobson, and by Bardsley in the Med. Reports.

6. Pt. sympatheticus, or mouth-watering. A watering of the mouth experienced by some at the sight or smell of food is an instance of its production by nervous influence. Its occurrence in fever and other complaints, where it seems to produce very salutary effects, shows that it sometimes becomes spontaneously the seat of translated or substituted disease. Mechanical pressure, as is well known, excites very much the action of the salivary glands; as in chewing, sucking, &c. It is on this principle that it has been recommended to roll a marble, or small bullet, in the mouth, for the purpose of assuaging thirst; the muscular motion necessarily involved in this act, eliciting copious salivary secretion, and consequent moistening of the fauces. Tobacco likewise, and all other local irritants, are capable of inducing this increased secretion.

7. Pt. mellitus, or sweet spittle. This is generally connected with disorder of the stomach: its remote causes are probably identical with those of Diabetes mellitus. Dr. Good observes of it, that the secretion of sweet or mawkish saliva is not only for the most part free, but accompanied with nausea, and other symptoms of indigestion: and is probably what Sauvages intends by his first species, P. nauseosus, or à saburrâ nidorosa. It is relieved by magnesia and other absorbents; but will often only yield to an emetic, followed by warm stomachics. It may be necessary, no doubt, to vary the treatment according

ording to the nature of the gastric disturbance. This affection is also occasionally sympathetic, as in dentition sometimes occurs, and as a sequel or crisis to various other affections.

2. *Ptyalismus chronicus*. When, from the causes we have detailed, an excited state of the salivary glands has continued long, a chronic inflammation is set up, and altered and vitiated states of the secretion take place. This naturally induces much derangement of the process of digestion, and hence demands more particular attention. In addition to the constitutional remedies required in the acute stage of ptyalism, we are now called upon to adopt the application of topical remedies, for the purpose of altering the action of the secretions. Of these, acid and astringent gargles are the most useful. Blisters behind the ears have also been found efficacious. Dr. Robertson has detailed, in the *London Medical and Physical Journal*, vol. xxxiii. some cases successfully treated by the oxide of bismuth. In the *London Medical Transactions*, vol. ii. a curious case is mentioned, in which a very long-continued and troublesome ptyalism was cured by chewing dry bread and swallowing it.

3. *Ptyalismus iners*, drivelling or slavering. This consists in an involuntary and distressing flow of saliva from sluggishness of deglutition or other causes, *without increased secretion*. It has three varieties: α , infantilis; β , senilis; γ , moria.

This affection is distinguished from the other species of ptyalism by the circumstance, that, while in the former increased secretion (arising either from an excitement or dilated state of the secreting vessels) is present, in this the redundancy of fluid owes its existence to *diminished absorption*, and to the want of that almost continual deglutition by which this secretion is removed from the mouth.

The second variety is particularly attendant on paralytic patients. This circumstance is probably connected with the state of the brain; an idea which obtains confirmation from the contemplation of the third variety, with which debility of understanding is thus curiously connected. To trace the relation which exists between these states would form a subject of much interest and difficulty. As it does not appear however, that, in the present state of our knowledge, this affection is under the control of the medical art, we shall waive all further discussion of the subject.

Genus III. *Dysphagia*, [from *δυσ*, bad or imperfect, and *φαγω*, to eat or swallow.] Pain or obstruction in swallowing. This genus includes five species.

1. *Dysphagia constricta*, or difficulty of swallowing from permanent diminution of the calibre of the œsophagus. This affection arises from a thickened state of the mucous membrane, from induration of the same, from its acquiring a cartilaginous structure, from ossifications, excrescences, scirrhous or calculous concretions, &c. It may be produced likewise by tumors pressing on the canal, when these arise from neighbouring parts. Ulcers likewise, or other solutions of continuity, by destroying the play of the circular fibres, prevent or impede deglutition. Among other causes, Dr. Parr, in his *Medical Dictionary*, mentions the concretion of mucus, and supports it by the testimony of Hoffman. We need scarcely observe, that, from the nature of the œsophageal structure, this circumstance cannot occur, unless indeed the natural secretions are very much altered; an alteration which would imply previous diseased action for a long period, and hence is unlikely to be removed by diluents and nitrous powders, as the above-mentioned author has recommended. The case in question was probably one of the kind described by Dr. Baillie in his work on *Morbid Anatomy*, in which coagulated lymph was found in great quantity. The obstruction of swallowing is most frequently caused by mechanical injury, as pins or other substances accidentally introduced.

From whichever of these numerous causes impeded

deglutition may arise, the removal of the cause itself will be the first indication of cure. Hence, in all cases where tumors in or around the pharynx exist, the removal or diminution of those morbid accumulations must be attempted. This is, however, no very easy task, because, in the first place, the kind of tumor or excrescence is seldom to be discriminated when in the canal; and those which arise externally, as bronchocele, &c. are often difficult of cure. In these cases, while we use every endeavour to remove the disease according to particular indication, the patient must be supported with nourishing clysters or with liquid aliment passed into the stomach by means of a flexible tube. By this contrivance, according to the testimony of Dr. Good, a lady was supported for twenty years.

Difficult as tumors of the œsophagus are to remove, we should not neglect every probable means of relief; for sometimes the breaking of an abscess and the discharge of its contents has been of great service. In the History of the Royal Medical Society in Paris for the year 1776, we are told, that a young lady, aged sixteen years, after being troubled for about three months with a spasmodic cough, began to have a difficulty of swallowing, which increased so fast, that after a very short time she was incapable of taking any nourishment by the mouth, so that, for the space of three months, life was supported solely by clysters. Mercurial and other frictions were employed without effect. At length M. Macquart, reflecting on the case, and conjecturing that an encysted tumour existed in the œsophagus, and that it might probably be now in a state of suppuration, he resolved to administer some substance, which, by its weight, might occasion a rupture of the sac. For this purpose he prescribed an ounce of crude mercury, mixed with the yolk of eggs, to be swallowed every three hours. This remedy was taken, and the patient, soon after she had swallowed the second dose, brought up a considerable quantity of pus. From this moment she was able to swallow broth, and by proper care recovered. An emetic, in cases when complete stoppage does not happen, might be prescribed with equal advantage. According to Dr. Parr, when scrofulous indurations happen about the œsophagus, the ungt. hydrargyri, rubbed on the neck over the induration, or small doses of calomel, have often been of singular efficacy, especially if used early after the attack of the disorder. If the case is of more considerable duration, he thinks the mercurials should be given, so as to excite and support a moderate ptyalism for some time.

Many are the contrivances for removing foreign bodies sticking in the passage to the stomach; but it would often be better to leave the case to nature; than to irritate so tender a part, which must be the effect of such attempts. If the substance can be reached with the fingers, or with the forceps, the extraction is easy. When pins, fish-bones, or similar bodies, stick across the gullet, some recommend a wire with its end turned up like a hook, to be passed below these bodies, and then turned so as to bring them up. Pins, and other sharp bodies, when they have stuck in the throat, have been returned by swallowing a piece of tough meat tied to a strong thread, and then pulled up again. If the detained body may more safely be pushed down, the probang is a useful instrument. It hath frequently happened, that, though indigestible bodies have been swallowed, no inconvenience hath arisen from them. (See *Lond. Med. Transf.* vol. iii. and *Med. Museum*, vol. ii.) If the bodies cannot be easily moved up or down, endeavours should not be continued long, lest inflammation come on. If the patient can swallow, a large draught of water may be taken, a practice the more necessary if the substance wedged in possess any great degree of solubility; or, if he cannot swallow, an assistant may inject some fluid into the gullet, which will sometimes loosen the impacted body. When these endeavours fail, the patient must be treated as if labouring under an inflammatory disease; and the same

treatment will be required if an inflammation take place in the part, after the obstructing body is removed. A proper degree of agitation has sometimes succeeded in removing the obstructing body better than instruments. Thus a blow on the back hath often forced up a substance that stuck in the gullet or windpipe. Pins, which have stuck in the gullet, have been discharged by riding on a horse or in a carriage.

In the London Medical Observations and Inquiries, vol. iii. is an account of a small fibre of a feather being swallowed, and extracted by means of a probang with a thread or two passing from one end to the other, and fastened to the sponges which were connected with each end of this instrument. For some more complicated methods of extracting these substances, see the article SURGERY.

Independently of the causes just mentioned, Dr. Baillie has observed, that the œsophagus is liable to stricture, produced by the contraction of its muscular fibres at some particular part. This disease is most common in women whose constitutions are delicate, and much subject to nervous influence. When such a disease is examined in the dead body, the œsophagus is found to be more or less contracted in some part of it, and it feels harder than usual, as all muscles do in a contracted state. There is no appearance of diseased structure usually combined with it; yet this contraction might lay the foundation of a permanent and even a fatal disease. The muscular fibres of the œsophagus might so press on the inner membrane, as to excite inflammation in it, which might advance to suppuration, and would most probably terminate fatally.

A very unusual stricture of the œsophagus has been noticed by the same author. It consisted in its inner membrane being puckered together, so as to form a narrowness of the canal at a particular part. The canal at that part was so narrow, as hardly to allow a common garden-pea to pass. There was no appearance, however, of diseased structure in the inner membrane which was so contracted, and the muscular part of the œsophagus surrounding it was perfectly found. This disease was very slow in its progress; for the person in whom it took place had been for many years affected with a difficulty of swallowing, and could only swallow substances of extremely small size.

These cases have been much relieved by an attention to the state of the stomach and intestines, though not so much so as in the spasmodic affections we shall have occasion presently to notice. But we shall subjoin a case wherein a cure was very happily performed by mechanical means. It was communicated by Dr. Stevenson, of Kegworth, to the Medical and Physical Journal, vol. viii.

"Mrs. Wagdin, Trent Lock, Derbyshire, the subject of the subsequent communication, is forty years of age, of a thin spare habit, and irritable temperament. She dates the origin of her complaints from a violent attack of cynanche maligna near twelve years ago, to the contagion of which she was exposed almost immediately after her recovery from a severe parturition. The most prominent features of her disorder from that period till the expiration of more than three years, were a slight though progressively-increased difficulty of swallowing, accompanied with some degree of soreness, and an augmentation of the salival excretion. With a view to the palliation of these symptoms, she was directed to have occasional recourse to aperients, leeches, blisters, and gargles. By this time, however, the difficulty of deglutition had become so alarmingly exasperated, that she was no longer capable of swallowing solids, even of the magnitude of a pea. In this situation she put herself under the direction of Dr. Smith, late of Nottingham, who prescribed mercurials. A most severe salivation was the consequence, under which she laboured for the protracted space of three months. By this method the symptoms were so considerably alleviated, that she was capable once more of swallowing soft and well-comminuted solids. But, though

thus rescued from her impending fate, the *remedy* was productive of effects no less formidable. I allude to excessive debility, frequent syncope on the least motion, colliquative sweats, her system being greatly emaciated, and a prey to hysterical paroxysms. By the aid of proper dietetical management, as the complaint it was vainly hoped was subdued, her attendants flattered themselves she might still survive even this severe contest. Alas! no sooner were her drooping spirits reanimated by the sensible acquisition of renovated vigour, than the fond expectations she had cherished became depressed by a visible return of her former impediment to swallowing.

"During the last seven years, she found herself reduced to the sad necessity of supporting a miserable existence by means of liquid aliment, such as soups, milk, &c. I saw her for the first time in the beginning of October, 1801. She had then a dejected emaciated appearance, a quick pulse and other hectic symptoms, and was harassed by an almost incessant ptyalism, more particularly urgent during the earlier part of the day, at which time she was always hoarse. The breathing was much incommoded when she reclined on a sofa or bed, which concurred with the other symptoms in rendering her nights very restless. Her bowels were habitually inactive. There was not any external tumefaction of the thyroid gland, nor could the obstructed part be observed by inspecting the fauces.

"Dysphagia, in this inveterate stage, has I believe hitherto almost invariably bidden defiance to the best-directed medical expedients; and the singularity of the case will, I trust, be deemed a sufficient apology for the minuteness of its description. I proposed to her, as a dernier resort, to have recourse to mechanical dilatation, a practice none of the faculty had before even suggested. Sensible that, if not speedily relieved, she must fall a victim to this relentless disease, she agreed to submit implicitly to any plan from the adoption of which the smallest prospect of success might rationally be anticipated.

"I first cautiously introduced a common bougie into the lower part of the pharynx. In this place, a powerful resistance that occurred, and which occasioned my instrument, on the application of somewhat forcible pressure, to bend in various directions, seemed to confirm my theory of the nature of the disease. Thus foiled, I ventured to substitute a small probang copiously charged with oil. It was not without steady and continued efforts that this operation was made to dilate the stricture. After having overcome this obstacle, the instrument descended without much difficulty till it reached, I supposed, the lower portion of the œsophagus near the cardia, when a second impediment announced the existence of another stricture. The same measures however at length availed in enabling the probang also to force a passage through this contracted part, when it suddenly passed into the stomach. The instrument having been deliberately withdrawn, as soon as Mrs. W. had somewhat recovered from the irritation and fatigue produced by this, I gave her some gruel which stood ready, in order that she might ascertain, by sipping leisurely a small quantity, whether any benefit had accrued from the operation. Upon attempting to swallow, she found the former impediment removed, and continued drinking till she had consumed at least half a pint of the liquid with the greatest facility as to the power of deglutition, though of course some soreness must have existed. Apprehending that the passage would not, by the small instrument employed, be sufficiently dilated to admit of the ready ingurgitation of solids, the operation was repeated with a larger instrument three successive times, a few days being suffered to intervene between each, in order that the topical pain might be allayed by the exhibition of oily linctures and aperients, and by fomentations. The fourth operation enabled her to swallow solids without experiencing the smallest inconvenience, a faculty she still continues to exercise in its fullest extent.

“As a further testimony of the efficacy of mechanical means in the radical cure of this tremendous disease, permit me shortly to add, that the only daughter of the above-mentioned lady, aged twelve years, had from her earliest infancy, indeed from her birth, laboured under *Dysphagia constricta*. Her constitution partakes much of the nervous irritability of her mother. The want of substantial food (for her existence had been supported by the suction of liquid aliment alone) tended obviously to retard the physical evolution of her system. The complete success which had crowned my efforts in the case of Mrs. W. naturally created an anxious wish in the parents to have the same means resorted to in the present instance; of the absolute necessity of which my intelligent little patient was fully satisfied, and readily consented to undergo the operation, from the sanguine expectation of deriving equal benefit. It is with sentiments of the greatest satisfaction I am authorized to state, that the expedient has proved altogether salutary and efficacious. The texture of her body, which previous to the operation had ever been extremely delicate, has acquired a wonderful degree of renovated vigour; and her spirits, formerly subject to great depression, have obtained such a healthy flow, that she can now engage in juvenile amusements with the greatest cheerfulness and vivacity.”

2. *Dysphagia atonica*, or the difficulty of swallowing from debility of the muscles concerned in that act, is perhaps chiefly distinguished from the other species of this genus by the circumstances, that the obstruction seems continual, thus different from the spasmodic; and that solids are more easily swallowed than liquids, which does not obtain in the first species noticed. It is often sympathetic of a morbidly-distended state of the muscular coat of the stomach, dependent on the interruption of nervous influence. If even idiopathic, it should be combated by gentle stimulants, among which bitters perhaps hold the most favoured rank. The most interesting case in illustration of this disease with which we are acquainted, was published in the 3d volume of the *Medical Observations*. The part was preserved in Dr. Hunter's collection. The pharynx was, in the case in question, dilated at its lower extremity, into a pouch of considerable size, which passed behind the œsophagus. This pouch began to be formed in consequence of a cherry-stone having rested there for some time, which had made a kind of bed for itself. It remained in that situation for three days, and then was brought up by a violent fit of coughing. A part of the food always rested afterwards in the cavity made by the cherry-stone, by which it was gradually enlarged. At length, in the course of about five years, the cavity was enlarged into a bag of a considerable size, sufficient to contain several ounces of fluid. This bag passed down a good way behind the œsophagus, and the œsophagus necessarily acquired a valvular communication with it. In proportion as the bag enlarged, this valvular communication would become more and more complete, till at length every kind of food must have rested in the bag, and could not pass into the œsophagus. In this way the person was destroyed. The lower end of the pharynx is, perhaps, the only part of the canal where such an accident could happen. The pharynx is not contracted gradually, so as to lose itself insensibly in the œsophagus, but contracts itself rather suddenly at the lower end. Hence a little recess is formed, in which an extraneous body may occasionally rest. This is necessarily at the posterior part, so that, if the recess should be enlarged into a cavity, it must pass behind the œsophagus.

Blisters have been found of use in the paralytic state of the muscular fibres of the œsophagus; and electricity has been found successful, with the occasional stimulus of the probang. The latter means we should strongly recommend.

3. *Dysphagia globosa*, the *globus hystericus* of Darwin, and the nervous quinsy of Heberden, is a difficulty of

swallowing from wind in the stomach, spasmodically compressed into the feeling of a ball ascending into the œsophagus, and producing a sense of strangulation. Irritation of the nerves appears to be always connected with it. This may be produced, in its first origin, by the many and various causes acting on the nervous extremities. In the womb and the alimentary canal, the majority of these causes are applied; while in many instances the brain itself is primarily and immediately acted on by mental emotion, and propagates through the nervous system its disturbed state. According, then, to the structure from the diseased action of which this phenomenon is derived, it is accompanied by the symptoms peculiar to disorders of that structure. Hence the variety of appearances connected with this disease bid defiance to arrangement, and simulate, in their proteiform and varying character, many of the most serious maladies; and hence our plan of cure must vary according as the stomach, the brain, or the uterine system, is primarily affected.

As far, however, as regards the *globus hystericus* itself, we cannot consider it as any thing but a symptom of the irritation before described. We give our nosologist's own reason for inferring it, which it will be seen does not at all impugn our opinion. He says; “This (*Dysphagia globosa*) is by no means a mere symptom of hysteria, as is often supposed; for it as frequently occurs under the influence of various passions, as grief, fear, and anger; and is a frequent attendant upon the hypochondriacal diathesis. It is, however, for the most part, a sympathetic affection, concatenating with the state of the stomach.” In speaking of *Dyspepsia* and *Hysteria*, we shall detail this subject in full: for the present we may remark, that, for the removal of the mere symptom, stimulants of the stomach are the most appropriate palliatives.

4. *Dysphagia uvulosa*, or swallowing impeded by elongation of the uvula. This may arise from simple relaxation, from inflammation, or ulceration. It is attended with uneasiness and difficulty in swallowing, cough, nausea, commonly a continual spitting, sometimes a difficulty of breathing, and a stammering or faulty articulation. There are two varieties, differing as they arise from inflammation or from relaxation. In the first, the uvula is swelled, hot, acutely painful, of a red or livid colour, and falls down in an altered form. Sometimes suppuration comes on, and the difficulty both of swallowing and breathing is more considerable than in the subsequent variety. When this complaint is very violent, there is apparent danger of strangulation. It is cured by bleeding and purging; gargling with subastringent liquids, and sometimes scarification. In the second variety, the uvula, preserving its natural colour, is relaxed, elongated, pale, or œdematous.

It is remarkable that, on some occasions, the irritation arising from this elongation of the uvula is only felt when the mucous membrane of the stomach and fauces is in an irritable state. A medical man applied to an eminent lecturer on surgery for the purpose of having a portion of the uvula taken off. The lecturer, who had on some former case remarked the fact just noticed, eluded the performance of the operation for some days, and during that time directed opening medicines, &c. to be taken; the consequence of which was, that the patient felt in a little while no inconvenience from his elongated uvula, although on examination no diminution of its size was apparent. The treatment of the relaxed uvula consists in the use of stimulating and astringent gargles, and the correction of morbid states of the mucous membrane of the alimentary canal. When these measures are unsuccessful, the extirpation of a portion of the uvula is advisable; for which, see SURGERY.

5. *Dysphagia linguosa*, swallowing obstructed or troublesome from magnitude or protrusion of the tongue. This species has two varieties: α , exertoria; β , ranula.

In α exertoria, the tongue is protruded, often with enlargement of its substance. As an idiopathic and curable

rable affection, it is manifested most frequently in children. It happens sometimes immediately after birth; at others in the first years of infancy. In both cases this deformity, be it from birth or accidental, degenerates gradually, when it is not remedied in its beginning, into an habitual disease, which increases with age; and many have been afflicted with this deformity for life. An author of the sixth century, Gaspar Peucer, is the first who has said he had seen children come into the world with the tongue out of the mouth, and "hanging on the chin, like that of a calf recently slain." Such is his expression. He considered this vicious conformation as a phenomenon, in some measure foreign to the art; as an incurable monstrosity. The same case has been observed, with a little more exactness, by Zacchias; this physician speaks of having seen, in 1628, at Rome, a new-born child, very strong and well formed, who had the tongue out of the mouth, the length at least of three fingers breadth; it was a little wider and a little thicker than it usually is at that age; when the child moved it, and drew it in, one could judge how much it exceeded the opening of the mouth. Nevertheless, it sucked pretty well, provided the nurse's nipple was large and elongated; for it could not execute the same function with another nurse, whose nipple was short and thin. Arrived at the age of about fourteen months, it ate and drank pretty freely, although it had, night and day, a portion of the tongue out of the mouth; it began even to pronounce some words, when it died, without Zacchias having known the cause of its death.

The first appearance of the disease is generally soon after birth, though instances (see the Memoir of Citizen Laffus in the first volume of the National Institute of Science and Arts in France) are not wanting to show that the disease has existed before birth. In either case, however, the point of the tongue tumefies, is prolonged by little and little out of the mouth, till it is found extending even upon the chin. Suffering the child to suck much increases this elongation; and, in proportion as the tongue extends and tumefies, it draws with it, by its weight, the os hyoides and the superior part of the larynx, which contributes to render deglutition still more difficult. The continual and very-abundant effusion of saliva, which is no longer retained in the mouth, induces thirst and dryness of the throat; the incisive and canine teeth of the lower jaw are thrown forward, and partly quit their alveoli; the tongue, rubbing against these displaced and worn teeth, excoriates and bleeds; the lower jaw always hangs down, and projects a little forward; the under lip reverses, and projects; the superior edge of the lower jaw is hollowed by degrees in its middle, deprived at length of teeth by the pressure and motion of the tongue, which forms there a kind of furrow to lodge itself; in fine, this organ, at times more, at others less, tumefies, hangs constantly out of the mouth. Such are the symptoms which characterise this disease when it is inveterate; at the same time, it does not absolutely prevent speech and deglutition; but the sound of the voice is harsh, and deglutition is always more or less restricted.

The first attempts which were made to cure this disease were by amputating the protruded part of the tongue; and the fear of hæmorrhage alone restrained the hands of the surgeons of the fifteenth century. It seems that we have no occasion for this violent practice; for it has been shown by Laffus, in the Memoir above mentioned, on the clearest grounds, that, in nine cases out of ten, the protruded tongue is reducible by gradual pressure, and that a bandage so placed as to keep the mouth shut will generally be sufficient to cure the disease. This, however, can only apply to those cases in which simple congestion or inflammation is present, in consequence of the return of blood being prevented by the unnatural position of the organ. Of course, when degenerations of structure have occurred, the morbid enlargements will require the application of ligatures or extirpation with the knife. See SURGERY.

β. D. ranula, is an intumescence under the tongue, named from its situation in the *venæ raninæ*, or perhaps from its altering the voice of the patient. This tumour is seated on either side of the *frænum*. It is round, of a greyish colour like an hydatid, soft, compressible, indolent, and, in the early stage, almost transparent. At first it is of about the same size as a nut or a cherry; but by degrees its volume becomes much more considerable. This also is very frequently met with in young children: its occurrence in adults is more uncommon. It consists of a successive dilatation of the excretory tube of the submaxillary or else of the sublingual gland, the orifice of which duct is by some cause or another stopped up, or obliterated; so that the confined saliva accumulates, becomes viscid, and ceases to flow in the usual manner. In proportion as the ranula increases, the incipient state of it having been neglected, its enlarged size raises up the tongue, and forces it backward; the consequence of which is, that mastication, deglutition, and respiration, are obstructed. The voice becomes indistinct and hoarse; the motion of the tongue is restrained: it cannot be put out of the mouth. By degrees, the incisive and canine teeth of the lower jaw are loosened; the layer of muscles, composing the lower parietes of the mouth, is depressed; and the swelling, having attained a considerable size, makes a very manifest prominence beneath the chin. In this advanced stage, that is to say, when it has existed ten or twelve years, as practitioners occasionally see instances of, the appearance of the swelling is quite altered from what it originally was. The tumour is now hard, elastic, painful, and ulcerated: it is as large as a turkey's egg, and not situated at the side of the *frænum*, but anteriorly under the tongue, to which it is closely adherent. The mouth emits a very fetid smell; and the breathing is so much obstructed, that the patient, through fear of suffocating, is obliged to lie with his mouth wide open, when he goes to sleep.

While a ranula is recent, the fluid which it contains is a viscid saliva, resembling the white of egg, but sometimes of rather a yellow colour. In time it is gradually changed, becoming turbid and puriform; and, in certain instances, soft, friable, greyish, concretions, from the size of a pea to that of an almond, commonly called salivary calculi, are found in the kind of cyst, which is produced by the dilatation of the salivary duct. These calculi essentially consist of a large proportion of the phosphate of lime, united with a mucilaginous substance.

The tumour is often of a scrofulous kind, and contains a thick purulent matter. It has been styled a *hydatid*, and is said by Siebold to be an expansion of Wharton's duct. When it grows suddenly, both the speech and swallowing are impeded, with much pain; but it generally increases gradually, and its effects are not violent. Instances, it is said, have occurred of these tumours degenerating into cancers; but this is highly improbable. They are with great difficulty dispersed or brought to suppuration, and generally require the knife for their removal. And indeed it has been asserted on respectable authority, that a ranula, whether recent or inveterate, cannot be cured except by a surgical operation. See SURGERY.

The species is found occasionally as a symptom in bronchocele and other causes of external pressure.

Genus IV. *Dipsosis*, [from *διψαω*, to be thirsty.] Morbid thirst; the desire for drinking excessive or impaired. This genus contains two species.

1. *Dipsosis avens*, constant thirst with acidity of the fauces. This species is generally found in fevers, fluxes, dropsy, &c. Many cases are on record in which this affection has reached an astonishing height. There are some authentic records which seem to show that it is an idiopathic disease. See the London Medical Journal, vol. iii. a case by Dr. Dyce; and vol. iv. of the same work, the cases of Dr. Domeier and Tuam Peal. In these, aridity of the fauces and pharynx, the probable

cause of thirst, was present, excepting the last, almost without constitutional disturbance.

The best treatment appears to be to evacuate the bowels, and the use of mineral acids. Of course, when the disease is traceable, and we have little doubt that it is so in all, to excessive depletion by sweat, urine, &c. to nervous derangement, inflammation of the stomach, or any other diseased state, the correction of that state demands our first consideration. For an astonishing case, in which two hundred pints of wine, and the same of water, were drunk daily, see the Eph. Nat. Cur. cent. vii. and for another, in which eighty measures of liquid were taken in daily, see Binniger in the Aët. Helvet. vii. p. 16.

2. *Dipsosis exers*, or constant want of thirst. Cullen was of opinion, that this always indicated an affection of the sensorium commune. Sauvages, however, relates two cases of patients in whom it formed an original disease: the one a learned and excellent member of the academy of Toulouse, who never thirsted, and passed whole months without drinking in the hottest part of the summer; the other a woman, who for forty days abstained altogether from drinking, not having had the smallest desire, and who was nevertheless of a warm and irascible temperament. See another case that continued for some years, in the Ephem. Nat. Cur. cent. v. and vi.

Genus V. *Limosis*, [from *λιμος*, hunger.] Morbid Appetite; i. e. excessive or depraved. The following are the seven species, with their varieties.

1. *Limosis avens*, insatiable craving for food. We have three varieties of this species.

α. L. syncoptica, from a feeling of faintness and inanition. This disorder, we believe, is seldom idiopathic: it more frequently depends on very general gastric disturbance, and is certainly connected with deficient action of the absorbents. In the Phil. Transf. vol. xliii. 1745, is a singular case related by Dr. Mortimer, of a boy twelve years old, who, from a feeling of inanition, had so strong a craving, that he would gnaw his own flesh when not supplied with food. When awake, he was constantly devouring, though whatever he swallowed was soon afterwards rejected. The food given him consisted of bread, meat, beer, milk, water, butter, cheese, sugar, treacle, puddings, pies, fruits, broth, potatoes; and of these he swallowed in six successive days 384lbs. 2 oz. avoirdupois, being 64lbs. a-day on an average. The disease continued for a-year.

It is occasionally produced by worms. See a curious case of Dr. Burroughs, Phil. Transf. xxii. 1700; in which the patient from this affection was rendered capable of devouring an ordinary leg of mutton at a meal for several days together, and fed greedily also on sow-thistles and other coarse plants. Voracity is, however, by no means an unfrequent symptom in worms.

β. L. belluonum, from habitual indulgence in large and frequent meals. Habit, induced by idleness, is undoubtedly the most frequent cause of gluttony. The unoccupied person perpetually eats, unless disease impedes this sensual gratification. Sometimes, however, it seems that an idiosyncrasy of a peculiar nature disposes to excessive appetite. In a case we shall presently quote, not only the father, but nine sons, were remarkable for the voraciousness of their appetite. This affection can scarcely be called a disease; for, without entering into any discussion on the cause of hunger, we may remark that that sensation evidently depends on some action of the stomach. Whatever that may be, if it is increased without pain or derangement of the digestive or any other function, it is evident that we have no more reason for calling this a disease than the great strength which we remark in some men, and which evidently depends on excessive power of the muscles. Hence it appears how absurd those attempts must be which have been made to remove this idiosyncrasy by acids, opium, &c. In a word by any treatment

but the moral. The unfortunate individuals afflicted with this propensity are seldom so robust as those of more moderate appetite; and they seldom, according to the testimony of M. Percy, live beyond the age of forty years. In most of the cases on record, the skin appears to be the part whence the surplus of provision is thrown off; the stools and urine being commonly in the ordinary proportion.

It would be improper, in a work of this sort, to pass over the most remarkable case we are acquainted with; although, from its frequent quotation, it is probably known to most of our medical readers.

The case is that of the famous *Tarare*, who was known to all Paris, and who died at Versailles about the year 1800, at the age of twenty-six years. M. le Baron Percy, who saw Tarare, and who made some investigations respecting this singular personage, has given us the history of him, in a very curious Memoir on Polyphagy. At seventeen years of age, Tarare weighed only one hundred pounds; and was already able to eat, in twenty-four hours, a quarter of a bullock of that weight. Having left his parents when very young, (he was of the environs of Lyons,) sometimes begging, sometimes stealing, to obtain subsistence, he attached himself to one of the mountebank shows on the boulevards. One time, on the stage, he defied the public to satiate him; and ate in a few minutes a pannier-full of apples, furnished by one of the spectators; he swallowed flints, corks, and all that was presented to him. At the commencement of the war Tarare entered into the army; he served all the young men in easy circumstances in the company, did all their jobs for them, and ate up the rations they left for him. Famine nevertheless gained upon him; he fell sick, and was taken to the military hospital at Soultz. On the day of his entry he received a quadruple allowance: he devoured the food refused by the other patients, and the scraps about the kitchen; but his hunger could not thus be appeased. He got into the apothecary's room, and there ate the poultices, and every thing he could seize. "Let a person imagine," says M. Percy, "all that domestic and wild animals, the most filthy and ravenous, are capable of devouring; and they may form some idea of the appetite, as well as the wants, of Tarare." He would eat dogs and cats. One day, in the presence of the chief physician of the army, Dr. Lorence, he seized by the neck and paws a large living cat, tore open its belly with his teeth, sucked its blood, and devoured it, leaving no part of it but the bare skeleton; half an hour afterwards he threw up the hairs of the cat, just as birds of prey and other carnivorous animals do. Tarare liked the flesh of serpents; he managed them familiarly, and ate alive the largest snakes, without leaving any part of them. He swallowed a large eel alive, without chewing it; but we thought we perceived him crush its head between his teeth. He ate, in a few instants, the dinner prepared for fifteen German labourers: this repast was composed of four bowls of curdled milk, and two enormous hard puddings. After this, the belly of Tarare, commonly lank and wrinkled, was distended like a balloon: he went away, and slept until the next day, and was not incommoded by it. M. Comville, the surgeon-major of the hospital where Tarare then was, made him swallow a wooden case, enclosing a sheet of white paper: he voided it the following day by the anus, and the paper was uninjured. The general-in-chief had him brought before him; and, after having devoured in his presence nearly thirty pounds of raw liver and lights, Tarare again swallowed the wooden case, in which was placed a letter to a French officer, who was a prisoner to the enemy. Tarare set out, was taken, flogged, imprisoned; voided the wooden case, which he had retained thirty hours, and had the address to swallow it again, to conceal the knowledge of its contents from the enemy.

They tried to cure him of this insatiable hunger, by the

use of acids, preparations of opium, and pills of tobacco; but nothing diminished his appetite and his gluttony. He went about the slaughter-houses and bye-places, to dispute with dogs and wolves the most disgusting aliments. The servants of the hospital surprised him drinking the blood of patients who had been bled, and in the dead-room devouring the bodies. A child fourteen months old disappeared suddenly; fearful suspicions fell on Tarare; they drove him from the hospital. M. Percy lost sight of him for four years: at the end of this time he saw Tarare at the civil hospital at Versailles, where he was perishing in a tabid state. This disease had put a stop to his gluttonous appetite. He at length died in a state of consumption, and worn out by a purulent and fetid diarrhoea, which announced a general suppuration of the viscera of the abdominal cavity. His body, as soon as he was dead, became a prey to an horrible corruption. The entrails were putrefied, confounded together, and immersed in pus: the liver was excessively large, void of consistence, and in a putrescent state; the gall-bladder was of considerable magnitude; the stomach, in a lax state, and having ulcerated patches dispersed about it, covered almost the whole of the abdominal region. The stench of the body was so insupportable, that M. Tessier, chief surgeon of the hospital, could not carry his investigation to any further extent.

Tarare was of a middle-sized stature; his habit of body was weak and slender; he was not of a ferocious spirit; his look was timid; the little hair he had preserved, although very young, was very fair, and extremely fine. His cheeks were fallow, and furrowed by long and deep wrinkles: on distending them, he could hold in them as many as a dozen eggs or apples. His mouth was very large; he had hardly any lips; he had all his teeth; the molars were much worn, and the colour of their enamel streaked like marble; the space between the jaws, when they were fully separated, measured about four inches: in this state, with the head inclined backwards, the mouth and œsophagus formed a rectilinear canal, into which a cylinder of a foot in circumference could be introduced without touching the palate. Tarare, says M. Percy, was constantly covered with sweat; and from his body, always burning hot, a vapour arose, sensible to the sight, and still more so to the smell. He often stank to such a degree, that he could not be endured within the distance of twenty paces. He was subject to a flux from the bowels; and his dejections were fetid beyond all conception. When he had not eaten copiously within a short time, the skin of his belly would wrap almost round his body. When he was well satiated with food, the vapour from his body increased, his cheeks and his eyes became of a vivid red; a brutal somnolence, and a sort of hebetude, came over him while he digested. He was in this state troubled with noisy belchings; and made, in moving his jaw, some motions like those of deglutition. M. Percy never saw in him any signs of rumination. Tarare was almost devoid of force and of ideas. When he had eaten to a moderate extent, and his hunger only appeased, he was quick and active; he was heavy and sleepy only when he had eaten to excess.

Another case, very similar to the above, was brought into view about the same time at Liverpool that the first was at Paris; and the subject of it was also a soldier in the French service. This case is recorded in the article HUNGER, vol. ix.

These are our modern instances. A few ancient ones, to which some of our readers may perhaps not give full credit, are related under the word GLUTTONY, vol. viii.

The writer of the article Medicine in the Ency. Brit. has observed, that the pylorus being too large has sometimes caused this disease. We need not remark on the absurdity of this supposition; because every thing we know of these cases evidently shows that the digestion of food is properly performed, a fact quite incompatible with the idea that the pylorus lets the food pass too quickly.

In that case, indeed, the food would pass almost unchanged, and the stools would of course be unnatural, and in large quantity; appearances actually the reverse of those we have detailed. It is but justice, however, to state, that in lientery, a disease in which much food is taken, this conformation has been discovered.

γ. L. exhaustorum, or voracity from exhaustion, as in the event of long abstinence, fevers, or excessive discharge. This can only be considered as a natural phenomenon rendered more manifest by its exciting causes being longer or more intensely applied. It affords us an opportunity of remarking on the danger of gratifying the appetite to its full extent after long abstinence, from whatever cause it may be produced. After long fasting, indeed, so many have been the fatal instances that have occurred from a full meal, that it is now popularly known and guarded against. After recovery from fevers and other exhausting affections, in which for a long period little or no sustenance has been taken, the same rule should in a minor degree be retained; but this regulation is not practised even by our professional brethren, who are often found to prescribe tonics and stimulants on the recovery of patients from febrile affections. The same regard to quality is perhaps equally essential; but, as the dietetic arrangements of convalescents will be fully treated of, and as no very great errors are commonly committed on this head, we shall pass it over, leaving as a general direction, the precept of Horace—

Nil nisi lene decet
Vacuis committere venis.

2. Limosis expers; loss or want of appetite, without any other apparent affection of the stomach. This is the genus Anorexia of Sauvages, Linnæus, Vogel, Sagar, and Cullen. Sauvages has thirteen species, which would here rank as varieties, but which, as Cullen justly observes, belong rather to the genus (in the present system, species) of dyspepsy. The following have perhaps a fair claim to be noticed.

α. L. defessorum; from too great fatigue, or the exertation being worn out by delay.

β. L. pathematica; from violent passion or other absorption of the mind. This is chiefly produced by severe grief, terror, ardent desire of obtaining an object of pursuit, or religious enthusiasm. Of the first we have an interesting case by Dr. Eccles, in the Edinburgh Medical Essays for 1720, of a young lady about sixteen years of age, who, in consequence of the sudden death of an indulgent father, was thrown into a state of tetanus, or rigidity of all the muscles of the body, and especially of those of deglutition, accompanied with a total loss of desire for food, as well as incapacity of swallowing it, for two long and distinct periods of time: in the first instance for thirty-four, and in the second, which occurred shortly afterwards, for fifty-four, days; "all which time (observes the writer) of her first and second fastings, she declared she had no sense of hunger or thirst; and, when they were over, she had not lost much of her flesh." Sauvages alludes to a similar effect produced by religious mania, and nymphomania. Nofol. ii. p. 805.

γ. L. protracta; enabling the system to sustain almost total abstinence for a long and indefinite time without faintness. As gluttony, or a desire to be perpetually eating, may be acquired by habit, so may fasting. The appetite of hunger seems, from various cases, almost as capable of being triumphed over as other appetites, and the body of being nourished by a very trifling quantity of food, and for many weeks, perhaps months, even by water alone. See Marcadier in Journal de Medecine, tom. xxxiii. Schenck, lib. iii. obs. 39. Waldschmid, Diff. de his qui diu vivunt sine alimento.

One of the best-known and best-marked examples in our own day, is that of Anne Moore of Tutbury. She was sufficiently ascertained to be a gross impostor, in pretending to be able to live *without any food whatever* :

but

but she seems, from long habit, to have lost all pleasurable desire for food, and to have been capable of subsisting upon very simple liquids alone. She was at first induced to this habit by an extreme difficulty of deglutition; and she at length carried the habit so far as, *by deception*, easily to excite a general belief that she never swallowed anything either liquid or solid. The intelligent committee, who so laudably formed themselves into a watch to determine the state of the fact, by a constant attendance upon her person for a month, sufficiently proved that she could not live for ten days without swallowing some portion of liquid. In their report they tell us, that "on the eighth day she was exceedingly distressed," her pulse had increased till it had amounted to 145 strokes in a minute; and "so far was she reduced on the ninth day, that she became in danger of expiring;" while a few hours afterwards, when she was compelled to confess the imposture she had practised, "the pulse at one wrist had entirely ceased, and the other seemed drawn to a thread." Yet "on the whole," say the committee, "though this woman is a base impostor with respect to her pretence of total abstinence from all food whatever, liquid or solid, yet she can, perhaps, endure the privation of solid food longer than any other person. It is thought by those best acquainted with her, that she existed on a mere trifle, and that from hence came the temptation to say that she did not take any thing. If, therefore, any of her friends could have conveyed a bottle of water to her, unseen by the watch, and she could have occasionally drunk of it, little doubt is entertained that she would have gone through the month's trial with credit. The daughter says, that her mother's principal food is tea; and there is reason to believe this to be true." Full Exposure of Anne Moore, the pretended fasting woman of Tutbury.

The case of Mary Thomas, a poor Welchwoman of Merionethshire, resembles in some points that of Anne Moore, but is still more extraordinary, because her morbid state was much severer; and had been of longer duration, comprehending the greater portion of a century. And it occurred about the same time; as Mr. James Ward, a royal academician, published "Some Account" of both these extraordinary women, "accompanied with Portraits and illustrative Etchings," (1813.) for he visited them as an artist. From his narrative it appears, "that Mary Thomas has existed between seventy and eighty years almost without food; and certainly, according to evidence that does not appear in any way objectionable, for ten whole years, without the least particle of nutriment of any kind or form passing her lips, and without showing any sensibility or knowledge of external events; and has had, in that time, no excrementitious discharges from the intestines or urinary bladder. In 1812 this woman was still living; and, from the extraordinary tenacity to life which she evidently possesses, under circumstances that would have abridged the days of any other human creature, though now 80 years old, she may, perhaps, long enough survive to have her history more explicitly detailed, and the facts connected with her peculiar state decidedly unfolded." This expectation was, however, defeated by the death of Mary Thomas during the year in which this account was written.

On enquiring into the history of this case, a fact has arisen of some importance. Mr. Pennant, whose reputation for every thing excellent is still fresh in our minds, saw Mary Thomas in the year 1770; and his relation agrees so much with Mr. Ward's, that they mutually support each other, and give a degree of credibility to an otherwise incredible case.

The great attention which was bestowed by the philosophical world on the above cases, together with the spirit of inquiry which still exists as to the possibility of subsisting without food, has induced us to make the following extracts from a paper in the Harleian Miscellany as being perhaps not without some degree of interest. The title of the paper is, "A Discourse upon prodigious

Abstinence; occasioned by the Twelvemonth's Fasting of Martha Taylor, the famed Derbyshire Damsel: proving that, without any Miracle, the Texture of Human Bodies may be so altered, that Life may be long continued without the supplies of Meat and Drink. By John Reynolds. Humbly offered to the Royal Society. London: Printed for Nevil Summons, at the sign of the Three Crowns, near Holbourn Conduit; and for Dorman Newman, at the Surgeons Arms in Little Britain, 1669." Quarto, containing 37 pages, besides the Title and Dedication. *Hurl. Miscell.* vol. iv. p. 43.

The exordium, consisting of a collection of similar instances, bears strong testimony of such occasional deviations from the course of nature; and we must confess, although at a loss to account for it, we are by no means to disregard such a mass of evidence, since many other facts less palpable to the community at large, and much less susceptible of proof, are believed, although equally inexplicable. Credulity and incredulity are alike the offspring of unreflecting habits. Too great a pliability on the one side, and too much inflexibility on the other, are obstacles that will always interrupt the way to truth. That pen, however, as our author says, "certainly drops blasphemy, that dares to raze the sacred records; and that uncharitableness which presumes to write falsehood upon all human testimonies: they that assent to nothing not confirmed by authority, are unfit to converse in human societies; for how can I expect that anybody should believe me, whilst I myself will believe nobody? It is an argument of an empty brain, to presume to comprehend all things, and thereupon to reject those things from an existence in their world that have not their science in its intellects.

"Most certain it is, that Moses fasted forty days and as many nights, whilst he abode in the burning mount; Elijah went as long in the strength of a meal; and no less was the fast of the holy Jesus. St. Austin reports, that, in his time, one survived forty days fasting. The learned Fernelius saith, he saw a pregnant woman that lived two months without meat or drink. Zacutus Lusitanus reports, that at Venice there lived a man that fasted forty days; another there forty-six days; and from Longius and Fontius (two considerable writers,) another full three years; and that with just stature, good habit, free countenance, and youthful wit. The famous Sennertus is copious in such stories: he relates from Sigismundus and Citesius, a person he saith worthy of credit, that the people of Leucomoria, inhabiting some mountains in Muscovy, do every year die, in a sort, (or rather sleep or freeze,) like frogs or swallows, on November 27, and so continue in that rigid state; the humour, distilling from their nostrils, is presently condensed by the ambient cold, much like to icicles, by which those potent pores are precluded, and the most endangered brain fortified against the fatal assaults of brumal extremities. The same Sennertus rehearseth a story of a virgin at Padua, from Viguntia, professor there, who, anno 1598, was afflicted with a fever, then a tumor, then arthritic pains, and pains in the ventricle and whole abdomen; then with vomiting and nauseating of food, till at last she could take no food for two months; then, after another fit of vomiting, purging, and bleeding, she fasted eight months; and, after a little use of food, she fasted two months more. And, to be short, he storieth it of three persons that fasted each two years, one three years, another four, one seven, another fifteen, another eighteen, and one twenty; yea, one twenty-nine, another thirty, another thirty-six, and one forty years. Famous is the story, perhaps fiction, being poetical, of Epimenides, (whose words St. Paul is thought to cite in his Epistle to Titus,) whom some report to have slept seventeen years, some seventy-seven years, together. But enough of story: those that are desirous to read more, are referred to Marcellus Donat. lib. iv. de Med. Hist. Mirab. c. 12. Schenk, lib. iv. Observ. Guaguinus, lib. iii. Hist. Franc. Petrarch, lib. iii. de Mirabel, c. 22. Portius de

de Hist. Puellæ German. Uspergenſis in Chron. Lentulus in Hiſt. Admir. Apol. Berius, lib. de Vini Nutritione. Bozius, lib. xi. c. 4. de ſignis Eccl. Fulgorius, lib. i. c. 6. Lepæus, lib. ix. Hiſt. Scot. Fovorinus apud Gellium, lib. xvi. c. 3. and eſpecially Licetus, who wrote a particular tract to ſolve the phenomena of this prodigy.

“But, further to ſatisfy theſe incredulous perſons, it is affirmed that ſome of theſe abſtinents have been watched by the moſt wakeful eyes and jealous ears, to detect their fraud, if guilty of any; as was that maid that reſuſed all food, except only water, for three years, by Bucoldianus, with whom ſhe abode for twelve days, at the command of Ferdinand the emperor; ſo that Apollonia Schrejerana was taken by the ſenate of Bern, and put into the hoſpital of that town, and there watched till they were ſatisfied of the truth of her total abſtinenſe.”

Moſt of theſe caſes are certainly too unnatural to attempt to refute, however gravely they may have been aſſerted. Uſeleſs, therefore, as the taſk would be to diſprove what nobody would believe, as well as to combat with arguments the exiſtence of what has been ſaid to be ſeen, believed, and ſworn to, it would be equally unjuſt to doubt the authenticity of the whole. The caſe which the author himſelf has related, bears ſtrong teſtimony of the poſſibility of the human body ſubſiſting under privations of food for a number of days, if we do not give credit for the full time he has repreſented. This abſtinent, he ſays, “is one Martha Taylor, a young damſel born of mean parentage, inhabiting not far from Bake-well in Derbyſhire; who, receiving a blow on the back from a miller, became a priſoner to her bed for ſeveral days; which being expired, ſhe obtained ſome enlargement for a time, but by increaſing diſtempers was quickly remanded to her bed- priſon again; where continuing ſome time, ſhe found, at laſt, a defect in her gula, and quickly after a dejection of appetite; ſo that, about the 22d of December, anno 1667, ſhe began to abſtain from all ſolid food, and ſo hath continued, (except ſomething ſo ſmall, at the ſeldom ebbings of her diſtemper, as is altogether inconfiderable,) till within a fortnight before the date hereof, which amounts to thirteen months and upwards; as alſo from all other ſorts, both of meats and drinks, except now and then a few drops of the ſyrup of ſtewed prunes, water, and ſugar, or the juice of a roaſted raiſin, &c. but theſe repaſts are uſed ſo ſeldom and in ſuch very ſmall quantities, as are prodigiouſly inſufficient for ſuſtenation: ſhe evacuates nothing by urine or ſtool; ſhe ſpits not, that I can hear of, but her lips are often dry, for which cauſe ſhe takes water and ſugar with a feather, or ſome other liquids; but the palms of her hands are often moiſt, her countenance freſh and lively, her voice clear and audible; in diſcourſe ſhe is free; her belly flapped to her back-bone, ſo that it may be felt through her inteſtines, whence a great cavity is admitted from the cartilago enſiformis to the navel; and, though her upper parts be leſs emaciated, (though much too,) yet her lower parts are very languid, and unapt for motion, and the ſkin thereof deſiled with a dry pruriginous ſcurf, for which, of late, they have waſhed them with milk; ſhe ſleeps ſo ſparingly, that once ſhe continued five weeks waking. Left ſhe ſhould prove a cheat, ſhe hath been diligently watched by phyſicians, ſurgeons, and other perſons, (for at leaſt a fortnight together,) by the appointment of the noble earl of Devonſhire, as is already publiſhed by Mr. Robins, B. of D. that is, ballad maker of Derby; whoſe ballad, they ſay, doth much excel his book. Likewiſe ſeveral other perſons, at other times, have been pleaſed to watch for their own ſatisfaction, who, detecting no fraud, have given the account above mentioned.”

It was obſerved by Dr. Henderſon, from Magn. Gabr. Block. that all examples of extraordinary faſting have been confined to the female ſex. This is another confirmation of the remark. Men, however, under circumſtances of neceſſity, have been enabled to endure ſevere privations,

even under conſiderable bodily exertions. The crew of Bligh, and the hiſtory of many other navigators, give full teſtimony of the powers that exiſt in mankind when their natural ſupport has been materially reduced, and alſo totally taken away. The following particulars are collected from a note in Dr. Good's Noſology, to which we have been already ſo much indebted.

Four men were preſerved in a mine, from which, in conſequence of an accident, they were incapable of being extricated for twenty-four days, without other food than water. *Phil. Tranſ.* 1684.—A boy, fifteen years of age, ſaid to have lived three years without eating or drinking, with fever occaſionally; after this period he recovered tolerable health, excepting the uſe of one of his limbs, but even then took very little food. *Id.* 1720. by Patrick Blair.—A man, ſaid to have lived eighteen years on water, with occaſionally a little clarified whey; and locked up for twenty days in cloſe confinement, with water alone, to prove whether there were any impoſition: meagre, and ſuppoſed to have no evacuations; but in good health, and purſued huſbandry. *Id.* 1742.—A woman, from epileptic fits when a girl of fifteen, took to her bed, loſt her appetite, and was attacked with lock-jaw, which, with a few ſhort intervals, continued for four years: was on two or three occaſions induced to take a little water, and her mouth was at times moiſtened with wetted linen through a cavity in her teeth, from two of them having been broken in an attempt to force the mouth open; but ſwallowed nothing elſe. After this period, began gradually to recover from the tetanus, but had no deſire for food; and twelve years from the attack, when able to walk upright, took no more food than ſufficient for an infant of two years of age. Had no egeſta, but when ingeſta, which were proportioned to each other, but ſometimes a dewy ſoftneſs on her ſkin. *Dr. Mackenzie in Phil. Tranſ.* vol. lxxvii. 1777. This caſe is authenticated by numerous witneſſes of high reſpectability, and is entitled to peculiar attention.—Caſe of a woman, who loſt all deſire of taking food by a fall from her horſe into water during her firſt menſtruation at the age of eighteen: for fifty years ſcarcely ever took ſolids, her chief food being whey in the ſummer, and milk, milk and water, or pure water, in the winter: had frequent retchings, which were cured by ſmoking tobacco: for the ſpace of ſixteen years had only one ſtool annually, in the month of March, reſembling a globulet of ſheep-dung: menſtruation never recurred, but occaſional vomitings of blood. *Edin. Med. Eſſ.* vol. vi.

3. Limofis pica, appetite for improper and indigeſtible ſubſtances. We have two varieties of this ſpecies.

a. L. infulſa, which ariſes from want of taſte or diſcrimination, as in infants and idiots.

β. L. perverſa. This ariſes from corrupted taſte or indulgence. It is often founded on the abſurd notion that eating chalk, acids, &c. will produce a fair ſkin. This variety answers to the malacia, μαλακία, of the Greek authors. When ariſing from theſe cauſes, chaſtiſement or advice can only be had recourſe to, and medical treatment is out of the queſtion. It is to be doubted, however, whether mere mental impreſſion ever induces this complaint. It is more reaſonable to ſuppoſe that the morbid ſtate of the ſtomach is the cauſe; and, in fact, we ſcarcely ever meet with a caſe of pica in which the gastric ſecretion is not much altered. Looking to more remote cauſes, uterine diſorder appears often to influence the nervous ſyſtem in the firſt inſtance, and the ſtomach ſecondarily. In the early ſtages of pregnancy, and in chlorotic ſubjects, the diſeaſe is moſt generally found; and hence ſome writers have ſuppoſed uterine irritation to be the ſole cauſe of pica. But this is certainly not the caſe; for we ſometimes meet with the complaint in boys; and in the Weſt-India iſlands the negroes are often ſubject to it. It is rendered remarkable in the latter inſtance by dirt being the ſubſtance taken. It ſeems that regular habits of diet have frequently cured the negroes of this dirt-eating, without the aid of medicine. (See Bryan Edwards's

Edwards's History of the West India Islands.) It has been supposed that the prevalence of an acid in the stomach occasioned the demand for earthy and absorbent substances in pica: but many of the substances, taken in different instances, are not possessed of any antacid qualities. The disorder is very frequently beyond the power of medicine to relieve in a direct way. In the case of pregnancy, it commonly ceases altogether about the fourth month, and has been relieved by blood-letting in strong and plethoric women: but in chlorotic girls it is only removed by the course of medicine which removes the morbid state of the habit in general, and restores the natural discharge where that was suspended. In instances where it attacks men, or women in whom the uterine functions are healthy, it should be treated on the common principles of Dyspepsia.

It is astonishing to note the various disgusting and indigestible articles swallowed by the patients of this disease: chalk, ashes, coals, soot, pitch, cinders, &c. have each been taken in some cases. But among the most unnatural tastes evinced under this affection, though we do not agree with Dr. Good in calling it "one of the most common," is that for swallowing knives. In our own country it has occasionally occurred; (see KNIFE-EATER, vol. xi. p. 784.) but Plouquet, Init. Bibl. art. Pantophagus, has collected examples from almost all the different states of Germany and the neighbouring principalities, Basle, Prussia, Prague, and different parts of Russia. Another curious propensity is that of swallowing glass, of which also the instances are numerous. But these, as well as eating hair (Bresl. Sammlung, 1719.) and ordure (Borell. Obs. cent. iv.) must rather be considered as instances of folly and bravado, than of taste. Not so, however, the

γ. L. pica nasi, a name given by Cohausen to the immoderate and habitual taking of snuff, a filthy depravity common to both sexes; and which, after being confined for fifty years, in this country, to the old women of the old French school, has been revived by the dandies of the present day. It has not yet reached the ladies; and so we hope it may end where it has begun, with the most contemptible part of the creation. *Pica nasi* seems a whimsical term; but Cohausen has chosen to treat this habit as a disease, and has written an express treatise concerning it. The word *pica*, in general, denotes an absurd and unnatural appetite; and the desire of taking the powder of tobacco in this manner is called a distempered appetite of the part into which it is taken, that is, the nose. The consequences of the taking snuff immoderately, are, that the sense of smelling is either entirely destroyed, or at least greatly impaired: for the nervous tubercles of the nostrils, being continually vellicated by this powder, are by degrees clogged up, or wholly destroyed; and the sensible membrane, which lines the nostrils, is rendered callous, and wholly unfit for the discharge of its office in smelling. The voice is next affected by this powder; for it causes a sort of attrition at the bottom of the nose, which affects the palate, and consequently the speech; this gives the person who takes it a continual desire of taking more and more, to rid himself of that stoppage.

As we are treating of morbid longing, it may not be improper to mention, that many persons recovering from febrile affections experience a particular desire for articles of food which we should, à priori, be inclined to think highly prejudicial, and consequently to deny them the enjoyment of. But experience has shown, that in this case the instinct may be often safely indulged: a rule to be admitted, however, with much caution and restriction.

4. *Limosis cardialgia*. This and the two following species we find it impossible to consider in any other light than as symptoms of indigestion. We shall therefore give but a brief account of them. *Cardialgia* has three varieties: α, *mordens*; β, *syncopalis*; γ, *sputatoria*.

α. L. *mordens* is that painful sensation of heat and

acrimony about the superior orifice of the stomach, which, from the vicinity of its seat to the heart, is popularly called *heart-burn*. It is produced by the irritation of acid matter in the stomach, which rises to the upper orifice, sometimes by eructation into the œsophagus and throat, and is sometimes completely ejected by vomiting. That this irritating matter is of an acid nature, is evinced by the taste; and it has even been seen to produce an effervescence on falling on a marble hearth, according to Dr. Darwin. When vomited, or raised by eructation, it is sometimes so intensely sour as to abrade the mouth and throat; and, in general, it produces a sensation in these parts similar to that which exists in the stomach.

The production of this acid may arise from two sources. If the gastric powers are so deficient that they cannot within a certain time digest the food, and propel it from the stomach, fermentation will take place, and acid will be generated. A better explanation seems to be, that the acid is secreted, that it is gastric juice changed from its natural state. That this is the case seems probable, because acid eructation is often felt so soon after a meal, that it is impossible acid could be generated by fermentation; and moreover we have known eructations possessing the highest degrees of acidity to pass from a patient whom we had confined for many days to an animal diet. The palliative remedies are alkalies. Dr. Darwin remarks, that, as the saliva swallowed along with our food prevents its fermentation, according to the experiments of Pringle and Macbride, considerable relief is sometimes found by chewing parched wheat or mastic, or a lock of wool, frequently in a day, when the pain occurs, and by swallowing the saliva thus effused.

β. L. *syncopalis*. This appears to differ from the last only in this, that the production of the acid is attended with so peculiar an effect on the nerves of the stomach, that feelings of extreme weakness and syncope are experienced. The pain, too, which in the first variety is felt in the upper extremity of the stomach chiefly, is extended in this to the lower part of the same organ.

γ. L. *sputatoria*, or water-brash; the pyrosis of Cullen. It is a burning pain extending over the epigastrium, with an eructation of watery fluid, usually insipid, sometimes acid. This disease comes on in paroxysms, which usually happen in the morning and forenoon when the stomach is empty. The first symptom is a pain at the pit of the stomach, with a sense of constriction, as if the stomach were drawn towards the back: the pain is increased by raising the body into an erect posture, and therefore the patient bends himself forward. This pain is often extremely severe, with a sense of burning; and the fluid continues to be brought up for some time, and does not immediately give relief to the pain which preceded it; but at length it terminates the pain, and the fit ceases. These paroxysms come on without any evident cause, nor is the origin of the disease always to be imputed to any particular sort of diet. It seldom, if ever, attacks those people who use fresh animal food daily; but appears to be most common among those who live almost entirely upon tea, milk, potatoes, and farinaceous substances. It is much more common in women than in men; sometimes it attacks pregnant women, and often those who labour under leucorrhœa. It seldom occurs in any one before the age of puberty, or in those who are considerably advanced in life: when it has once taken place, it is very prone to recur occasionally for a long time afterwards. It is more common in Scotland than in this country, and chiefly affects the lower classes of the people. The paroxysm is most effectually relieved by anodynes, especially opium, hyosciamus, and conium; and with less certainty by other stimulants and antispasmodics, as sulphuric ether, ammonia, and the tincture of guaiacum. These remedies, however, do not materially contribute to prevent the recurrence of the disease.

5. *Limosis flatus*, or flatulence, is the generation of air in the intestinal canal, which, like the production of

K k acid,

acid, can have only two sources; viz. either from the chemical changes which the food undergoes in consequence of deficient secretion, or from the altered state of the secretions themselves; for there is little doubt that air may be secreted, as Mr. Hunter first suggested. There are three varieties of this complaint: α , borborygmus; β , eructatio; γ , crepitus.

α . The first variety of flatus is indicated by a sense of uneasiness, with a rumbling or gurgling noise in the belly. It is sometimes very distressing, since it draws the attention of bystanders; and is not uncommon in young women, about the age of puberty. "I attended a young lady about sixteen," says Dr. Darwin, "who was in other respects feeble, whose bowels almost incessantly made a gurgling noise so loud as to be heard at a considerable distance, and to attract the notice of all who were near her. As this noise never ceased a minute together for many hours in a day, it could not be produced by the uniform descent of water, and ascent of air through it; but there must have been alternately a retrograde movement of a part of the bowel, which must again have pushed up the water above the air; or which might raise a part of the bowel, in which the fluid was lodged, alternately above and below another portion of it, as might happen in some of the curvatures of the smaller intestines, the air in which might be moved backward and forward like the air-bubble in a glass level." Dr. Darwin recommends "ten corns of black pepper swallowed whole after dinner, that its effects may be slower and more permanent," in the borborygmi of young women. We have seen them suspended by any substance, taken into the stomach, as a piece of dry biscuit, which, by the way, the late Dr. Buchan considered "as one of the best carminative medicines," and recommends it in all complaints of the stomach, arising from flatulence and indigestion. These disorders are often particularly troublesome when the stomach is nearly empty; and perhaps the operation of a biscuit taken at such times is merely that of relieving this temporary vacuity, which any other light aliment would equally effect.

β . The second variety, eructatio, is of course produced by the action of the muscular fibres of the stomach on the contained food. When this symptom does not take place, and wind is pent up in the stomach, it produces all the distressing consequences which are attendant on great distention of that organ. In some instances great pain of the stomach is excited, either by the simple extension of the fibres, or by partial spasmodic contractions; great anxiety and oppression are felt in the chest; the respiration becomes laborious and difficult, with a sense of suffocation; and the heart intermits in its action, giving rise to intermission of the pulse, or is excited to violent palpitations. These symptoms are generally alleviated by the discharge of wind by eructation: this alleviation, however, is only temporary; for the flatus again accumulates, and re-produces the same effects. The generation of air in the stomach, in less degrees, is an ordinary concomitant of indigestion; but it generally passes off readily. Some people, indeed, acquire a habit of voluntary eructation, which, Dr. Darwin says, augments the malady. He observes, "that, when people voluntarily eject the fixed air from their stomachs, the fermentation of the aliment goes on the faster; for stopping the vessels which contain new wines retards their fermentation, and opening them again accelerates it; hence, where the digestion is impaired, and the stomach somewhat distended with air, it is better to refrain than to encourage eructations, except the quantity makes it necessary." (Zoonomia, Class 1. 3. 1.) It has been suggested, but, we think, incorrectly, that, in the repeated voluntary attempts to dispel wind from the stomach, which are often continued for some length of time, the atmospheric air is often actually *swallowed*, and the disagreeable sensation of distention thus augmented.

For the relief of flatulence, (the radical cure, as we have already observed, can only be effected by curing the

dyspepsia,) a number of medicines have been devised, from a very early period of time, especially such as are comprehended under the appellation of *carminatives*. These are generally substances possessing strong sensible qualities, which render them instantaneously stimulant to the nervous system; and, by suddenly exciting the muscular coat of the stomach to action, enable it to overcome the distention, and dispel the distending gas. The aromatic vegetables, containing much essential oil, such as juniper-berries, the seeds of anise, carraway, and coriander, the roots of ginger and zedoary, and the waters distilled from these, are among the most esteemed carminatives. To these may be added other stimulant and antispasmodic medicines; such as assafoetida, and other strong-smelling gums; volatile alkali; opium, ether, &c. Warm fomentation externally to the region of the stomach has been recommended by Dr. Darwin, and other external remedies were employed by Dr. Whytt; especially frictions on the region of the stomach, with liniments composed of the warm oils; such as the expressed oil of mace, oil of mint, &c. and also the application of large plasters to the belly, made with the stimulating gums and gum-resins.

γ . L. crepitus, is a term used to express the expulsion of wind *ab ano*. We confess ourselves totally at a loss to conceive why this expression was introduced into a system of nosology.

6. Limosis emesis, rejection of the contents of the stomach, or tendency to reject. This affection seems the simplest form of gastric disturbance. It is generally the immediate consequence of diminished nervous influence. Thus, blows on the head, injury of the nerves, or sympathy with diseased viscera, readily excite it. It has three varieties, which are only different degrees of the same action; and that action is, as we have said before, only a symptom of other diseases. The first variety,

α . L. nausea, or loathing, is the mere sensation of sickness without vomiting. The causes of nausea are numerous. We shall mention the most frequent one, viz. disordered digestion, under that head.

The brain is seldom materially affected by any serious irritation or derangement, without deranging the stomach by sympathy: thus, sickness at the stomach is a common symptom of every degree of local injury of the head, in which pressure or concussion of the brain is occasioned; it accompanies inflammation of the brain and its membranes, the pressure of water in the ventricles, or of other morbid effusion or growth within the cranium; as well as the opposite state or inanition of the vessels of the brain, as in syncope, or after great losses of blood. The other organs, with which the stomach is often sympathetically deranged, and sickened, are chiefly the kidneys and the uterus. Thus nausea is a common concomitant of inflammation in the kidneys, or of the irritation of gravel or of a stone lodged in these organs, and becomes one of the diagnostic marks by which disease in the kidneys is distinguished from other painful affections of the loins. Sympathetic nausea is also a frequent concomitant of uterine irritation or disorder; thus it is one of the most frequent symptoms of the beginning distention of the uterus in pregnancy, and accompanies inflammation and other painful conditions of that organ. The influence of the mind alone is likewise capable of exciting nausea, and even its ultimate degree, vomiting. The sight, or even the description or imagination, of loathsome and offensive objects and actions, will produce this effect on the stomach of many individuals of refined habits, or who are unaccustomed to such objects.

It is not easy to account for that variety of sickness, which is produced by certain kinds of motion of the body, such as swinging, whirling, and the undulating motion of a ship at sea. It seems, however, to be referrible principally to the sympathetic connexion between the stomach and brain; i. e. to the vertigo or dizziness produced in the latter, through the medium of the organs of vision, by these

unusual motions. Sickness and vertigo are mutually productive of each other, like some other affections of the head and stomach. When the stomach is rendered sick by wine or nauseous drugs, a giddiness is perceived, even with closed eyes, and *vice versa*. Dr. Darwin mentions a striking fact illustrative of the effect of this dizziness, produced through the organs of sight, in bringing on and preventing seasickness. "In an open boat passing from Leith to Kinghorn in Scotland, a sudden change of wind shook the undisturbed sail, and stopt our boat; from this unusual movement the passengers all vomited except myself. I observed, that the undulation of the ship, and the instability of all visible objects, inclined me strongly to be sick; and this continued or increased when I closed my eyes, but, as often as I bent my attention with energy on the management and mechanism of the ropes and sails, the sickness ceased; and recurred again as often as I relaxed this attention." (*Zoonomia*, sect. xx.) Similar nausea, though less in degree, is commonly an attendant on the vertigo produced by looking from a high tower, or attempting to cross a narrow path, unsupported, over a deep chasm.

As this is so evidently a mere symptom of disease, the treatment of it embraces a large field of discussion, varying according to its ætiology. As a palliative, effervescing draughts, or, when acid only is present, alkalies are serviceable. It is to be observed, that the practice of resorting to emetics on all occasions of nausea, is injudicious; and probably aggravates the evil tenfold, by augmenting the irritability and feebleness of the stomach, and thus laying the foundation for permanent imbecility in that important organ.

6. L. vomituria, retching, or an ineffectual effort to vomit. In this symptom the patient, by a voluntary act, endeavours to reject the load which oppresses him; but, the sympathetic action between the stomach and the involuntary muscles concerned in this act not being sufficiently in force, its performance is restrained.

7. Vomitus, vomiting, or rejection from the stomach. The act of vomiting is produced by the same causes as nausea, though they exist in greater degree. The same palliatives are in use.

Among other affections analogous to this, must be noticed *rumination*. It is known to be a natural and voluntary act in animals which have a plurality of stomachs, as the ox, sheep, deer, goat, and camel; (see vol. xiv. p. 236.) but unnatural and very rare in the human subject. Yet it is by no means a disease, but rather a peculiar constitution of the œsophagus; and those who have this faculty "have declared," says Blumenbach, "that they had a real enjoyment in it; and that with them, as with the class pecora, it was a voluntary act."

In exhibiting the history of our knowledge upon this subject, it is a matter of difficulty to determine whether it was known to the ancients, and, if known, in what light they viewed the affection; for it is evident, that we cannot, with justice, call it a disease, seeing that its possessors do not consider it such, from its being, on the contrary, rather attended with considerable enjoyment. If we consider the habits and boundless luxury of the civilized among the ancients, the manner in which the stomach was unloaded of a previous meal, in order to re-enter upon a second gratification of the palate, among the Grecian and Roman gourmands, in their respective eras of luxury, it may be easily inferred that such an affection as that we are now employed to describe, would have been considered a most delightful source of animal gratification; and certainly would not have been the less indulged, nor would the enjoyment have been diminished, had a similar opinion been entertained by their physicians as was propagated by honest Fabricius ab Aquapendente, that the possessor was endowed with a double stomach, and that the other bestial concomitants might, in process of time, be expected, either in themselves or their more bestial descendants.

Galen, who had ample opportunities of observation among the many instances of indigestion he must have met with in the luxurious court of the Antonines, does not give the history of a single case; and, amid the various stomach-aches and affections of Marcus Aurelius, which, it would appear, both puzzled the brain and excited the anxiety of this prince of physicians, so as to make him afraid that a glass of spiced wine might be too hazardous a remedy for the good emperor, the faculty of regurgitating his meals for a second mastication, appears not to have entered into the number.

Fabricius ab Aquapendente furnishes two of the earliest instances of human rumination. The first is of a nobleman, in whom it generally took place an hour after his meals; which, whether solid or fluid, were always returned, in order to undergo a second mastication. Fabricius thought it proper to mention that the father of this individual had a horn growing from his forehead; and, with great good faith, adds, "ex quo forte datur nobis intelligi, parentis fœmen aliquam habuisse cum cornugeri animalibus, neque mirum fuisse genitum filium simile, quid a parente contraxisse;" that, although the son did not inherit his father's horns, yet he possessed the accompanying faculty of rumination.

The second instance with which Fabricius has favoured us, was in a monk, who, although possessed of a most ravenous appetite, died of marasmus. This monk was possessed of still higher bestial attributes; for Fabricius describes him as having his forehead loaded with two horns; and Johannes Burgowerrus, who visited this monk in the company of Joh. Prevotius and Thos. Minadous, wrote a Dissertation on this interesting individual, and afforded Fabricius with the particulars which are inserted in his works. Burgower also adds, that the brother of this monk was also adorned with two budding horns, "Duorum cornum vestigia gestasse," as a striking feature of family-likeness; or, as this author will have it, "Quod enim fratris erat, id monacho ruminanti simul gratis impetunt." But this illustrious individual did not ruminate, unhappily for the argument of Thos. Bartholinus, who, from these two individual instances, hastens to the conclusion, (in his *Treatise de Unicornu*, cap. 2.) from the obvious analogy of the *cornugera pecudes*, that all human ruminants are possessed of horns; and also avers, that a double stomach will always be found on dissection.

Sennertus furnishes another history of a man of forty, who possessed this faculty from a child. He finds no difficulty in accounting for its occurrence, when he learnt that, when a child, this individual had lost his mother, and had been fed during his non-age with the milk warm from the cow. He accordingly feebly concludes, that he sucked it in with his nurse's milk!

Philip Salmuth furnishes us with another instance of human rumination. It always took place in this individual about a quarter of an hour after having left table. He always ate ravenously, and swallowed his food almost without any previous mastication.

John Faber Lynceus (in *Expositione Histor. Nardi Anthonii Recchi*, p. 630.) gives an instance of most obstinate rumination in a highly-respectable German, who, even when feasted over his cups with his friends, was always obliged to retire about half an hour after the meal into a remote corner of the apartment, and then ruminate the ingesta, undisturbedly and as quickly as possible; which having done, he enjoyed uninterruptedly the society of his friends. Having been asked how he became obliged to indulge this propensity, he answered that from a boy he had been subject to acid eructations; that, after having reached his thirtieth year, he found it impossible to resist admitting into his mouth the food that constantly regurgitated from his stomach. And, being farther interrogated whether the second mastication of his food could possibly afford him any gratification, "Indeed," he replied, "it is sweeter than honey, and accompanied by a more delightful relish."

This

This affection might be said to be in the family of this honest German; for he was blessed with two grown sons: the older, of twenty-four years, also possessed this delightful faculty, but had it more under control than the father, as he could prevent it altogether when in company. The younger could not.

G. H. Velchius adduces another example, in an inhabitant of London; who, in the fortieth year of his age, and of sound health, always returned his food, in order to undergo a slower and more deliberate mastication. Rumination mostly took place in this individual from an hour to two hours after a meal; but even at the remoter period it still preserved a pleasant taste, and was without any degree of acidity.

In an instance adduced by Daniel Ludovicius (in the *Ephemerides Nat. Cur. anno ix. and x.*) that occurred in a young woman, this act was not performed with the usual pleasure, and the returned food possessed a more disagreeable taste than that which accompanies the more perfect cases of this affection. Bitters and stomachic purgatives did not prevent its occurrence, which however was not always regular in its appearance; and, although cathartics and emetics prevented it for a short period, it soon returned.

John Conrad Pyer (*Merycologia, cap. vi.*) mentions a case in a fatuitous young man; also its occurrence in a rustic in Switzerland; and in a woman in the neighbouring town. He sagely endeavours to prove, from the circumstance of those individuals being rustics and cowherds, that the frequent sight of the ruminating process had impressed their brains with a similar propensity, which, although imperceptible in its progress, had nevertheless ripened into maturity.

Slare (in an early volume of the *Phil. Trans.*) mentions the case of a Bristol man, who appears to have possessed this faculty in its perfection. This individual not only ruminated the solid ingesta, but also fluids, as milk and soups. There was, however, one imperfection connected with this case, as it relates to the state of this man's stomach during his meals; that the victuals seemed scarcely to descend into the stomach, but to lie in the lower part of the throat. However, the portion of the meals first taken was first ruminated.

In a case related in the 286th Number of the *Journal général de Médecine* by Mr. Tarbes, as quoted by the Editor of the *London Medical and Physical Journal*, the prominent phenomena were nearly the same as the one just related. Rumination was first manifested by the patient after his recovery from confluent small-pox, in the sixth year of his age; and it was constantly performed after every meal, until the period of its total cessation.

About half an hour after having eaten, he suffered a slight uneasiness in the epigastric region; this sensation was followed by the transmission of a ball of food from the stomach to the mouth. The aliments thus brought up had neither a disagreeable odour nor an acid taste, and did not appear to have undergone any alteration in the stomach. The patient chewed them with as much pleasure as he did on first taking them. After this portion was again swallowed, another mass, which did not appear to have been mingled with that chewed the second time, was brought into the mouth; and so, in succession, all the food he had taken at his last meal was returned. On sitting down to eat his food, the patient, instead of masticating well what he took, only divided it in a very imperfect manner, as might be seen by the specimens returned into the mouth during rumination. If he, by chance, happened to sleep soon after a meal, he, after about two hours, awoke to vomit up all the food which had not been ruminated. He went on in this way until the time of his marriage, when his rumination ceased, almost suddenly. It was lessened on the day ensuing from it, and was entirely discontinued at the end of eight days. A great thirst, which he had suffered whilst he ruminated, disappeared at the same time. He suffered no

inconveniences in consequence of the change; and, during the six years which have since elapsed, he has become more robust and healthy than before.

Dr. Copeland has related a curious case of this kind in the *London Med. and Phys. Journal*, No. 267, for May last (1821.) The subject of it was a gentleman in the meridian of his age, of a strong but spare habit, and of the sanguine-melancholic temperament. Owing to causes to which he was subjected through the very early period of life, he had been obliged to take his meals in a very hasty manner. The very few minutes allowed to his ordinary meals led to a hasty and imperfect mastication of the food; and, although his time was at his own disposal as he reached manhood, still the habit had been retained through the rest of the already passed portion of his life.

The greater part of its early period was spent in an active, varied, and pleasant, employment, generally in the open air, and in the vicinity of the sea; and this alteration of active exercise, in so healthy a situation, preserved the due equilibrium of the organic actions; the former neutralizing the effects produced upon the digestive functions by the co-operation of an hasty and imperfect mastication of the ingesta, and by sedulous study.

So long as this diversified mode of living was enjoyed, the regular operation of the digestive tube was continued, and no symptoms of dyspepsia appeared, until he took up his constant residence in the metropolis. For a considerable time, the chief and almost only complaint was *sputatoria*, or water-qualm: for two or three hours after every considerable meal, part of the more liquid contents was ejected from the stomach, in large mouthfuls, at intervals of from two to five or ten minutes, attended with a slight acidity; sometimes with a slight flatulence and sense of fullness at the stomach, but never with any cardialgia, nor with the slightest sensation of nausea. This affection was generally augmented by any of the usual articles of desert, or by port-wine; while it was relieved, or entirely prevented, by a moderate quantity of white wine, and by avoiding every species of exertion that could tend to disturb the function of digestion. This affection, after continuing several years, with occasional interruptions, according to the care and means taken to prevent it, passed at last into complete rumination, which has been present after every considerable meal for some time. But, as it was attended with less inconvenience than the preceding *sputatoria*, and being unaccompanied with any disagreeable sensation, no great importance was attached to it, until it became complicated with a cutaneous eruption. For that I was consulted; and, upon making inquiry into the state of the digestive organs, was readily informed of the ruminating affection. The professional intercourse that now took place furnished me with the particulars already related, which may serve as an introduction to a knowledge of the nature of this disease.

The following is a statement of the particulars of this case, when submitted to my care. The ruminating affection was at that time generally present after all his meals, and constantly after breakfast and dinner. The appetite was always good, and the food, constantly taken in large mouthfuls, was masticated hastily and imperfectly, and swallowed eagerly. There was no thirst; the bowels were habitually costive. Sleep was sound. His meals were taken more with a desire to satisfy an unpleasant sensation or a requisite desire, than to indulge the pleasures of the palate, and was performed hastily, in order that the studies and pursuits, to which he considered eating an interruption, might be immediately resumed.

Under the usual circumstances, rumination commenced from a quarter of an hour to an hour and a half after a meal. Immediately upon the commencement of this act, a slight sensation of fullness might be felt at the cardia, when the attention was particularly directed to it, that led to a deeper inspiration than usual. So soon as the

act of inspiration was completed, and while the muscles of the glottis remained fixed, a bolus of the unchanged aliment rose rapidly from the stomach, with the first effort at respiration, at the moment when the diaphragm had just relaxed, and the re-action of the abdominal muscles commenced. But expiration did not take place until the alimentary ball had passed completely into the mouth, as the glottis remained closed until then: upon this having taken place, expiration was immediately effected; and so rapidly did expiration succeed to the regurgitation of the alimentary bolus, that the latter (unless when the attention was closely applied to the subject) appeared as part of the expiratory act.

The ruminating process was never accompanied, at any time, with the smallest degree of nausea, nor any pain or disagreeable sensation. The returned alimentary bolus was attended with no unpleasant flavour, was in no degree acidulous, and was equally agreeable, and was masticated with additional pleasure, and with much greater deliberation than when first taken. The whole of the aliments received at any one meal was not returned in order to undergo this process, only the part that had undergone an insufficient mastication; but which indeed constituted the greater portion of solid aliment. That taken at the commencement of a meal was the first disgorged: this was ascertained by eating from a variety of solid dishes, or from partaking of different portions of the same. The more fluid portions were not always returned, unless along with the more solid or imperfectly masticated parts. When, however, the stomach was distended by a large meal, the fluid contents were frequently returned, and subjected to this process.

This affection may be considered as having been passively under the control of the will; and, although it sometimes took place when nearly unconscious of the process, yet it never occurred when the mind was incapable of being acted on by external impressions received by the senses. Thus, if at any time, from previous fatigue, and the concentration of the organic nervous energy towards the digestive organs, sleep was induced immediately after a full meal, this affection did not take place; but flatulence, acrid eructations, &c. afterwards supervened, and continued for some time, in consequence of the gastric juices being insufficient to the production of the requisite changes on the ingesta retained in a state of imperfect division. Very frequently, when the ruminating process was thus prevented, or voluntarily suppressed when circumstances required it, the ingesta, both fluid and solid, were returned at the end of several hours; but were then generally acid, frequently acrid and bitter, and sometimes in so large a quantity as to fill the mouth beyond its capacity of retention. But even then no cardialgia nor gastrodynia was experienced, nor the smallest degree of nausea; and even these disgorged matters were attempted to be masticated, although generally thrown out on account of the disagreeable taste.

"In speculating upon the nature of this case," says Dr. C. "it appears evident that the energy of the digestive and assimilating organs was greatly diminished: consequently the stomach, deriving its influence, whether that presiding over the muscular action or vascular secretion, from the same source, namely, the organic system of nerves, experienced a proportionate diminution in its secreted juices. This was rendered apparent by the changes which took place in the aliments, when taken even in very moderate quantity, and when retained without being submitted to re-mastication. Connected with debility of this organ, an increase of its animal sensibility, which it derives from the distribution of the eighth pair of nerves, appears to have been present. Under these circumstances, the gastric juices (being, as inferred, in diminished quantity) could be sufficient only for a small portion of aliment, which nevertheless had been taken in an abundant quantity; and, having combined with that part whose state is most favourable to such an ad-

mixture, and being, by the usual action of this organ, conveyed to the pylorus, the imperfectly-masticated portions, and that part which remains unpenetrated by the gastric juices, must either continue at the cardiac extremity, or be propelled there by the action of the stomach. That the undigested portions of the food do not only remain in that situation, but may, by a peculiar and complicated action of this organ, be conveyed there, may be proved not only by reasoning upon the nature of its organic action, but has even been demonstrated by large fistulæ of this organ, situated at its anterior convexity, and opening externally at the epigastric region. In a case in the Hôpital de la Charité, under the care of Corvisart, the complicated action of this organ was witnessed, conveying the digested portions of the ingesta towards the pylorus, which passed only in very small quantity, while the bulk of the unchanged aliment was propelled, by a contrary action, to the opposite extremity of the organ. It cannot be supposed improbable that the irritation produced in this part of the stomach by the unchanged aliments in ruminating individuals, should excite the animal sensibility of this organ; and, if the brain be in a state capable of receiving the sensation, it is propagated to the organs of respiration, and their action induced through the medium of the same set of nerves, namely, the par vagum, that forms not only the respiratory class, but also the connecting chain between the organic and animal orders of the grand nervous system; and, while it bestows an exquisite sensibility on the pulmonary system, it likewise gives a requisite, but sparing, share of its influence to this important organ.

"In effecting the process of rumination, the organic contractility of the stomach can do no more than, by an elective process (soon to be explained), place the aliments about to be returned in a situation, in respect to the cardia, favourable to the excitation of the animal sensibility of this organ, and to its ready regurgitation and propulsion along the œsophagus. So soon as the demand is made upon the sensibility by the situation of the alimentary bolus, the par vagal class of nerves is excited to action, and a full inspiration is effected, as has been described. The introduction of the bolus into the cardiac extremity of the œsophagus, may be considered as effected by the ordinary contractility of the stomach; perhaps sympathetically heightened at the moment by the re-action of the abdominal muscles; while, at the same time, the diaphragm has just undergone relaxation, in which the cardia may, from intimate nervous communication, suffer a similar participation, and thus give facility to the ascent of the alimentary ball in the œsophagus, which immediately contracts behind it from the irritation produced by its passage, and the bolus is thus conveyed to the mouth.

"The influence of the will appears to be requisite, since the process is interrupted during sleep. But this influence is only *passively* engaged in the production of the ruminating act, by bringing about the co-operation of the respiratory organs. The elective process exercised by the stomach in this affection, is similar to that which it employs in periods of health, and may be considered as relative to the degree of digestive energy, and to the comparative states in which the various ingesta may enter the stomach.

"In the debilitated state of the stomach, and consequent deficiency of the secretions, digestion can be perfectly performed only when the aliments are presented in small quantity, and in a favourable state, from complete comminution and from intermixture with the salivary juices. If, however, in this state of the organ, the food is conveyed rapidly into it, possessed of neither of these requisites, so as to produce sudden distention, a re-action of this viscus upon its contents takes place; and, as the imperfectly-masticated food constitutes the greater portion of the ingesta, there is abundance present to be returned into the cardia, while there is a deficiency of aliment in

a fit state to combine with, or to be operated upon, by the gastric juices; which, when effected, is rapidly conveyed to the other extremity of this organ, by the re-acton of the muscular coat, from the undue distention and the stimulus of solid contents. Thus a double effect is produced by the healthy organic contractility of this organ, when in a weakened state, and yielding a diminished quantity of the usual fluids; which state indeed may be considered as constituting this peculiar affection, namely, that part of the aliment which is dissolved by the gastric juices is conveyed towards the pylorus, while, at the same time, the tonic action tending to diminish the capacity of the organ pushes the less comminuted and indigestible portions of food into the unresisting cardia; which is returned, as I have attempted to describe, in order to undergo a second comminution and intermixture with the salivary juices; after which it is in a fit state to be conveyed to its destination along the mucous surfaces, with the juices of which it combines, and thus permits a central portion of the mass to return and undergo a similar process.

"In the curative plan pursued during the time this gentleman was under my care, the cutaneous eruption was viewed as originating in the long and progressive derangements of the digestive canal; and the ruminating affection, from the highly intelligent history of its origin afforded me by the patient, as well as of the sensations and connexions of the phenomena so kindly accorded me during my attendance, was considered as the most advanced and peculiarly modified state of dyspepsia, or gastric debility.

"Under the use of infusions made from a combination of vegetable tonics, aperients, and aromatics, with the addition of an alkaline carbonate or a carminative tincture, and the frequent use of the warm bath, with subsequent friction; while, at the same time, a deliberate mastication of the aliments, and a moderate indulgence in light and digestible food, was enjoined; amendment soon became apparent. After a fortnight's continuance of this plan of treatment, the cutaneous disease had made considerable progress towards removal, and the ruminating affection, which till then had been present after every considerable meal, was now very seldom experienced; nor did any symptoms of dyspepsia take its place, unless when the injunctions regarding the mode of living and mastication of the food were not attended to, or when subjected to causes operating a diminution of the digestive energy; then, dyspeptic symptoms, or even slight rumination, occasionally presented themselves.

"Within a few weeks, the eruption was entirely removed; but the ruminating affection returned whenever the proper precautions were not observed. Having impressed the mind of my patient with the necessity of pursuing correctly the plan I had prescribed to him, upon the grounds that such an affection, if indulged, would gradually undermine the energy of his system, he became more attentive to the state of his digestive organs, and to his mode of living; and now, (March 1821.) for several months, he has enjoyed perfect health, and had no return of the ruminating act. Having transferred, as he says, the gratification formerly enjoyed in the second mastication to the first, this process is now performed more deliberately; a more complete admixture of the aliments with the salivary fluids and with the air, takes place; while the stomach is less suddenly, and much more moderately, distended."

Dissections have not been able to throw any light upon this affection; nor can it be expected, in the present state of our medical knowledge, that, even in the event of a violent death taking place in a ruminating subject, any visible alteration in structure could be detected. Fabricus ab Aquapendente and Thos. Bartholinus were confident of finding two stomachs, at least, in ruminating individuals, from the analogy of the cornuted tribes. Pyer and Morgagni ridiculed the idea, and supported a

contrary opinion, upon the ground that there were animals that ruminated without a double stomach. The only instance Dr. Copland had met with in which inspection after death took place, was in the instance of this affection occurring in a monk. This dissection is recorded both by Jo. Rhodius (Cent. ii. obs. 59.) and also by Bonetus, (Sepulchretum, l. iii.) It was made by Fanciscus Plazzonus, and is thus related by Jo. Rhodius: "Monachus cum voluptate cibus ruminavit. Medici brutorum more gemino ventriculo præditum putabant. Ipso defuncto, F. Plazzonus œsophagum reperit undique carnosum instar musculi, reliquis universi corporis partibus se recte habentibus." The physicians of the seventeenth century were not much enlightened by the opening of this monk, but their dreams respecting the existence of two stomachs were henceforth dissipated.

Enthusiasts in their arduous profession (which all young medical men ought to be) are greatly indebted to such learned physicians as Dr. Copland, Dr. Cooke, &c. for their indefatigable researches into the early histories and records of the more ambiguous diseases; and the utility of such condensed communications is greatly enhanced by the practical remarks accompanying them. Mr. G. Nefse Hill has added a case, and dissection, of similar disease in a severely-afflicted insane patient, who fell under his care in the year 1791: he appeared to fall a victim to epileptic insanity, the result of early indiscretion. That part of the history of this young man which related to his rumination of his food, bore an exact resemblance to the one so ably detailed by Dr. Copland. "I examined the body, (says Mr. Hill,) in the presence of the venerable Haygarth, who, as well as myself, was much struck with the extreme tenuity and smooth internal surface of the stomach. In order the more correctly to observe the ruminating process, I invited my patient to dinner several times; he ate with a ravenous appetite and wonderful quickness, but never finished a meal without commencing the ruminating process." A further history of this case will be found in the Appendix to Hill's Essay on the Prevention and Cure of Insanity.

7. Limosis dyspepsia, or indigestion. The function of digestion in the stomach being performed by means of secreting agents, which are vessels and nerves, and by muscular fibres which propel the food downwards, all causes of indigestion must operate, 1. by disturbing the transmission of nervous influence; 2. by disturbing the action of secreting vessels; or, 3. by paralyzing the play of the muscular fibres. Now it would require little labour to show, that nothing can influence the one materially without influencing the others, both on account of their reciprocal action, and on account of the agency which foreign substances will produce on the other structural elements in consequence of the deficient action of one. Thus, if nervous influence be disturbed, secretion will be wanting; consequently the food will undergo chemical decomposition, will swell and evolve gases; thus it will distend the circular fibres of the stomach beyond their usual sphere of relaxation, and by that means prevent the further digestion of food. In the same way the muscular coat will be liable to distention in the case of diminished secretion, when that diminution arises from torpor of the secretory vessels; and, if the circular fibres are distended by mere quantity, that distention will hurt the nervous power; for it is known that when muscles are stretched beyond a certain natural compass, their nerves communicate to the sensorium pain or irritation. In this way, therefore, reasoning from our knowledge of the quick communication of nervous power to and from the brain, we infer, that increased transmission of nervous influence to the affected organ will arise. Here secretion will be increased, though in early instances probably unaltered. By this increased secretion, the food will be prevented from enlarging by chemical changes, and cannot therefore further distend the circular fibres; while those forces will, in consequence of

the solution of the substance, more easily expel it: so that, in early accidents of this sort, the increase of one power seems to relieve in some measure the deficiency of the other. This, however, can obtain but for a short time; for the undue excitement of the secreting vessels soon induce altered states of the gastric juices; states in which of course the latter will be deficient in some of the dissolving qualities. It is impossible to state exactly which of, or in what proportion, these powers first undergo derangement. It is probable that, while in glutinous distention of muscular fibres is the first step to disorder, in the drunkard the nervous expansions may be first injured, while the secreting vessels are disordered by causes which arise from the constitution at large. Having shown, however, that these powers are all essentially deranged in a manner almost simultaneously, it is of little importance to attempt to trace the subject further: for it does not seem that, generally speaking, in the earliest stage of indigestion, the vascular system is materially implicated. We except of course the affection of the stomach which we have noticed in our introduction, chronic gastritis.

We have already endeavoured, on general principles, to trace the morbid affections arising from disorders of the alimentary canal: it remains to do so in detail. We have said that this disorder injures the other parts by nervous influence, or by the absorption and local application of diseased blood. There seems every reason to believe, that in indigestion, when the complaint is not very violent or of long standing, though nervous irritation may arise, the assimilation of food into healthy blood is not materially altered: so that disease traceable to indigestion will in the first stages be the mere consequence of nervous disorder. It is important, as a practical distinction, thus to know when derangement is propagated to remote organs by nervous communication, without involving the vascular system importantly, or whether the vascular system has become deranged in consequence of the local application of diseased blood, or a continuance of nervous irritation so long kept up as to alter the contractile power of the vessels. The tracing of diseases in this manner appears to us a matter of the utmost importance; for it is notorious that many affections arise from disturbance in the stomach and bowels, which mimic or resemble idiopathic diseases of the first magnitude and danger.

Idiopathic disease may after a time be induced by the long continuance of the cause just mentioned; but it is a practical fact of the utmost consequence, that, while inflammation, (and that is the most frequent form of disease that occurs,) arising idiopathically, is difficult of subduction, and only to be removed by emptying the blood-vessels; the same action arising from nervous excitement thus propagated, soon subsides when that excitement is withdrawn; and this takes place, though more rarely, even in cases of long standing; in cases where the assimilative function is deranged, and morbid states of the fluids are existing, the removal of these states being attended with the gradual subduction of the propagated disease.

Having detailed the causes of indigestion in full in our introductory observations on this class, we shall now proceed to consider the symptoms of indigestion, dividing it into two stages. The first, in which mere disturbance of function, the digestive, and that in slight degree, is apparent, and in which the sympathetic diseases are varying and unmarked; the second, in which that disturbance is manifested in a marked and serious form, in which the vascular structure seems continually affected, and which is generally connected with diseased states of the collatitious viscera. The dependant ailments attached to each of these states will be discussed under the same heads. This division is however merely chosen on account of its practical utility, because some difference of treatment both of the local and constitutional disease is necessary, according as the digestive disturbance is recent or of long

standing; but, in enumerating the symptoms of this disorder, it must be confessed that no peculiar sign indicates with certainty or precision the passing of *disorder*, or the first stage, into that of *disease*, or the second; and that much careful and in some measure original observation is required even after the fullest description on the part of the practitioner.

The symptoms of the early stage of indigestion are such as arise from chemical changes in the food, and the simplest changes in the gastric fluid: these are the evolution and eructation of various gaseous, oily, acid, or acrid, productions. They exist in various degrees; but are only present, however, during or after a meal; and, when the digestion is not in action, little inconvenience is experienced. It appears, however, that the trifling disturbance in the function of the stomach may, for a certain time, produce a feeble or otherwise vitiated secretion, without in any other way very sensibly affecting the functions of the system. People frequently complain of a sense of distention after eating, and flatulent and acid eructations, who, notwithstanding, enjoy good general health; and find that even these symptoms may be prevented by taking less food, and that of a more digestible quality; and, if they are prudent in this respect, and the constitution is otherwise sound, and not exposed to the effects of indolence, and other causes weakening the nervous system, the stomach will often recover its powers without farther means. The irritating causes are often, however, daily and hourly applied, and leave the stomach permanently disordered by their frequency. The gastric juice becomes probably so altered or increased, or secreted at improper times, as to produce unpleasant fulness in the stomach, even during its empty state. The bowels, whether in consequence of the unnatural or undigested state of the materia applied to them, whether sympathetically affected by continuity of structure, or from want of a natural stimulant existing in the secretion of the stomach, become deficient or irregular in performing their office. Their secretions likewise suffer deviations from the healthy state, and are scantily produced. The quantity, colour, or consistence, of the *fæces*, are changed; they are occasionally distended and tense, especially some time after eating. Disordered secretions are manifested in the mouth: a clammy taste is experienced; and the tongue is more or less furred, especially in the morning. But these symptoms, the patient finds, yield to some mild aperient, which, at the same time, promotes the action of the stomach; and his feelings on the whole differ but little from those of health. He is more apt to be thirsty; his appetite is generally more or less impaired and variable; he complains of his feet being cold; but still his strength and general appearance are but little affected; and he seldom thinks it necessary to pay particular attention to symptoms which appear so slight, and for the time yield so readily. By degrees, however, they recur more frequently, and begin to be attended with some depression of strength, which at first is only occasional. This, in general, is the first thing which seriously calls his attention to the disease. The mind, if the disease proceed, partakes of these returns of languor, and the patient at length finds it difficult at all times to command his attention, and, upon the whole, that he is not capable of his usual mental efforts. His sleep is disturbed by perplexing dreams, and sometimes by fits of night-mare. In a large proportion of cases, however, he enjoys good nights, and even those who are troubled with dreaming and restlessness, often feel more drowsy than usual. He now becomes alarmed, and occasionally feels a degree of dependency. Instead of thinking too lightly of his complaint, he often regards it in the most serious point of view, and cannot be persuaded that any thing less than some important derangement can produce the anxiety and depression by which his attention gradually becomes wholly engrossed.

The derangement of the alimentary canal now produces

duces disordered function of the collatitious viscera; and a change takes place which marks an important step in the progress of the malady. The alvine discharge begins to deviate from the healthy appearance: it sometimes contains uncombined bile, sometimes it chiefly consists of bile; its colour at other times is too light, more frequently too dark; and occasionally, at length, almost black. At different times it assumes various hues, sometimes inclining to green, sometimes to blue; and sometimes it is mixed with, and now-and-then almost wholly consists of, undigested bits of food. When there is much straining, it often contains mucus in distinct masses, and not unfrequently substances resembling bits of membrane. It frequently separates from the canal with more difficulty than usual, and leaves a feeling of the bowels not having been completely emptied. We have reason to believe that the above change and variety of colour arise chiefly from the state of the bile, to which the alvine discharge owes its natural tinge, being quite white when no bile flows into the bowels. It would appear that the properties of the bile are sometimes changed without change of colour; but this is comparatively so rare, that, if the colour of the alvine discharge be natural, we may generally infer that the function of the liver is duly performed.

Many conceive that the changes of colour in the alvine discharge are often to be ascribed more to circumstances in diet, and changes which the contents of the bowels undergo in their passage through this canal, than to the state of the bile; and we have no doubt these causes operate to a greater or less extent. The long delay of their contents in the bowels generally darkens the colour; a milk-diet produces a discharge of a lighter colour than one consisting chiefly of animal food, and some vegetables and medicines communicate a certain tinge to the discharge. With a little attention on the part of the practitioner, this circumstance will seldom mislead him. It must always be kept in view, that the appearance of the discharge often changes when it has remained for some time out of the body.

The disease has hitherto been what is called stomach-complaint. It is now, from the various appearances of the vitiated bile, and the various symptoms which arise from the irritation it occasions in the alimentary canal, what is called bilious and nervous complaint. The former of the two last appellations has also arisen from the bile, of which there is sometimes a superabundant secretion, being occasionally, in consequence of the inverted action of the duodenum, thrown into the stomach; and there exciting nausea, headache, and bilious vomiting.

The urine also deviates from the healthy state. In its most healthy state, it is perfectly transparent when passed, and remains so after it is cool, its colour being more or less deep in proportion to the degree in which its contents are diluted. But it is sometimes covered with a very thin oily film, which appears to arise from an imperfect state of the assimilating process. Sometimes also it is limpid, and passed in unusually large quantities, more frequently scanty and too highly coloured. It is then most apt, as we should *à priori* expect, to deposit sediment, unless some degree of fever prevail, when it often either deposits nothing, or a little of the red sediment.

A remarkable sympathy between the state of the kidneys and intestines is often observed in indigestion; the urine remaining scanty and high-coloured, when the bowels are constipated; and flowing freely, and of a paler colour, as soon as a free discharge from them has been obtained. Even in those dropical affections which supervene on this disease, it is common for all diuretics to fail, when the bowels are constipated, and for the operation of cathartics alone to be followed by a free discharge from the kidneys.

The copious flow of urine which sometimes attends indigestion, seems frequently to arise from a failure in the

action of the skin, as appears from some of the experiments just referred to. The kidneys and skin separate the same fluid from the blood, and a failure of secretion from the latter is often compensated by an increase of that from the former, if they have not by sympathy partaken too much of the state of the skin. Thus, in dyspeptics, an unusual application of cold to the surface, when the powers of the system are not able so to re-act as to support the due action of the skin under it, frequently occasions an increased flow of urine. The same cause often occasions a greater discharge from the bowels. It particularly demands attention in this disease, that, although the increased discharge from the bowels in the instance before us is of a watery nature, when the skin has, from the state of that disease, become uniformly languid, the increase is often in the solid, as well as liquid, contents of the bowels. On the same principle, the quantity which passes from the bowels of delicate children when the skin has become dry and shrivelled, is often astonishing, and that even when little nourishment is received; as if not only what ought to have passed by the skin, but a great deal of what had been inhaled by this organ, were deposited in a solid form in the alimentary canal.

What is here said is well illustrated by the cases which we detailed of very great eaters, in whom the alvine discharge was no greater than in other people, but the secretion by the skin was found much more copious.

The sensible change in the appearance of the alvine secretions in indigestion, is generally attended with some change in the other symptoms. The stomach is more apt to be oppressed after eating, the patient often observing that he feels as if there were not room for what he had taken. The bowels are more frequently variable, diarrhoea often supervening without any evident cause, almost uniformly followed by fits of constipation. These, the patient finds, cannot now be removed by the simple medicines which at first restored due action to the bowels; larger doses or more active medicines are necessary, and their effect corresponds with the previous state of the bowels. The discharge is generally unsatisfactory, something seeming to be retained. It is very often watery or semi-fluid, mixed with mucus, and sometimes streaked with blood; and, after it has been repeated, often chiefly consists of mucus and a little blood, the passing of which is attended with much griping and bearing-down, and followed by a constant desire of further evacuation. The patient takes more medicine with the hopes of a freer effect; but he thus often increases the straining more than the discharge.

After this state of irritation has continued to recur for a great length of time, a degree of permanent spasmodic stricture sometimes appears, which gives a tape-like appearance to the alvine discharge. In the mean time the patient is harassed with a variety of other symptoms, arising from the irritation occasioned by the morbid contents of the alimentary canal; increasing languor, pains of the stomach, more frequently of the bowels, and particularly of the lower part of the bowels, sometimes continued, generally of the griping kind; a sense of heat, or, as the patient often calls it, burning, referred to the stomach, and now-and-then extending to the bowels, (which sometimes proves the most obstinate and distressing symptom of the disease;) or of weight in the right hypochondrium or lower part of the abdomen, with unusual distension of the former, sometimes disappearing in a day or two, particularly after freer evacuations, and returning again, at other times more stationary; a more foul and clammy tongue, nausea, more rarely vomiting, a depression of strength, which sometimes, particularly after the unsatisfactory operation of cathartics, almost amounts to syncope, and a despondency that is hardly equalled in any other disease.

As these symptoms proceed, others, the consequence of the sympathy which exists between the stomach and other parts of the system, gradually show themselves. These are

are different in different cases; pain of different parts, and other complaints, of the head, affections of the sight, the hearing, smell, or taste. The voice and articulation are sometimes variously affected. The patient is distressed with spasms of the trunk or limbs, numbness, and even temporary loss of power in the latter; and feelings of endless variety are described, as sometimes in one part of the body, and sometimes in another.

By a constant recurrence of such attacks without being uniformly ill, for the rapidity with which the patient rallies is often as great as that with which he is subdued, he is gradually rendered unfit for the active duties of life. This preys on his mind, increasing the despondency which makes a part of his disease, and which in its turn, by further debilitating the digestive organs, aggravates all the symptoms. These organs being no longer in a proper state to supply due nourishment, the body becomes emaciated, and more permanently feeble, the strength by degrees rallying less readily and less perfectly after the frequent returns; and what was at first only a temporary depression from a debilitating cause affecting the nerves of the alimentary canal, is gradually changed into real debility, the countenance, which is almost always a sure index of what is passing internally, becoming pale and haggard.

The patient, often from an early period of indigestion, feels some uneasiness on lying on the left side; more rarely this is the case with respect to the right side. In the progress of the disease, lying on either side becomes uncomfortable, and, in its advanced stages, the only easy position is on the back, with the shoulders a little raised, and generally inclined to the right side.

The tongue and other parts of the mouth are variously affected from the commencement. Their secretions become more and more thick and clammy, the former being covered with a white or brownish mucus; which also more or less adheres to, and irritates, the fauces. Sometimes all these parts are more or less parched and stiff; at other times the saliva is morbidly thin and copious, the tongue being cleaner, but often of a whitish and sodden appearance. In protracted cases, when the symptoms have been rather obstinate than severe, and considerable debility has come on, this symptom is often very troublesome; the saliva frequently running from the mouth. In the advanced stages of the more severe cases, there is often a viscid frothy secretion from the fauces, while the mouth in general is drier than usual, which forms a very prominent feature of the disease. The patient is constantly hawking up this matter, particularly after eating, and will tell you that all his food turns to phlegm. This discharge is sometimes so great and harassing as to prove the most distressing symptom, and seems not a little to add to the debility. In some cases the tongue, in the more advanced stages, becomes clean, shining, and morbidly smooth, and at length affected with aphthæ. This state of it is seldom observed except when a considerable degree of fever has supervened, which is not uncommon at these periods.

The skin, in protracted cases, often becomes dry, shrivelled, and sometimes, at length, almost scaly, and the hair is parched and inclined to stand on end; the whole surface is cold, the patient is constantly hanging over the fire, and even experiences frequent fits of chilliness approaching to shivering. He bears all extremes of temperature ill, being as much oppressed by a very high temperature as he is chilled by a low one. Wounds heal less readily than usual; and the skin is not unfrequently affected with a troublesome itching, which often shifts its seat; or with nettle-rash, herpes, and other species of eruptions; and even ulceration sometimes supervenes without any evident cause.

Besides the more transitory symptoms in the head, which have been mentioned, there are often marks of an habitual undue determination of blood to the brain, pro-

ducing languid inflammation of the eyelids, tinnitus aurium, and occasionally throbbing of the temples. Some are oppressed with drowsiness, almost approaching to stupor; others with almost constant pain more or less severe, sometimes in the back of the head, more frequently in the fore part; others are subject to giddiness, and some even to sudden fits of insensibility. The thoracic viscera are often particularly affected; not unfrequently dyspnoea supervenes, and the patient is sometimes harassed by a dry and irritating cough, or with fits of palpitation. When expectoration attends the cough, it is generally difficult, but brings considerable temporary relief. It deserves notice, that, in this stage of the disease, he more frequently complains of pain in the left than in the right side; but the seat of the pain is very various; not unfrequently it is chiefly in the back, about the shoulders, sometimes attended with itching, and in the limbs, more frequently in the legs than the arms. Irregularity of pulse and syncope are not unusual symptoms; and are much to be feared when combined with other characteristics of *angina pectoris*, as they sometimes produce, in the second stage of indigestion, organic disease of the heart. Pain and tenderness of the muscles of the chest is also frequent; and, when this occurs, the patient seems worse at night, and turns in bed with difficulty and pain.

The above history of the first symptoms of indigestion we have borrowed from the accurate work of Dr. Wilson Phillip. It remains to trace the sympathetic derangements which grow out of this stage.

It is to be premised, that, when nerves are irritated, and sympathetically affect distant parts, the latter, however influenced, return to their natural state when the nervous excitement is removed. Of course, as the altered state of the nervous influence will accelerate or impede the contractile powers of vessels, the phenomena of inflammation may occur, and the same excitement continued may produce the consequence of inflammation. It follows therefore, that, if the nervous expansion of the stomach be irritated, and cause distant disorders, we may cure those by removing that irritation: but if, from its long continuance, or from the nature of the affected structure, irritation degenerates into inflammation, we have further indications to fulfil. Of this fact experience convinces us every day. We have to correct the morbid state of the secondarily-affected part, as well to remove the first cause.

The first derangements are what we have to consider at present. The subject has been ably treated of by Dr. Marshall Hall, in his Essay on the MIMOSIS; a name which, as its origin implies, designates a state which *mimics*, or resembles, other diseases.

The above-mentioned author has however used this term in a very extended sense; he has included in it many diseases where idiopathic disorder had become established. For our own part, we shall restrict the term to those affections which are propagated by nervous influence, which do not implicate permanently the vascular structure, and which subside on the removal of indigestion. Used in this sense, it characterises the affection in question with great force and faithfulness; and conveys a clear idea of the difference which we find in the mere sympathetic disorder, and those more serious affections which, arising from longer-continued or severer forms of dyspepsia, or from these and the morbid predispositions of their own seats, require mixed methods of treatment: i. e. such as immediately influence the circulating as well as the digestive function. But, ere we enter on this branch, we must again remind our readers, that we consider *Dyspepsia*, in all its immediate as well as remote symptoms, as a disease incapable of regular arrangement. In proportion as one or other of its numerous causes are applied, in proportion as the remedial indications are wrong or misplaced, will it appear in the marked and severe characters of the second stage, without

exhibiting any traces of what we have called its first. And, besides this, if morbid predispositions are existent in the remote structures, idiopathic diseases will occur in them, as soon as the nervous excitements we have just spoken of are applied to them; and thus show the fallacy that will attach to the unrestricted notion, that the sympathetic disorders of the first stage of indigestion are so purely nervous as not to produce real topical inflammation in some cases. We are convinced however, that, as the division we have made will be found good in the generality of cases, it is better to adopt it than run the various remote and local symptoms of indigestion into one another without order. The anomalies we shall notice will easily be remembered; and, though their *confusion* (if we may use the expression) must undoubtedly take from the uniformity of arrangement, we consider that far better than that we should fail to represent with fidelity, and to the best of our knowledge, the true phenomena of nature.

To return, however, to the *mimoses*. The common and distinguishing symptoms of these affections are, that, while in idiopathic disease a peculiar and perpetual state of disorder is found, or at least a state which exhibits regular intermissions and paroxysms, these complaints exhibit no regularity whatever; that, while in idiopathies one great and predominant symptom arrests the attention of the patient, and often of the practitioner, in *this* the disease is complicated, affects for a time one structure, then another; and indeed manifests all those appearances which we should expect in merely excited states of the nerves, without inflammatory action. As it is impossible, on account of the multiplied groups of symptoms which may occur in these affections, to detail all their forms, we shall confine ourselves to a general review of their nature as they occupy the nerves of the grand systems, or parts.

The first we shall consider is the *brain*. Here we find many states arising from this cause, very closely resembling disease of the vascular system; and it must be remarked indeed, that the latter state is more frequently induced by nervous excitement in the brain than in any other part. The most common symptom is *faintness*. This is the most ordinary nervous excitement, since it occurs in the simplest derangements of the nervous power. The circle of sympathies in this case, sudden and simultaneous as it undoubtedly is, is complex. The stomach affects the head, the head the function of respiration, the latter the heart; and, this last failing duly to impel the blood into the cerebral structure, *fainting* takes place. A further consequence of this state is *languor* of the muscular system from torpid circulation in the brain; and the same torpidity will likewise influence the secreting powers. The irritant of the stomach being however removed, all these effects cease. But, where a continued dyspeptic state exists, these effects become more permanent, which readily explains the fainting, languor, tremor, &c. which are attendants on the first stage of indigestion; and which are easily removed with that complaint. With regard to the languor, it is to be remarked that between languor arising simply from the cause we are speaking of, and between that which supervenes in the more advanced state of indigestion, a great difference exists: for, while the first merely depends on the interruption of nervous influence, the latter probably owes its preference to some alteration in the contractile power of the muscular fibre. However this may be, the difference between real and apparent debility is allowed by the best practical writers.

We have no knowledge why stomachic irritation applied to the brain causes sometimes one, sometimes another, kind of disorder of that organ; why one man feels temporary blindness, another debility, another delirium, and so on. We have certainly no means of knowing whether this takes place because the applied irritants act only on particular parts of the cranial structure, or whe-

ther the nature of the irritants alters the nature of the sympathetic disease. We have good reason to infer both of these circumstances. The first, however, is a speculation of no use in practice: the latter may be so in a slight degree, because we shall find that, in the inflamed state of the stomach, the inflammation will more readily arise in the brain; while, in the case of mere nervous irritation, that state will be less frequently found. The most formidable appearances which are complicated with irritation of the gastric nerves are those of epilepsy and apoplexy. Slight degrees of hypochondriasis, too, likewise occur; but these are unfrequent in the first stage of dyspepsia. A threatened attack of apoplexy of this kind is often obviated by the exhibition of a strong purge. Where it once takes place, or where the pulse is the same as we commonly find associated with that state, bleeding, &c. will of course be had recourse to likewise. We mention this here, to remind the reader of the great necessity of procuring evacuations by emetics and purgatives when this form of apoplexy exists. It is this kind of apoplexy which so often and so fatally attacks persons retiring to bed *after a hearty supper*; an occurrence lamentably frequent in the daily records of our times. A sudden attack of epilepsy has often been induced by the same causes. The purgative treatment is extremely beneficial, as well as in states of insensibility and delirium, loss of memory, blindness, &c. suddenly supervening to these digestive derangements.

A peculiar state of the brain is often induced by irritation in the alimentary canal, which has been called by Dr. Nicholl, the first author who has given a clear view of it, "Erethism of the brain." According to the experience of that author, it seems that it chiefly occurs in children. Such a state, however, is often met with in patients afflicted with indigestion at more advanced ages. Dr. Nicholl thus describes it: "There is a state or condition of the cranial brain in infants, which may be called a state of irritation, an irritated state, or, in one word, *erethism*. What this peculiar condition of the cerebral structure is, I cannot explain. It is a state distinct from that which is called inflammation of that structure, for it may exist without any perceptible increase of the quantity of blood that flows through the cerebral blood-vessels; it is a state under which inordinate effects arise from ordinary impressions upon different parts of the nervous system. In its perfect form, and under a high degree of it, it is a highly sensitive condition of the cranial brain, a condition the very reverse of that under which sleep occurs. Under such a condition of the cranial brain, the child is wakeful, scarcely ever sleeping; it is attentive to every sound, and to every object of sight; its temper is irritable; the retina is highly sensible to light, so that the child winks if its face be turned towards the window, or towards a candle; the pupil is, in many instances, more or less contracted; but this is not always the case. The limbs are much in action; the head is often moved about, or is shaken from side to side; the child cries without any apparent cause, and it is soothed only by tossing it, by carrying it about, by putting it to the breast, or by letting it suck the cheek of the nurse, or its own fingers; the secretion of tears is, in many instances, increased, causing suffusion of the eyes, and redness of the edges of the tarsi; the secretion of the schneiderian membrane may be increased, causing a stuffed state of the nasal passages, producing sneezing, and exhibiting the appearance of that state which is popularly called *a cold*. The bowels are, in many cases, relaxed; yet no disordered state of the stools may appear. During such a state as I have described, there may be a degree of animation, and a quickness of observation, much beyond what are commonly met with in children of the same age: so that, although a morbid condition of the cranial brain be present, the child may be considered as particularly healthy, on account of its being wakeful and lively, and sensible to the

most

most trifling impressions. But it frequently happens, that an attentive observer may detect other symptoms: the child may start in its sleep; it may be very readily awakened; when awake, it may start at the slightest noise, as at the shutting of a door, moving a chair, passing the finger over the wicker-work of its cradle, or on being slightly moved, or touched gently; a sudden frown may pass over the forehead, and may quickly disappear; the eyes may be closed irregularly, or alternately, or a winking of one eye, or frequent winking of both eyes, or a firm closing of both eyes, may be from time to time detected; the hand may be raised frequently to the head; the child may cry, without any evident cause, as if it were pricked with a pin; at other times, it may shriek; the fists may be clenched, the thumb being bent in, and laid flat across the palm of the hand, the forearms being bent upwards on the arms. Should a similar condition of the spinal brain be present, the child may be bent backwards, presenting a state of *opisthotonus*; its legs may be drawn up, while the head is thrown backwards."

There is another form of infantile erethism characterized by want of animation, fretfulness when roused, want of sleep, and yet "a state that can hardly be called waking;" indifference to surrounding objects, pallor and chilliness of the body, rolling of the eyes, plaintive moaning or shrieking, jaundition of the hands, and other minor symptoms; which our author denominates *torpid erethism*.

Scrofulous children have generally the greatest tendency to cerebral erethism; and, where this tendency exists, the slightest irritation of the nervous system will call it into action. In the milder forms and earlier stages of this affection, the symptoms which it produces may be great wakefulness, great sensibility to slight impressions, with restlessness and high animation.

It is to be remarked, that irritants applied to any of the nervous expansions may produce erethism, so that it is just possible that it may arise independent of gastric or intestinal disorder. It is to be noticed likewise, that this state is extremely liable to run into inflammation of the brain and hydrocephalus, which it sometimes resembles in the closest manner, particularly where worms are the irritants applied.

The *respiratory function* is often much disordered by dyspepsia. Paroxysms of oppressive dyspnoea come on, which very closely resemble asthma; so closely indeed, that it is only by attending to the increase of the symptoms after eating, to its history, and the state of the alimentary canal, that we can establish a diagnosis. And it is not improbable that asthma properly so called, frequently, if not generally, originates in a complication of this nature; but is afterwards continued, or repeated, either from a degree of disorganization induced in the heart or lungs, from the influence of the external causes of asthma, or from the causes of indigestion.

The *affections of the heart* which occur in consequence of the *Mimosis acuta*, are fluttering, palpitation, and irregular action. Fluttering and palpitation of the heart are amongst the most frequent symptoms. To establish a correct diagnosis in the severer cases it will be necessary to watch the effect of the remedies in removing this disorder. The palpitation of the heart, if a consequence and effect merely, will be mitigated or removed with the original affection. In the less severe form of this complaint, the discrimination must be principally founded on a cautious observation of the effect of bodily exercise on the action of the heart, when the symptom of palpitation is otherwise absent, and when the patient is least indisposed, and on the continued history of the complaint. In disease of the heart, it is bodily exertion and mental agitation which renew and recall this dreadful disease; but, in the complication of dyspepsia with palpitation, the patient, if not prevented by weakness, can, at the time when the hurried movement of the heart is absent, run pretty rapidly, or walk up stairs, without suffering more than is usual;

and periods occur when he has passed several days, weeks, or months perhaps, without experiencing the palpitation. In a disease of the heart, these circumstances are by no means observed; the uneasy sensations which accompany this disease, if absent at times, are always excited on any corporeal exertion; and, moreover, disease of this organ is in general highly characterized, and distinguished from certain symptomatic disorders of its functions, by the *permanency* of the affection; by its *invariable* aggravation on muscular exertion, as well as mental emotion; and by the particular relief obtained at first from blood-letting. Disease of the heart, although its symptoms may be mitigated at one period and aggravated at another, is however *permanent*; the symptoms are never entirely absent; and they may at any time be renewed, in an aggravated form, by muscular exertion. In dubious cases, the patient may be made to *run up stairs*; the symptoms of an organic disease of the heart are invariably aggravated by this muscular exertion, the pulsation of the heart becoming violent, the pulse perhaps irregular, the respiration exceedingly difficult, &c. circumstances not equally observed in symptomatic derangements of the functions of this organ, unless when they are attended with great debility. There is almost always, too, great but transitory relief from blood-letting, in a degree not observed in the symptomatic affections.

The affections of the *muscular structure*, independent of the debility, &c. just noticed, are partial paralysees, such as are termed spasmodic, among which tetanus often appears. The best illustration of this state is afforded by the history of hysteria, when it arises from gastric irritation. The absurdity, however, of applying the term *hysteria* to a disease which does not at all implicate the uterine system, and which even affects men, is obvious enough: we shall therefore use the term of Dr. Hall, viz. *Mimosis urgens*, and reserve the term hysteria to designate symptoms of uterine irritation. The *Mimosis urgens*, then, is generally denoted by combining some considerable emotion of the mind, denoted by sighing, sobbing, tears, or laughter, with a sense and expression of suffocation, and with some urgent affection of the head, heart, respiration, stomach, or muscular system, and a peculiar and high degree of hurry, and apparently imminent danger.

Of the *Mimosis urgens* there are three forms, the mild, the severe, and the inveterate; and there are most numerous modifications.

1. The mild form of the *Mimosis urgens* subsists as a tendency to alternate high and low spirits, to fits of laughter, to frequent deep sighing, and to tears. A fit of laughter, or of crying, sometimes takes on an aggravated character; the laughing, or the sobbing, becomes in moderate, convulsive, and involuntary, and there is frequently a peculiar spasmodic chucking in the throat. The countenance changes, being alternately flushed and pale, and denoting great anxiety. There is frequently an urgent difficulty in breathing, with much rapid heaving of the chest. Sometimes a dry, spasmodic, and violent, fit of coughing occurs. There is generally a sense, an appearance, and an urgent fear, of impending suffocation. In different instances there is palpitation, hic-cough, retching, or borborygmus. The patient is dependent, and aggravates all her sufferings.

2. The severe form of the *Mimosis urgens* consists in a various attack, catenation or combination of the following symptoms: The commencement, course, or termination, of this and indeed of every form of the *Mimosis urgens*, is generally marked, and the case distinguished, by the signs of some inordinate mental emotion, (joy, grief, or other affection,) which constitute the most characteristic symptoms of this disorder. The attack is frequently ushered in by an unusual appearance of the countenance; a rapid change of colour, rolling of the eyes, distortion or spasmodic affection of the face. The extremities are apt to become very cold. A state of general

ral or partial, of violent or of continued, convulsion, or of fixed spasmodic contraction, takes place, and displays every possible variety in mode and form. The severe form sometimes consists chiefly in a general or partial pain and throbbing of the head. Occasionally this pain is confined to one particular spot, and is so acute as to have obtained the appellation of *clavus hystericus*. Sometimes there is intolerance of light and noise; sometimes a state of stupor; sometimes delirium. The respiration is frequently much affected: an oppressive and suffocative dyspnoea takes place; or the breathing is rapid, anxious, and irregular; or variously attended with sobbing, sighing, much rapid heaving of the chest, and sometimes with a spasmodic action of the diaphragm, inducing a peculiar elevation of the abdomen, or an equally-peculiar succussory movement of the trunk in general; sometimes the respiration appears to be suspended altogether for some time, the pulse continuing to beat as before.

A crowing noise, or screaming, is apt to occur in this affection. There is, occasionally, hoarseness, or even an entire loss of the voice, continued for some time. There is sometimes a painful, violent, dry, hoarse cough, continued, or recurrent in paroxysms. There is occasionally acute pain of the chest or abdomen. Palpitation of the heart, and syncope, are also usual affections. The pulse is otherwise little affected. There is frequently an urgent sense of suffocation, accompanied with the feeling of a ball ascending into the throat; this symptom is so peculiar as to have obtained the denomination of *globus hystericus*, and is considered as diagnostic of this affection. Hiccough, and violent singultus; retching and vomiting; the sense of a ball rolling within the abdomen; borborygmus; a peculiar great and sudden tumidity of the abdomen, apparently from flatus; constipation, &c.

3. The inveterate form of the *Mimosis urgens* (*id enim vitium quibusdam feminis crebro revertens perpetuum evadit*) consists sometimes in an almost-perpetual agitation of some part of the body, the limbs, the respiration, the throat, or the stomach; and sometimes in a state of continued contraction of the hand or foot, or of some other part. In different instances too, there is a continued state of nervous agitation from the slightest noise or other cause; of paralytic, epileptic, or spasmodic disease; or of imbecility of the mind. In short, this affection is characterized, by affecting in the same or in different instances, singly or conjointly, all the several systems which constitute the human frame; the organs of animal and of organic life; the different sets of muscles, voluntary, involuntary, mixed, and sphincter; the faculties of the mind, and the emotions of the heart; the functions of the head, the heart, the stomach, &c. "It is in thus viewing the *Mimosis urgens*, that the diagnosis is often formed between its different and very-various attacks, and other affections having a different origin, but of which it is the *imitator*, *nam nullos fere non emulatur ex iis affectibus quibus atteruntur miseri mortales.*" Hall, p. 162.

The diagnosis in *Mimosis urgens* is founded partly on the peculiar and different appearance of the particular cases, and partly on the precursory, concomitant, or successive, occurrence of some unequivocal symptom, and especially of the appearances of mental emotion, &c. before noticed; and of hurry and apparent urgency of complaint in general. It is, in particular, in this manner that the paroxysm of convulsion in the *Mimosis urgens* is to be distinguished from epileptic or puerperal convulsions; for, though the appearances are very similar, there is probably some symptom of mental emotion, or some appearance peculiar to the *Mimosis urgens*, especially the hurried and heaving respiration, or some circumstance in the history of the attack, which may lead to the diagnosis. Otherwise the physician must wait awhile, and watch the course of the affection, and the succession of symptoms; in this manner some symptoms decidedly peculiar to the *Mimosis urgens* will occur to prompt the

discrimination. In the epileptic or puerperal convulsion, there is an *absence* of these symptoms of mental emotion, as joy, grief, &c. and the patient seems to be rather a prey to some power which exerts a violent empire over the source of sense and muscular motion. The *Mimosis urgens* may excite alarm; but the epileptic or puerperal convulsion presents a far more dreadful aspect; the face perhaps becoming deeply flushed and livid, with foaming at the mouth, more shocking distortions of the countenance and of the body, and a very different and a more serious affection of the respiration. By such means these affections will generally be distinguished.

The occurrence of delirium is not very frequent; but Dr. Hall has witnessed it repeatedly. The case is identified by the occurrence of some symptoms peculiar to the *Mimosis urgens*.

The occurrence of stupor as a form of the *Mimosis urgens* is by no means unfrequent. Dr. Hall relates the following cases: "Some time ago I received an urgent call to visit a poor woman said to be in an alarming state of insensibility. She was without sense or motion, but, in other respects, unaffected with any particular symptom. The medical attendant had prepared his lancet to open a vein in the arm. In a short time, however, the patient recovered herself, and manifested symptoms which are peculiar to the *Mimosis urgens*.—In another case which occurred in an aged woman, a vein had been opened, under the idea that she was affected with apoplexy. Some symptoms of an anomalous kind occurred, and she became affected with an unequivocal attack of the *Mimosis urgens*.—In similar or dubious cases it is proper to wait, and observe the change of symptoms; and particular inquiry must be made into the history, mode of attack, &c. of the affection. Perhaps the patient soon opens the eyes, sighs, is affected with dyspnoea, or bursts into tears. In general some unexpected and anomalous symptom occurs, to denote the nature of the affection."

In pain of the chest in *Mimosis urgens*, the countenance is expressive of great anxiety, hurry, and agitation; and the nostrils are moved with rapidity. The patient complains much, manifests great impatience, is urgent for relief, and calls out from the pain. The pain of the chest is extremely acute, and the part affected is described as excruciatingly tender on being touched, and the hand applied to it is usually pushed rudely away. With or without the pain of chest, there is often an urgent dyspnoea; the respiration is rapid, hurried, with much characteristic heaving of the chest, sometimes with great and rapid movements both of the chest and abdomen, and often with a peculiar hissing noise.

Cough occurring as a form of the *Mimosis urgens*, comes on in continued fits; it is frequent, hoarse, and hissing; "æger creberrime tussit; fere sine intermissione, nihil prorsus expectans." Hall, 176.

The affection of the diaphragm in the *Mimosis urgens* is attended by the most acute pain in the epigastric region, extending to each side along the false ribs, and to the back; it is augmented occasionally by moving, or by the action of the diaphragm in respiration, and causes the patient to cry out. The respiration is irregular, perhaps performed by the chest alone; the nostrils move, the face is sometimes flushed, and there is often shedding of tears. These cases are distinguished from inflammation, by the occurrence of symptoms peculiar to the *Mimosis urgens*; the mode of attack, which is sudden; and the general aspect of the case, which is hurried and urgent; contrasted with the usual characteristics of inflammation.

The imitation of croup by the *Mimosis urgens* takes place in such a manner as to deceive a cursory observer. The respiration and cough have precisely the character of these symptoms as occurring in inflammation of the trachea. It is by inquiry, waiting, and by cautiously observing the case, that the diagnosis is to be instituted. On inquiry, the attack will probably be found to have been marked by some symptom or character of the *Mimosis*

mosis urgens; or, by waiting, some such symptoms may occur to develop the mystery. The case is sometimes so urgent as apparently to demand an operation to prevent an impending suffocation. We quote the following case: "In a young woman, aged fifteen, the first symptom which arrested the attention was a stridulous sound of the respiration; and circumstances conduced to render an attack of an inflammatory nature probable. She had been conveyed through the cold air, and appeared to be livid from cold. On being seen in bed, however, the nature of the disease became obvious, from the presence, then, of globus; from the history, by which it was ascertained that other symptoms of the Mimosis urgens had occurred; and from the absence of any affection of the pulse. The patient was speedily relieved by the operation of a purgative medicine." Hall, 177.

The pain of the abdomen in the Mimosis urgens is attended with great urgency of complaint; much anxiety and suffering; an extreme tenderness to the slightest touch, rather than under pressure; an hurried and irregular state of breathing, &c. The countenance is expressive of an urgent anxiety; the patient is restless, impatient, and irascible, and pushes the hand, although gently applied to the abdomen, rudely away; the general surface, and the pulse are, at the same time, little affected; there is sometimes vomiting, or a sort of retching; the bowels are generally constipated. The hic-cough or the retching is sometimes of the most violent kind, and is apt to be long continued. Dyfury, or retention of urine, is also common as a form of the Mimosis urgens. Its duration is usually short. But it has continued occasionally for a long period. It is distinguished by being combined with other symptoms of this affection.

It must not be forgotten that the stomach, when its contents irritate the nervous expansions, and the irritation is propagated to the brain, that organ reacts on the stomach, and produces pain and spasm in various parts of the alimentary canal, which are not topically diseased: as for instance a slight contraction of the rectum, of the œsophagus, spasm of the gall-duct, mælena hæmatenesis, &c. But these are generally so obviously connected with the presence of dyspeptic symptoms, that we need not take particular notice of them.

Of the Second Stage of Dyspepsia.—The first stage of indigestion having continued for some time, or an erethematic inflammation of the stomach, or any of the various causes capable of inducing inflammation, being present; the second stage of indigestion makes its appearance. The passing of the first stage into this is denoted by various signs; some taken from the nature of the gastric or intestinal derangements, but chiefly from the nature of the sympathetic irritations. With respect to the former, the stomach betrays symptoms of chronic inflammation; and the intestinal excretions, hitherto irregular, for the most part assume deficiency of colour or consistence of a more permanent kind. The state of nervous excitation, in which sympathizing parts have been long retained; brings on a more permanent change in the sanguineous structure, or secretion becomes disturbed in the same continued manner in particular parts. The topical affections are less changeable and varying. The mind, losing the petulant nervousness of the first stage, feels all the imaginary hurry and the anxiety of hypochondriasis; the symptoms are less under the control of medical treatment; every thing, in a word, assumes a more fixed and continued form. The great pathognomonic sign consists in a permanent tenderness, on pressure, of the soft parts close to the edge of the cartilages of the false ribs on the right side, after they have turned upwards to be joined to the sternum. This spot is often very circumscribed, and always lies about half-way between the end of the sternum and the place at which the lowest of the cartilages begins to ascend; and the cartilage itself near the tender part often becomes very tender, not unfrequently indeed much more so than the soft parts.

VOL. XIX. No. 1293.

The patient in general is not aware of this tenderness till it is pointed out by the physician. There is often, we have seen, a degree of fullness in the right hypochondrium at earlier periods; but it is then more transitory, being generally relieved and sometimes removed by the effects of cathartics, and, not unfrequently, spontaneously disappearing and returning again. The tenderness above mentioned never exists long and to any considerable degree without the pulse becoming hard, and it often at the same time becomes rather more frequent than in health.

Sometimes the hardness of the pulse is so well marked that it is easily distinguished, but more frequently the hardness is only to be distinctly perceived by examining the pulse with the utmost care. See our remarks on the manner of distinguishing the hardness of the pulse, in the present article, p. 94. The tenderness of the epigastrium, after it has lasted for some time, generally begins to be attended with some degree of fullness in the part, and to extend downwards along the edge of the cartilages, till at length there is a degree of fullness, and sometimes tenderness, throughout the right hypochondrium, which feels firmer than the left; but the tenderness is seldom so great as in the part of the epigastrium above described. Sometimes the pressure, both there and in the hypochondrium, rather produces a sense of oppression, affecting the breathing, than pain. Sometimes, particularly in the epigastrium, it occasions pain passing through the body towards the back, sometimes quite to the back, at other times a fixed pain or sense of oppression under the sternum, and, in some cases, a pain extending to the left side.

The tenderness of the epigastrium, as well as the hardness of the pulse, are perceived most clearly when the patient has been taking exercise; muscular action, as might be expected, increasing the phenomena of inflammation. We must not forget to remark, with respect to exercise, that its performance is often attended with much uneasiness, all motion except of the passive kind producing an insupportable degree of languor. This obtains chiefly, however, in the more severe forms of the affection, the slighter ones being usually free from it.

These symptoms are generally accompanied with others indicating some degree of feverishness. The chilliness of which the patient has long complained is now sometimes, and independently of any change of temperature in the surrounding medium, interrupted by languid and oppressive fits of heat; and the hands and feet, instead of being uniformly cold, as in the earlier stages, often burn, particularly during the first part of the night, while at other times they are more obstinately cold. The thirst also often increases; and sometimes there is a tendency to partial sweats in the morning, especially if the patient lie longer than usual; and these symptoms are generally attended with an increase in some of those of the first stage.

The inflammatory state of the stomach proceeding unobscured, organic changes are soon induced, and thickening of its coats; ulcers, scirrhus, and a variety of structural derangements, occur. More frequently, however, the inflamed state of the stomach and bowels subsides, while the organs to which its disturbance has been propagated undergoes the structural disorganization. The liver, lungs, spleen, pancreas, lower bowels, mesenteric glands, heart, and brain, are said to be most obnoxious to this occurrence; but it cannot be questioned that every part of the body is liable to the same changes, and from the same causes. Sometimes one of these parts is affected, sometimes many; and it is to be remarked, that, in consonance with the known laws of pathology, when disease establishes itself firmly in a second part, the first is relieved from it. Indeed there seems this further difference between the mere nervous excitement which supervenes to the first stage of Dyspepsia and the inflammatory affections we are now treating of, that, while the

N n.

former

former tend to keep up and increase the original disease, these (the latter) act on that which excites it in the same manner as a counter-irritant is known to do, though unquestionably in a much more effectual manner. Thus, it is not uncommon in indigestion for the liver to suffer in such a manner, that it shall become enlarged and tender on pressure; and, when the disease is destroying the texture of the lungs, having spread from the liver to them, for the former to recover, or nearly recover, its healthy state. And thus an extensive external disease, occurring in such cases, will often save the vital organ, even after the disease has made considerable progress in it.

It is obvious, then, from the foregoing remarks, that the treatment of all diseases remotely traceable to indigestion are not to be discussed in this place; nor are the disorganizations of the stomach to be treated of here; as each of these form distinct species, and require separate consideration. It only remains therefore to trace the disordered states of the sanguineous and secretory functions arising in the second stage of Dyspepsia; and to notice the general indications for the relief of the local, and the particular indications for the cure of the general, disease.

For the reasons stated in p. 108, we shall forbear to mention all the complaints traceable to the confirmed stage of indigestion. Indeed it would seem from what we have there remarked, that, as these propagated complaints are literally the complaints of the sanguineous and nervous structure of the parts affected, they are distinct and idiopathic; that they are inflammations, however induced, and therefore to be met with the usual remedies for that action. But practical considerations (which should supersede all other) induce us to notice certain cases in which experience has shown that the most marked and serious forms of chronic inflammation, and of diseased secretion, have been cured by the medicinal treatment of dyspepsia; and we think that, when the laws of sympathy are better known, this division will appear no less philosophical than practical. We have before adverted to the impossibility of drawing an accurate distinction between inflammations which, though produced by nervous irritations, are rendered permanent by their own diseased tendencies, and those which are merely sympathetic. And, in the cases we are about to consider, probably a still greater difficulty of diagnosis exists. The difficulty in these cases is to establish how far, when the original cause of dyspeptic disease is removed, the parts will return to their natural state.

Reasoning à priori, we should conclude, that the operation of this cause could not extend beyond inflammation and altered secretion; but experience has clearly shown, that, nervous irritation being removed, disorganized parts undergo reparative processes, and in an astonishing manner may resume their natural structure.

In the nervous system we remark, that the head is influenced in this disease in a manner decidedly inflammatory. This inflamed state of the cerebrum, in the second stage of indigestion, is well shown by head-ache, by increased hardness and fulness of pulse, and by the increased pain which the recumbent posture produces. As it advances, various forms of mental disturbance become manifest. In this form of disease we must be especially careful not to let our notions of the dyspeptic origin of the disease weaken the vigour of our practice; for local and (when the state of the circulating powers demand it) severe general depletion are necessary here, as in idiopathic diseases; and indeed, as this is the part where the most intimate connexion between the sanguineous and nervous systems takes place, we should naturally expect to meet with this fact.

It sometimes happens, in this second stage, that the head-ache assumes a chronic form, continuing for weeks, or even months, without being very severe. Both local and general blood-letting then very frequently fail to give permanent relief. The best means are those which support an habitually-free action of the bowels and skin,

(and most effectually correct the disease of the digestive organs,) and permanent drains from the neighbourhood of the head.

There are two occurrences which ought ever to be present to the mind of the practitioner: the first is the tendency to the transition of nervous into idiopathic inflammation, which is particularly observed with regard to the head; the second, the possibility of the co-existence of the two states.

The transition of the affection of the head in Dyspepsia into an idiopathic inflammation, or the co-existence of the latter affection with the former, is to be apprehended on the occurrence of any of the following symptoms in a serious degree and continued form: A sense of flushing or fulness about the head; acute pain of the head; unusual heaviness, dull head-ach, or vertigo; drowsiness, stupor, disturbed sleep, delirium, incubus, stertor; forgetfulness, timidity, confusion of mind; change of affections; tendency to laughter, and tears; affection of the senses, as temporary loss of sight, flashes of light, double vision, ringing or loud noises in the ears, intolerance of light, or sound; tenderness of the scalp. Many of these symptoms, however, occur in the first stage. It is only when they exist in an eminent degree that they denote danger. But it is best to take an early alarm. The danger of compression of the brain is unequivocal on the occurrence of an unusual distortion, or an unmeaning expression, of the countenance; of a defect in articulation; of a temporary numbness or torpor, or of transient and partial weakness of any of the limbs; especially if one side of the body alone be affected. The occurrence of stupor, convulsion, paralysis, or relaxation of the sphincters, leaves little to doubt respecting the existence of this fatal occurrence.

In some cases, the *erethifinal* state of the brain before noticed puts on a more marked and formidable appearance; and it is not very unusual, when this disease has continued some time, to see the patient, after more severe attacks than usual, and sometimes without this warning, suddenly fall down, and in a few hours, and in some cases almost immediately, expire. In such cases the aids of medicine are vain. The powers of the constitution are not oppressed by disease, but worn out by its continuance. This is what, in contradistinction to apoplexy arising chiefly from the state of the vessels, is properly termed *nervous apoplexy*, the most fatal of all its forms; and it has been remarked, that in some cases no morbid appearance presents itself on dissection: the fatal derangement is in the nervous system alone, whose structure is too minute for our observation. If the usual plan of bleeding in cases of sudden insensibility be here resorted to, the disease is only the more suddenly fatal.

The state of the brain in such cases resembles that which surgeons call *concussion*. Its mechanism is deranged. The difference is, that in the one this mechanism is deranged by a sudden and violent cause, applied while the powers of the system are entire; and which, consequently, if the little strength that remains be carefully husbanded, may often repair the injury: the other is the effect of a succession of slight causes gradually changing the mechanism of the brain, and at the same time exhausting the powers of every other part, so that the constitution possesses no means of repairing the injury. The pure nervous apoplexy, however, as here described, is an extremely rare disease; because it very seldom happens that the causes continue long enough so to derange the finer mechanism of the brain as to produce loss of function, without influencing the state of the circulation in it in such a manner as to produce a fatal effect in this way.

It more often happens, that disease of vessels causing apoplexy is produced; and it is worthy of remark, that in this state a pallid countenance is usually met with. This circumstance occurs occasionally in all the forms of apoplexy; but we think it is more particularly noticed in this than in any other. Dr. Philip says, "I have repeat-

edly

edly seen, in an exhausted constitution, the face become suddenly pale, and all power lost; the patient falling down insensible, and the countenance continuing to increase in paleness till it assumed a cadaverous hue; and yet this patient has been immediately restored to the use of his faculties, the paleness of his countenance at the same time abating, by the loss of blood; and there is every reason to believe would have died without it. For it is evident that the apoplexy we are considering is of a different nature from distention of the vessels of the encephalon arising from general fulness; and therefore loss of blood from the head, and that only to such an extent as relieves the symptoms, is alone proper; the incautious use of general blood-letting in such a case being also followed by a degree of debility which further disposes to returns of the attack, as well as to other diseases."

The effect of the gastric irritation in debilitating the vessels of the head, might be illustrated by many facts: it is enough to mention the flushing of the face which occurs to dyspeptics after dinner.

Of the nature of *epilepsy* so little is known, that any attempt to trace its connexion with indigestion must be futile; nor indeed does there appear any real difference in the disease, let it arise from what cause it may.

The most chronic and inveterate form in which the brain is affected through the gastric media, is that of hypochondriasis. We shall reserve our speculations as to the nature of this complaint till we come to the class Neurotica, in which we shall take up the subject of nervous irritations arising from indigestion on a more extended scale. It will be sufficient at present to state, that in considering the mutual action of one part of the system on another, the state of the mind deserves particular attention in indigestion. The disease itself we have seen seldom fails to render it anxious, irritable, and apprehensive; and this state of mind, which we have found ranked among its causes, cannot fail to influence its symptoms.

The affections of the muscular system which supervene on this stage of indigestion, are of a gouty or a rheumatic nature; and, like other inflammatory affections, they present less indication of plethora when dependent on gastric disturbance, than when they arise from other causes. It must not be forgotten, that an ill state of the abdominal viscera is always connected with chronic rheumatism; a circumstance which induces us to defer tracing the connexion, or noticing the peculiarities, of that dyspeptic variety in this place. We shall remark, however, that, where a tendency to gout exists, disease may be induced by any cause that produces, and for a certain time keeps up, indigestion. In some the disposition to gout is so great, that it appears without being preceded by symptoms of derangement in the first passages; but in the majority of cases it is preceded by these symptoms, and the tendency to them seems to constitute a considerable part of the hereditary disposition to gout.

The regular forms of this disease, not affecting a vital part, tend less to derange the system in general, and give more relief to the primary disease, than most of the other symptomatic affections which have been enumerated, the patient often remaining well for some time after; and, the more cautious he is in preserving the vigour of the digestive organs, the longer interval he enjoys. Hence appears the danger which attends interrupting the regular fits of gout: the sympathetic disease, being prevented from taking the course which the disposition to affection of the extremities gives it, seizes on the part, generally an internal one, which next to these is most liable to disease; and, on the other hand, if any thing so affects any of the vital parts during a fit of gout as to render it considerably the weakest part, the sympathetic disease sometimes leaves the joints and seizes on the internal part, producing what is called *retrocedent gout*. It is evident that the risk of both these accidents will be greatest, where the powers of the system are most impaired.

The *muscular system* is likewise affected in some cases by a permanent and gradual debility, by tremor, and by loss of substance. The latter circumstance is much dwelt upon by Dr. Hall, who weighed several of his patients, with a view to more correct information on the subject. It will be found, however, that some dyspeptic patients retain their embonpoint, notwithstanding much functional disturbance.

The patients of indigestion are usually affected with great tremor, observed sometimes in a quivering of the lip, or dimpling of the chin, but more usually, on holding out the hand, or in carrying a cup of tea, for instance, to the mouth, on attempting to stand erect or walk, or on being fatigued or hurried. The tremor, in some protracted cases, has formed the most remarkable feature of the affection; in others, it has been much less observed, but it is rarely, if ever, entirely absent.

The debility which now comes on is, as we have before observed, of a different nature from that merely nervous inaction which happens in the early stages of the complaint. The latter is the mere want of nervous stimulation, while the former seems to be a change in the contractile power of the muscular fibre, probably derived from the morbid state of the blood, and indicating much danger.

The *heart* is often affected in the second stage of indigestion, in various and severe modes. The palpitation which in the first stage was merely nervous, in some instances now becomes so obstinate, as to assume the form of angina pectoris, carditis, &c. and, being accompanied with an increased hardness of pulse, can only be relieved by loss of blood.

Dr. Philip has noticed a connexion between rheumatism and this sort of carditis. He says, "It is a common observation, that carditis is apt to supervene after repeated attacks of rheumatic pains of the limbs. I believe from many cases which have fallen under my observation, that it will generally be found, in such instances, that the rheumatic pains had been combined with, and in a greater or less degree dependent on, disorder of the digestive organs." The pain of the limbs arising from this cause, often assume the form of idiopathic rheumatism, and become very obstinate, if the cause which supports them be overlooked; which is the more likely to happen, as cold is very often the immediate exciting cause. Dr. Philip has seen severe pains of the limbs, which had long resisted the means usually successful in rheumatic cases, wholly removed by combining with these means the treatment adapted to the second stage of indigestion; and it is well known to surgeons, that the swelling of the knee-joint which sometimes accompanies the rheumatic constitution, is only cured by the same indication.

On turning our attention to the other viscera, we see the spasmodic contractions of the bowels, and their occasional disturbance of function, developed in the early periods of indigestion, now terminating in inflammation, stricture, adhesions, piles, &c. The sigmoid flexure of the colon appears to be a part very liable to be affected with inflammation, probably from the contents lodging there longer than in other parts of the large intestines. It is not uncommon in protracted cases, to find a considerable degree of tenderness in the seat of this part, which is sometimes at length affected with ulceration. It is also common to find tenderness on pressure in the seat of the cæcum.

The liver, too, assumes an inflammatory appearance. We often find, when the patient takes cold, or is exposed to other causes of inflammation, or the dyspepsia is aggravated, the greater part of the right hypochondrium becomes full and tender on pressure, with a sense of oppression and an increased hardness of pulse, often accompanied with some degree of dyspnoea, and a dry teasing cough. He sometimes complains of pain in the right, not unfrequently in the left, hypochondrium, or in the pit of the stomach, or in the right or left shoulder; and experiences

experiences some uneasiness in lying on either side, particularly on the left, the common derangement of the biliary secretion being rendered more marked with these symptoms. The hepatic inflammation thus induced is seldom, however, of that active kind which requires general blood-letting; a fortunate circumstance, as patients of this description rarely bear loss of blood well. These attacks generally partake of the chronic nature of the habitual disease, and for the most part yields to local blood-letting and blisters, with the aid of a mild diet and saline and aperient medicines.

The pain is often felt in the left side, while the tenderness on pressure is wholly confined to the right; but, after the affection of the right side is relieved by evacuations from the tender part, it is not uncommon for the left side to become both full and tender, the inflammatory affection appearing to attack the spleen as soon as the liver is relieved from it; and it will sometimes, on the fulness and tenderness of the left side being relieved by the same means, return to the liver. This alternation often happens more than once before the disease subsides. Sometimes, though much more rarely, the fulness and tenderness appear in the left side alone. The pain is then more confined to the seat of the tenderness.

Whenever the liver becomes thus implicated in the inflamed state of the stomach, it leads to a train of symptoms arising out of hepatic derangement, which demand serious attention. It is not the least of these, that the re-acting disease aggravates the gastric disturbance, a circumstance which very often perplexes us in the diagnosis. But we must postpone further researches till the subject of diseased liver comes before us.

The connexion of *urinary gravel* with dyspepsia is worthy of particular notice. We are indebted to Dr. Philip for an ingenious speculation on this subject. He thinks that it is not by sympathy alone that indigestion excites urinary gravel. He shows that in most cases of dyspepsia there is a considerable production of acid in the first passages; and this acid, as appears from his experiments, enters the mass of blood, and is thrown out of the system by the skin and kidneys. As all other acids occasion a precipitation of lithic acid from the urine when the action of the skin is impaired, the one we are speaking of often passes in such quantity by the kidneys as to cause a deposition of lithic acid before the urine leaves these organs, which there (probably in consequence of being agglutinated by a secretion which its stimulation excites on the internal surface of the kidney) frequently concretes into small masses occasioning fits of gravel.

A precipitation of lithic acid is often observed in the urine of dyspeptic patients, after it has stood for some time; and that the gravel which afflicts them is only a greater degree of this symptom, appears from the observations of the best writers on calculous diseases, who consider the calculi formed in the kidney to be almost always concretions of lithic acid.

Dr. Philip seems to consider, that, in disputing that the kidneys are affected by sympathy with the stomach, he is borne out by the fact, that while, as we have seen, the other intestinal organs are peculiarly liable to assume the inflammatory state of the second stage of indigestion, the kidneys seldom show any tendency of this kind. This assertion seems, however, by no means consonant with experience; but Dr. Philip obviates the difficulty by saying, that, "it is not uncommon, in indigestion, for the acrid state of the urine, arising from the superabundance of acid and its other saline contents, occasioned by the greater generation of acid in the alimentary canal, and the inactivity of the skin, so to irritate the urinary passages as to occasion frequent micturition, and a sense of burning, and other painful sensations in these passages, even when no deposition of lithic acid takes place in them." Without attempting to invalidate this theory, or even to prove direct sympathy between the stomach and kidneys, we cannot help thinking, that an indirect sym-

pathy between the stomach and kidneys, through the medium of the skin, would account for the circumstance we are considering in a manner more consonant with general principles, and equally capable of demonstration.

In prosecuting further the groups of symptoms which arise from dyspepsia, *cachectic disorders* will hold a prominent rank. The marasmus both of infants and adults is often directly traceable to the undigested state of the pabula vitæ, even where no affection of the absorbents of the mesentery exists; so that tabes, atrophica, &c. will (as we shall endeavour to show when these are on the tapis) often gain relief from the treatment of dyspepsia. There is, however, one species of cachectic disorder which we must notice here for want of a more fit place in our nomenclature: we allude to a state which has been described by Dr. Hall as a variety of (what he calls) the *Mimosia acuta*; and which appears an analogous distemper to that noticed by many authors under the terms *purpura, scorbutus, &c.* This affection is indicated by all those symptoms which we should naturally infer from a morbid condition of the circulating fluids; for instance, by deficient action of the muscular fibres, manifested in its larger structures; by languor, indolence, and debility; and, in its smaller ones, by various topical congestions, and by hæmorrhage; and these latter are peculiarly remarkable on the skin and the nervous expansions. The skin, being pressed or otherwise injured, betrays extraordinary marks of want of tone, or of the resistance to, and recovery from, unnatural agents, which healthy structures so remarkably display; and it is sometimes affected with a continued though variable state of fallowness, of yellowness, or icterode hue; of darkness, or of a wan, squalid, or sordid, paleness of complexion; or a ring of darkness surrounding the eyes, and extending a little perhaps towards the temples and cheeks, and sometimes encircling the mouth; and the gums, throat, &c. are peculiarly liable to fall into ulcerations, hæmorrhages, &c. Pains in the bones are often felt. We select a case from Dr. Hall, which, though it does not exemplify this complaint in its worst form, yet is worthy of permanent record, because it serves to trace the disease very conclusively to a dyspeptic origin.

"E. M. aged 35, a framework-knitter, tall, stout, and healthy, was employed, in 1815, in the most active and laborious manner, in hay-making; he was exposed to great heat, underwent much fatigue, perspired profusely, and drank copiously of beer and ale. He became affected with weakness, listlessness, loss of flesh, nocturnal perspiration, head-ache and vertigo, loss of appetite, and icterus, with pale-coloured stools and deep-coloured urine. He recovered from these complaints; but in the year 1816 had the misfortune to break his leg. In consequence of this accident and the subsequent confinement, he became and remained indisposed; he gradually lost flesh, and from 14 stone, weighed between 12 and 13 only; and experienced, on taking cold, a loss of appetite and strength, with an inability to work, not known before. In November 1817, he underwent much bodily exertion, and remained exposed to the cold and damp. He took cold, and became affected with hoarseness, sore throat, and cough, with œdema of the ankles. These symptoms ceased, except the œdema, which receded however gradually; but he was still affected with the following complaints, which are copied from his own account of them: Loss of flesh, and of strength; a feeling of internal weakness; feverishness, a parched and dry state of the throat, and sometimes of the tongue; sensibility to cold, chilliness, tendency to perspiration, especially in the night; head-ache; sleepiness; dulness of spirits; nervousness; fluttering at the heart and about the stomach; cough; dyspnoea; a clammy tongue and mouth, and fetid breath; loss of appetite, sense of load at the stomach, occasional rejection of food, constipation, and pain in the chondriac regions. This patient became much better from the use of gentle purgatives of calomel, rhubarb, and
Epfom

Epſom ſalt. But in Auguſt 1818, he became affected with ſevere and continued diarrhœa, with a loſs of fleſh from 11ſt. 2lb. to 10ſt. 6lb. and loſs of ſtrength, and aching and wearineſs, and pain in the ſhoulders, ſides, and legs. He again recovered under ſimilar remedies; but, in November 1818, was taken with feveriſhneſs, attended with a parched tongue and mouth, ſome delirium in the night, and further loſs of fleſh and of ſtrength; and, at the ſame time, there occurred an extenſive ulceration of the back part of the pharynx, and a conſiderable diſcharge of bloody mucus from the noſtrils. He was reduced from 10ſt. 9lb. to 9ſt. 2lb. This ſtate continued, and icterus again occurred, with the uſual appearance of the tunica albuginea, ſkin, urine, and ſtools. Soon after this time I made the following liſt of appearances and affections in this poor ſufferer's complaint: 1. Swarthineſs of complexion; 2. feveriſhneſs, with parched throat and mouth, and heat of the forehead and legs; 3. tendency to perſpiration; 4. quivering of the chin and lips in ſpeaking, ſimilar to that obſerved before ſhedding tears; 5. tremor; 6. fluttering; 7. loſs of fleſh; 8. diſcharge of bloody mucus from the noſtrils, with ulceration; 9. ulceration of the throat; 10. icterus; 11. diſcharge of much blood and mucus from the bowels, preceded and attended by pain of the abdomen, with tenefimus and forcing; 12. the ſtools, otherwiſe, light coloured; 13. ſome anafarca; 14. boils; 15. painful ulcers on the legs."

Connected with the ſame morbid ſtate of the body generally, we have to obſerve thoſe anomalous and diſtreſſing caſes which we denominate ſiphilodes. But more of this under that term.

Another cachectic diſeaſe muſt be here treated of. We have before ſhown, that nervous excitement may produce the phenomena of *hysteria*, whether it be derived from the ſtomach or uterus; and, in conſidering *chlorosis*, there ſeems every reaſon for ſuppoſing that a ſimilar circumſtance occurs; viz. that, while *chlorosis* is a diſeaſe generally cauſed by the want of due catamenial diſcharges, the want of proper digeſtion, whether from deficient ſenſation or morbid abſorption, may ſimulate, if not literally produce, the ſame complaint. A fact reſting on good authority ſpares us the trouble of reaſoning in proof of this aſſertion: it is, that the *male ſex* are by no means exempt from attacks of this kind, eſpecially the young and ſedentary. *Chlorosis* is evidently a bad term for this affection; nor do we like Dr. Hall's term, *Mimosis decolor*, becauſe the expreſſion of *mimicking* diſeaſe is not quite applicable to it. We however borrow from that author the deſcription of it, and therefore admit for the preſent his nomen.

The *incipient ſtage* of the *Mimosis decolor* is denoted by paleneſs of the complexion, an exanguious ſtate of the prolabia, and a ſlight appearance of tumidity of the countenance, and puffineſs of the eye-lids, eſpecially the upper one. There is ſometimes a tinge of green, yellow, or lead-colour, and frequently darkneſs of the eye-lids. There is great paleneſs of the general ſurface, hands, fingers, and nails; an opaque, white, tumid, and flabby, ſtate of the ſkin; a tendency to œdema of the calves and ankles; and a certain loſs of fleſh. The tongue is white, and loaded; it is ſwollen, marked by preſſure againſt the teeth, or variously formed into creases or folds; its papillæ are very numerous, and much enlarged. The gums and the inſide of the cheeks become tumid; and the latter, as well as the former, are ſometimes impreſſed by the teeth. The breath is tainted. The patient is generally languid, liſtleſs, indiſpoſed for exertion, eaſily overcome by exerciſe, nervous and low-ſpirited, drowſy, dizzy, fainty, or breathleſs. There is generally ſevere headache or vertigo; the memory and power of attention are apt to be impaired; and there is ſometimes heavineſs for ſleep. There is alſo, in different inſtances, pain of one or both ſides about the false ribs, or in the hypochondriac or chondriac regions. Sometimes there is cough, diffi-

culty in breathing, palpitation or irregular action of the heart, or imperfect ſyncope, and almoſt univerſally a ſenſe of fluttering about the præcordia. The appetite is generally impaired. There is frequently a morbid appetite for acids, or for magnesia. The bowels are conſtipated, a ſtate which ſometimes leads to diarrhœa; the fæces are dark-coloured, fœtid, and ſcanty. The urine is frequently loaded. The catamenia become irregular, are preceded and attended by much pain of the back and region of the uterus, and ſometimes, but not always, become ſlowly defective in quantity, and pale in colour.

In the *confirmed ſtage* of this affection, the ſtate of the complexion and general ſurface is ſtill more marked. The countenance is more pallid; the prolabia and the gums exanguious; or the prolabia, eſpecially the upper one, have a ſlight lilac hue; and the integuments are tumid. The ſkin is ſmooth, but becomes preternaturally dry; the integuments are puffy, opaque, and pale, or yellowiſh; and there is a tendency to œdema of the feet. The tongue becomes clean and ſmooth; but it is pale, with a ſlight but peculiar appearance of tranſparency, and of a pale lilac hue; and it remains a little ſwollen and indented. The patient is now affected with languor, laſſitude, and even ſerious weakneſs, being at once reluctant and unable to undergo fatigue. There are often attacks of ſevere pain of the head, or of equally ſevere pain of the ſide; and repeated bleeding, leeches, and bliſters, are uſually employed, affording a temporary reſpite from theſe complaints. There are alſo, ſometimes, fits of dyſpnoea, of palpitation of the heart, or of fainting, with beating of the carotids. The pulſe is rather frequent, often about 100, and eaſily accelerated and rendered irregular by mental emotion. The appetite is ſometimes impaired, occaſionally greater than natural, and very frequently depraved, inducing a longing or conſtant deſire for ſome indigeſtible ſubſtance, as acids or pickles, magnesia, chalk, cinders, ſand, coffee-grounds, tea-leaves, flour, grits, wheat, &c. which the patient likes to have conſtantly in her mouth, or to which reſource is had when ſhe ſuffers from agitation of mind, (like the dirt-eating negroes, p. 122, 3.) The bowels are ſlow and conſtipated, a ſtate which ſometimes alternates with diarrhœa, and induces melæna; the ſtools are dark, fœtid, and ſcanty. The catamenia are attended with pain, and become paler, and leſs in quantity, often ceaſe, and often yield to a ſtate of leucorrhœa which is more or leſs conſtant.

In the *inveterate ſtage*, all the ſymptoms aſſume an aggravated character. There is a very ſlow, but progressive, loſs of fleſh. The languor becomes a ſtate of permanent debility. The œdema increaſes, and takes on the aggravated form of anafarca. The pulſe becomes frequent. There are leſs of the appearances of mere *diſorder*, and more of the character of *disease*; i. e. thoſe local affections, which exiſted in a leſs continued manner before, now became either permanent, or are induced by the ſlighteſt cauſes; and the patient can ſcarcely bear the moſt ordinary occurrences of domeſtic life, and perhaps remains always in bed. Sometimes there is an almoſt permanent pain of the head, perhaps with intolerance of light or of noiſe; ſometimes pain of the cheſt, with tenderneſs, difficulty in breathing, and cough. Frequently there are pain and tenderneſs of the abdomen, with ſickneſs and conſtipation, or with diarrhœa. Different ſymptoms reign in different inſtances; as ſome hyletic or ſpasmotic affection; a ſtate of locked jaw, cloſed hand, contracted foot, or twisted limbs; palpitation of the heart; hurried or ſuſpended reſpiration; long fits of coughing, hiccough, retention of urine. It is worthy of notice, that this chlorotic ſtate and the cachectic diſeaſes noticed before are often alternate, or run into one another.

An important connexion ſeems to exiſt between the pathology of the ſtomach and the mucous membrane of the *lungs*. In the firſt ſtage of indigeſtion, an irregular and ſpasmotic cough is often produced by nervous irrita-

tion, as we have before seen; and, when the inflammatory state has come on, an inflammation of the mucous membrane of the bronchiæ is no uncommon occurrence. In cases where predisposition to disease exists, idiopathic disease ensues; but more commonly a dependance on the original disorder is still remarked in structures secondarily affected. Affections of more feverity, and which perhaps have their seat more immediately in the parenchyma of the lungs, are those which dyspepsia gives rise to when implicated with disordered liver. The latter viscus indeed holds a very important relation with the pulmonary organs, whether in health or in disease. When we come to treat of inflammation of the mucous membrane of the bronchiæ, we shall speak more fully of the sympathetic action of the mucous expansion. Suffice it to say at present, that communicated disease is frequently observable between the stomach and lungs. Dr. Hastings, in his Treatise on Bronchitis, has very accurately described the disease in question. It is distinguished by the usual signs of bronchitis (which see); such as, tightness of the chest, cough, copious expectoration, &c. and the further presence of various dyspeptic symptoms, as well as indirectly by the effect of remedies used in indigestion. But often more severe disturbances arise; and the violence of the symptoms approaches closely to the characteristics of structural alteration. Indeed every one sees cases apparently of phthisis which yield to the treatment for indigestion. For our own part, we wish to confine the word phthisis to the apostematous or tubercular kinds. Now, with regard to the former, we conceive no one will assert that it is curable by dyspeptic treatment; and, with respect to the latter, scarcely a bolder prognosis will be given. It must be conceded, however, that the latter form of diseases may be thus cured. Mr. Abernethy has demonstrated to a mathematical certainty, that the reparative processes are beneficially influenced in the highest degree by the treatment in question; and we have only to extend this established proposition from the visible external parts to the internal surfaces; yet, in so doing, we must consider, that both the perpetual motion and the aerial stimulation of the pulmonary organs, render reparation of structure a most difficult task in them. Moreover it is acknowledged that we have no pathognomonic sign of phthisis; that not even the vomiting of pus can render the existence of apostema unequivocal, since pus may be secreted from the mucous membrane in certain states of inflammation; and therefore we shall conclude, that stomachic medicines can be used as direct agents only where neither apostema nor tubercle exists. We must be careful, however, where we fix the bounds between sympathetic and real disease. In the 43d, 44th, and 45th, sections of Morgagni's 21st Epistle, we find the disease which he calls the *pleuritis verminosa* treated of at some length. The author mentions one case, in which all the symptoms of pleurisy were well marked, that terminated favourably by bloody vomiting which brought up a worm; and he refers to a paper of Pedratto on the *pleuritis verminosa*, where the relief obtained by the expulsion of worms from the stomach and intestines is unequivocally proved. In this paper it appears, that all who vomited the worms, or passed them by the bowels, recovered; while those who retained them died. All the common means of treatment in inflammation of the lungs failed; medicines which destroyed the worms were alone successful. While their expulsion immediately removed the disease, it is impossible for us to believe that organic alteration of the lungs had taken place; yet in those in whom the disease had been allowed to take its course, the same appearances were found in the thoracic viscera as in those who die of other forms of idiopathic disease. Analogous cases are not unfrequently observed at the present day.

In regarding the connexion above mentioned, we often find that the diseased action of the digestive apparatus is caused by the pulmonic irritation, and that the action so induced keeps up and increases the latter irritation.

These cases are however rare, when compared with those in which dyspepsia is first manifested; and they are seldom found till disease has been of long continuance. It is generally preceded by symptoms of indigestion, and particularly by those which indicate some disorder in the secretion of bile. Contrary to what is usual in other species of the disease, the spirits from the beginning are generally more or less depressed, and the countenance is fallow.

While the first stage of indigestion remains, and nervous irritation is the only cause of the cough, the latter is usually dry, or the patient brings up a little mucus after a severe and often long-continued fit of coughing, which seems to be rather the effect of the irritation of coughing than any thing which had previously existed in the lungs; for the cough in this species of consumption, particularly in its early stages, frequently comes in violent fits, in the intervals of which the patient is often but little troubled with it. These fits are particularly apt to occur after he has eaten, especially if he has eaten a great deal, or any thing by which the digestion is disturbed: and on lying down.

As the second stage arises, bronchitis is the most usual form of disease. The cough becomes more frequent, returns less decidedly by fits, and is attended with a more copious expectoration.

An expectoration at first limpid or glairy comes on. As the disease advances, this increases, though sometimes for a considerable time without puruloid characters. By degrees, however, we see small portions of an opaque pus-like substance mixed with the expectorated mucus, and the proportion of it increases as the disease advances. In some cases the quantity expectorated is astonishing, often much greater, in proportion to the severity of the other symptoms, than in idiopathic bronchitis.

Blood is not unfrequently mixed with the colourless matter, and sometimes pure blood is coughed up in the early stage of the disease. After the pus-like expectoration commences, if blood has not previously appeared, it is much less apt to appear than in other forms of the disease. If it appear even in small quantity after this stage commences, Dr. Philip says that the case generally proves fatal. The above-mentioned author is likewise of opinion that, while the blood is mixed only with a transparent fluid, there may be good hopes of recovery; or, if there be no admixture of blood, there may be also hopes of recovery, if the disease has not lasted long. But, when the expectorated matter assumes a sanious appearance, it seems to indicate much danger. In these cases there is of course the dull pain and tenderness in the epigastric region of the second stage of dyspepsia; and in progress of time, an irregular hectic is formed, differing, however, from the true tubercular hectic; for, though there is usually some evening exacerbation, during which the face is generally flushed, and though the hands and face are occasionally bedewed with perspiration in the night; these go off before morning. The emaciation too, though it becomes very perceptible, does not proceed so rapidly as in tubercular phthisis.

The latter circumstance seems to display itself in the same proportion as the fever. Anorexia, flatus, tenderness over the liver, pain in the shoulder, or other hepatic or dyspeptic symptoms, are invariably present; and, though they vary at different times, the patient is never free from some of them. The connexion between them and the pulmonary symptoms is rendered evident by the latter increasing with the former; so that, when the epigastric region is very full and tender, and the flatulence and acidity more troublesome than usual, the cough and dyspnoea are so also; and, on the former symptoms subsiding, the latter likewise abate. Even the rising of wind from the stomach, often, for the time, removes the tendency to cough.

If the progress of the disorder be not checked, the symptoms approach still nearer to those of tubercular phthisis,

phthisis, or in fact that disease is formed. Hectic fever becomes completely formed, and the patient is wasted with profuse perspirations, anasarca and other dropsical symptoms often supervening.

As the pulmonic disease becomes more clearly formed, the disease of the alimentary canal diminishes, as we have before shown it is apt to do when idiopathic disease (which operates as a derivative) is set up; and this occurrence leads of course to a fearful prognosis.

The intimate connexion between gastric and cutaneous diseases has been clearly pointed out by Mr. Abernethy, and the best practical physicians of the day. Indeed the natural sympathy which is perceived between the stomach and the skin would lead us to expect such a connexion. It is not strikingly evinced, however, in moderate temperatures, and while no extraordinary agent is in action; but, when in a high range of atmospherical heat, when the vessels of the skin are excited, and the process of perspiration is increased, we clearly observe this consent between the skin and stomach, as evinced by want of appetite; an effect which is greatly increased, if to the external stimulus of high temperature we add fatiguing exercise, whereby the perspiration is morbidly excited, and the indirect debility of the sub-cutaneous vessels and stomach (by sympathy) induced. Hence, after pedestrian exercise in the forenoon during the heat of summer, and after the perspiratory vessels have become relaxed, we find a sense of fainting at the stomach, and anorexia; while, on the contrary, as the weather becomes cool, and the vessels of the skin contracted thereby, we perceive the sympathy in question exerted in the opposite mode; for a stimulus is quickly communicated to the stomach and the appetite is keen: and again, when the degree of cold is so great as to induce permanent debility of the vessels of the surface, and this is not immediately counteracted by exercise or clothing, the stomach, as well as other organs, inevitably sympathizes, and the important process of digestion is interrupted.

As further instances of this sympathy, we may adduce the effects exhibited on the skin by a glass of water or wine taken into the stomach; the breaking-out of sweat which ensues to some as soon as acids are applied to the œsophagus; and, when we add to these facts the numerous examples which daily occur of surfeits, and the derangements in the colour, sensation, and function, of the surface immediately consequent on a debauch, we shall have no doubt in deciding, that, in nine cases out of ten, cutaneous foulness and gastric irritation are related to each other as cause and effect.

Among the numerous painful sensations and impeded functions which we have had occasion to enumerate as consequences of dyspepsia, we believe there is not one which, primarily occurring, will not produce, as well as follow, that disease. These derangements in the circulating media, all nervous irritations, all agents sufficiently powerful to control the actions of the living powers, impediment in any part of the respiratory or assimilating apparatus or in the functions of the mind, all fortuitous lesions, will, unless counter-irritations or predispositions to disease exist in other parts, produce indigestion. This established, it serves to show the imperious necessity that there is to study the causes of dyspepsia, and to direct our therapeutical maxims accordingly; and, in so doing, what a large fund of observation this enquiry admits of, when we turn back to consider the formidable though incomplete list which we have already detailed.

In considering, therefore, the *treatment* of dyspepsia, we shall revert to what we said, at p. 128, of its first causes. The contemplation of those which act by influencing the nervous system of the stomach, is of course the most extensive. It is by this medium that local injuries and topical inflammations, intense study, &c. produce gastric disorder; and, when the complaint in question is thus traced as a consequence, the treatment is obvious. There are some nervous impressions, however, which, though

not themselves continued, induce a train of morbid actions which soon exhibit the form of dyspepsia.

Of these impressions, the most frequent is the state of the atmosphere. The influence of salubrious air in promoting healthy digestion cannot indeed escape the most superficial observer. This fluid seems to operate beneficially in various ways. Thus it may promote digestion by the excitement to muscular action which its stimulus produces, by the elevating and pleasurable mental emotions its purity excites, or its healthful impression on the mucous membrane of the lungs may be transmitted more directly to the stomach. Hence it follows, that, on the other hand, the want of due materials for respiration must be severely felt in the digestive function. The atmosphere acts on the skin only by its temperature; but the frequent variations in this respect which our own country is subject to, has been long considered a fruitful source of bodily ailments. It does not seem that either the cold or heat of our own climate is particularly injurious, since the compensating powers of the constitution soon render us equal to either extreme; but that it is the suddenness of the change which is so obnoxious to our health; for, while heat augments the cutaneous capillaries, both in size and in frequency of action, (an effect which extends to some extent along the arterious trunks,) its absence induces a diminution of their parietes, and a more-permanent and less-frequent contraction; and, of course, a sudden change from one to the other of their states tends to disorder the contractibility of the atonic vessels, by sympathy of those of the lungs and alimentary canal, and by another modus operandi of the general circulating forces.

From these premises the management of the dyspeptic patient, in regard to air, follows in the most obvious manner. The vicissitudes of the climate he cannot of course control; but he may avoid the more frequent and severer changes of temperature to which his own imprudence exposes him. We of course allude to the fashionable modes of dressing, and the habit of being out in the night-air, &c. These errors, however, have been severely inveighed against by a multitude of writers, and, as might have been expected, with little good to the community, few members of which have the resolution or the inclination to conquer habitual indulgences. It remains our duty, therefore, to point out the best preventatives of danger during the exposure of invalids to the influence of nocturnal temperature. These methods we have extracted principally from the writings of Dr. James Johnson.

After adverting to the deleterious combination of cold and moisture found in the night-air, this gentleman remarks, that there are five circumstances to be attended to when we are subjected to its influence; viz. 1. The condition of the body before going out of doors. 2. The defence of the body's surface while exposed. 3. The defence of the lungs. 4. The exercise on the way. 5. The conduct to be observed on getting home.

1. The condition of the body ought to be as warm as possible, short of perspiration. Many lives are annually lost by the ill-judged caution of lingering about the halls and doors of the heated apartments till the body is cool, before venturing into the air. In this state it is highly susceptible of the baneful influence of the night. It would be better to issue forth, even with some perspiration on the surface, than wait till the system is chilled.

2. Upon the second point we need not enlarge. The frequent sight of thick coats, cloaks, &c. clearly evince that our countrymen do not offend much against this regulation.

3. The defence of the lungs cannot be too strongly enforced. They should be guarded from the direct influence of the night-air by such mufflings about the face as may detain a portion of the air expired from the lungs each time, and thereby communicate a degree of warmth to

to each inhalation of atmospheric air. A large net, for example, folded loosely round the face, will receive a portion of caloric, or heat, from the breath, at each expiration, which portion will be communicated to the current of air rushing into the lungs at each inspiration; and thus the frigidity of the nocturnal atmosphere will be in some degree obviated.

4. As we proceed into the night-air while the body is warm, so we should, by a brisk pace, endeavour to keep up that degree of animal heat with which we set out, and that determination to the surface which is so effectual in preventing affections of any internal organ.

5. As the sudden transition from a heated apartment to a frigid atmosphere must, in some degree, produce a determination to the centre, and more or less check the perspiratory process, some warm and moderately-stimulating liquid may be taken before going to bed, in order that the functions of the skin and the balance of the circulation may be restored; unless, as is often the case in nervous subjects, spirituous potations cause restlessness and want of sleep.

It is of consequence, moreover, that the dyspeptic patient should avoid the thick fogs and damp air which surround all large towns or manufactories; and that he should therefore remove from such situations into the open country. Or, in case his residence in foreign regions, whether northern or tropical, is the probable cause of his indisposition, a return home is of course the obvious remedy.

As a further method of obviating atmospherical impressions, the nature of our clothing requires some attention. Dyspeptic patients should not only endeavour to wear a lighter and warmer clothing than is usual, but adopt a more uniform system of attire throughout the year; in which case they will, in a great degree, obviate the keen susceptibility to aerial impressions for which they are so remarkable. They should avoid likewise the fashionable habits which exist in regard to frequent changes of dress. The fair sex in particular, and the less robust of our own, are observed to wear a warm dress in the fore part of the day, a period when the sun is most powerful, and when exercise is more used; while the evening or dinner dress consists of garments of the thinnest texture, when the frame is more exhausted, and the air damp and cold. No words are required to point out the injury such a practice must inflict on the patients of indigestion.

We have before adverted to the effect of studious habits on the process of digestion. Perhaps a few words on the management of the *mind* will not be misplaced. We do not wish, far less hope, to check the patient and abstracted exertions of genius; but, if it can be shown to the philosopher that knowledge will more kindly open her stores to him who has not corporeal ailment to destroy the balmy refreshment of sleep, and whose enthusiasm is not liable to be dulled by baneful hypochondriasm, he will perhaps be induced to spend some of his existence, we trust not unhappily, in the lighter dissipation of conversation, and in the cheering influence of corporeal movements. It will not be lost time. Health has always been considered the result of a general and pervading harmony; that, while one part or structure acts for the support of life, another rests. Even the heart, powerful as it is, rests and acts alternately. All other organs obey the same law; they have longer intervals of exertion and relaxation, it is true; but still they have them. Shall the brain only receive none? Without enlisting ourselves on the side of the philosopher who said the mind always thinks, we may safely assert; that, except during sleep, the brain is perpetually occupied in receiving impressions, or in performing its own internal operations. If sleep, then, be the only time it is exempt from this toil, how impaired must the functions of that cerebral structure be which experiences but imperfectly and for short periods the influence of "tired Nature's

sweet restorer!" But it is not only by tending to destroy sleep that too long application weakens the faculty of thought; the time borrowed from the due exertion of the muscular system is certainly ill applied. That absorption and circulation are facilitated by muscular motion will be admitted on all hands: and whence does the brain derive its sustenance, but from the circulating powers? And further, who has not felt how at times his mental energy in a few hours of application rapidly overtakes, may surprisingly outdoe, the laborious study of days, when he toils "invita Minerva!" The student, therefore, should endeavour, above all others, to exercise in some degree all his powers, his functions, and his faculties. His employments naturally tend to make him abstinent; and we are well assured, that, if he does not disdain the useful lessons of experience in regard to his bodily infirmities, he will find no reason to coincide in the melancholy but frequent assertion, that intellectual grandeur and corporeal energies are incompatible; nor will Ovid's description (pallor in ore sedet macies in corpore toto) be longer applicable to him.

To apply the subject of the management of the mind more closely to indigestion, our present subject. The proper exertion of the mind is perhaps too little attended to by dyspeptics; yet it is of much importance; for mental anxiety is no unfrequent source of the complaint in question, and is always an aggravation of it. Fortunately many of the exercises which are good for the body act favourably on the mind also; as for instance, the less-laborious employments of horticulture and husbandry; the driving of a gig, riding on horseback, &c. Occasional occupations in certain games, in which some degree of corporeal exercise is combined with the employment of the mental faculties, as billiards and the like, are serviceable. We should principally select such amusements as at the same time do not engage the feelings too deeply. The glow which poetry infuses over the soul may be safely indulged in by the man of business, or by those who follow professions in which the reasoning faculties alone are called into play. But such indulgence is perhaps unfavourable to the poet himself. We may admit for the occasion the fable of old, (see the article *MUSIC*, vol. xvi.) and try the delicious influence of sweet sounds over the morbid feelings of the patients in question. Some, on the other hand, require the avocations of business, which should be divested however of the anxiety usually attendant. The variety of men's minds requires however the contemplation of objects of different kinds, though the grand rule is, in respect to the mind as in the body, to exercise without fatiguing it. But we may be spared entering into any thing more than hints, as the subject requires particular application rather than general rules.

The second cause of derangement of the gastric function, viz. by distention of the muscular fibre, is next to be considered. We purposely omit at present the distention produced by chemical change arising from a want of nervous power or of secretion. It remains, therefore, to consider distention only as far as regards the too-great quantity, or the gaseous or swelling quality, of the aliment received.

The most common cause of distention of the stomach is eating too fast; for, the appetite only subsiding in proportion as the food combines with and neutralizes the gastric fluid, this practice inevitably tends to induce persons to eat more than is requisite or natural; and, as the gastric fluid is but slowly secreted, the major part of the food remains in a place favourable, on account of its temperature, to chemical change without being submitted to the counteracting influence of the gastric fluid: whereas, when we eat slowly, so that a proper time is given for the combination to take place, the appetite abates before the stomach is overcharged: for, while digestion goes on, and the gastric fluid is only supplied in proportion as fresh food comes in contact with the coats of the stomach, it combines with the food as it is formed, and never excites the

the appetite. The truth of this is evident to every one who has observed that, if his meal is interrupted for ten or fifteen minutes, although he has not eaten half his usual quantity, he finds that he is satisfied. The gastric fluid which had accumulated has had time to combine with, and be neutralized by, the food he had taken. On the same account a few mouthfuls taken a little before dinner will often wholly destroy the appetite, especially in delicate people, in whom the gastric fluid is secreted in small quantity, or of a less active quality. Moreover, when we eat too fast, the food is not only received into the stomach in too great quantity, but is swallowed without being duly masticated and mixed with the saliva, and therefore without properly undergoing what may be considered the first process of digestion. It is thus presented to the stomach in a state in which the gastric fluid pervades it, and consequently acts upon it, with more difficulty. In this way eating too fast is injurious, even when the patient eats but little. For these reasons, "to eat moderately and slowly," is often found of greater consequence than any other rule of diet. The dyspeptic, in eating, should carefully attend to the first feeling of satiety. There is a moment when the relish given by the appetite ceases; a single mouthful, taken after this, oppresses a weak stomach. If he eats slowly, and attends carefully to this feeling, he will never overload the stomach.

Another frequent cause of over-distention of the stomach is high-seasoning and great variety of food, or such as particularly pleases the palate, by which we are induced to eat after the appetite is satisfied; or, by the stimulus of the high-seasoning, a greater supply of gastric fluid than the food calls for is excited, and thus the appetite prolonged. This seems in particular to be an effect of wine drunk during dinner; and this practice, although it occasions less immediate inconvenience than eating too fast, often, if carried very far, by the preternatural excitement of the stomach, at length impairs its vigour. It is not uncommon, in the dissection of subjects who have greatly indulged in the pleasures of the table, to find the stomach enlarged, and its fibres sensibly relaxed.

The degree of distention which the stomach undergoes also depends much on the kind of aliment. All food appears to swell more or less after it is received into the stomach; some kinds more than others, and of course that which is most difficult of digestion, *cet. par.* swells most; both because it is digested and removed from the stomach most slowly, and because that which most resists the action of the gastric fluid is most apt to run into fermentation.

It would take up too much time to mention all the kinds of food which are prone, by their gaseous constituents, to produce gastric distention. Generally speaking, vegetables have this effect in a much greater degree than animal food, and in a crude state especially. Bread often produces it; and it is probably on the same account that malt-liquors, taken during meals, exert a pernicious influence over digestion. Distention of the stomach is also produced by too much drink, or, as with respect to food, by swallowing it with too great rapidity.

Now, with regard to the third origin of dyspepsia, disordered secretion, it arises in most cases out of the two former states; and, the errors or accidents producing them being removed, the effect generally ceases. When, however, it becomes established, its removal implies a much wider indication. In the first periods of diseased secretion, this fluid is perhaps not much impaired in its digestive properties, though diminished in quantity, and possessed of some additional constituents. Eructations of various kinds, pain, &c. now occur, but with little general disturbance, which, as we said before, a little attention to diet soon sets to rights. In this stage we agree with Dr. Philip in thinking, that a diet composed of a moderate portion of animal food and bread is the best; but of course this rule will be daily excepted against on account of constitutional peculiarities.

Though the consideration of diet is again before us, af-

ter the ample notice we have bestowed on this subject, (p. 102-106.) it would be superfluous to do more than briefly recapitulate the rules to be adopted. These are only to be understood, and will always be best remembered, by a knowledge of the digestive process. The patient of indigestion will therefore in the first place attend to the due mastication of his aliment; to its moderately slow transmission to the stomach; to its degree of moisture, which regards the two points, that it be sufficiently moist to allow the pervasion of the gastric juice without weakening that secretion by dilution, and without producing fermentation by its own excess. He will take especial care, when he considers the nature of the propulsive power of the stomach, that he offers no impediment to that function by taking violent exercise during digestion. He will carefully note and partake of those substances which on their reception into the stomach produce least pain or irritation. He will avoid those, on the contrary, which produce any ill feeling; namely, for the most part the tough, oily, or acescent, particles of food. Nor should various kinds of food be taken at once by the dyspeptic. Few patients will digest well more than one sort of aliment at a meal. Moreover, the popular notion of taking little and often is to be regarded as a popular error; and when it is considered, that the mastication and other processes belong to digestion, that economy in which nothing is vain, and which are in fact indispensably necessary, the dyspeptic should not evade the necessity of such processes by taking aliment reduced to a pulaceous consistence. We dwell on this point, because it is so common to hear of *nourishing food*, an expression which, in its common acceptation, is meant to imply the capability of certain substances to nourish our frame rather by its own nature than by that of the digestive action. Thus a variety of jellies, rich soups, &c. are lavishly bestowed on the emaciated sufferer, and these greasy stimulants fail not to destroy the little remaining function which the stomach may possess. Dr. Philip says very wisely, when speaking on this point, that, "however imposing the plans of concentrating much nutriment in a small compass may at first view appear, we may be well assured, that in such concentration something is taken away from what nature designed for our food, which is useful to us." Thus most dyspeptics find, that potatoes, for example, finely mashed, although without any admixture, are more difficult of digestion than when properly masticated. To mention a more striking fact; it has been shown by the chemists, that a very close analogy, an apparent identity indeed, exists between sugar and the chyle which is derived from vegetables; yet a horse fed on sugar will not live a month.

The relation which exists between all the structures of the body, and the necessity of preserving a proper correspondence of energy between the nervous, the vascular, and the muscular, ones, since they are all connected in the alimentary canal, at once shows the propriety of corporeal exercise in indigestion: for the exercise of the voluntary muscles affords energy, not only to them, but to the involuntary movements, and gives, as is well known, much assistance to the circulatory powers. But the bodily exercise of dyspeptic patients is a matter of nice and difficult discrimination; for it is well known, that, however salutary exercise may be to a certain extent, yet that its excess tends to produce consequences directly opposite. Sleep, appetite, and digestion, which are improved by gentle exercise, are often suspended after violent fatigue or exertion. The weak state of the muscular system in some cases is another strong argument in favour of modicating the degree of locomotion, and of cautioning patients not to run into the common error of fatiguing themselves, under the idea of strengthening their frame by strenuous exertions.

In the first stage of indigestion, and ere much debility arises, *walking* during the interval of digestion is unquestionably the best exercise. It is, in the first place,

very agreeable, and it seems moreover the most natural. There is no other accompanied with such a uniform and regular exercise of the muscles and joints; and, from the valvular structure of the veins of the extremities, it is better fitted than any other to promote the circulation, and consequently all the functions of the system.

The effect of riding on horseback upon the abdominal viscera is peculiar and salutary; and the jolting of a brisk trot seems, without inducing fatigue, to give tone to and promote the action of the bowels and liver in an eminent degree. In the more advanced stages of indigestion, this delightful exercise becomes injurious; and little else can be borne, except the walking pace of the horse. It is seldom, however, advisable to ride at all at this period, since at the pace just mentioned the patient is subjected to the baneful effect of diminished temperature. It is better therefore to indulge in the ease of a carriage; and, as this becomes too irksome from its vibratory motion, sailing is a gentler mode of exercise. It has the credit of being serviceable in almost all cases of debility, and has been found particularly so in debility of the stomach and bowels. But even this exercise, except in warm weather, is unadvisable on account of the exposure to cold air.

Whenever these passive exercises cannot be borne, the dyspeptic may find much relief from the use of friction, as he likewise might experience from the refreshing practice of shampooing; which, unfortunately however, is unknown in this country.

The reader will find the subject of passive exercise well treated of in Dr. J. Johnson's work on the Atmosphere and Climate of Great Britain, p. 197, & seq. We extract a portion, in which however it will be seen that the learned author differs in some measure from the views we have taken in regard to exercise after meals. He says, "During gestation, for instance on horseback, the stomach, liver, intestines, indeed the whole digestive apparatus, experience a succession of shocks, which develop the tonicity of these organs, and favour the exercise of their functions. If the stomach be empty, gestation awakens the digestive powers, whets the appetite, and induces hunger: if that organ be moderately filled with food, the whole chylipoietic system, enlivened by gestation, executes with greater facility, promptitude, and perfection, the elaboration of nutritive matter; and the whole fabric receives, in consequence, an accession of strength. Hence people afflicted with anorexia, or difficulty of digestion, experience the most marked benefit from passive exercise, especially if used before the hour of repast. When used by them after meals, it must be moderate in degree, and gentle in manner. Thus we every day see invalids, to whom digestion is a painful process, escape the feelings of satiety by a gentle ride on horseback or in a carriage after dinner. In this respect muscular or active exercise differs essentially from gestation. To run, to dance, to play at cricket, immediately after eating, is to assail the stomach with violent succussions which derange the natural order of its movements, and dissipate on the voluntary muscles those vital forces and energies which ought to be concentrated on the organs of nutrition.

"But it is not on the process of digestion alone that gestation exerts a beneficial influence. It enlivenes the whole abdominal circulation of blood, but particularly that of the various branches of the vena portarum. It thus affects the hepatic system, facilitating both the secretion of the bile, and its elimination from the ducts of the liver into the duodenum. It increases the peristaltic motion of the intestines; in consequence of which, the chyme is prefented with greater regularity and rapidity to the mouths of the lacteals, and the chyle is poured, in a freer current, into the blood-vessel system."

When these measures fail, when exercise does not induce those trains of action which lead to health, and when the abstraction of noxious particles of diet fails in the same purpose; it becomes necessary to have recourse

to medicine. It seldom happens, however, but that dyspepsia alone will yield to the measures above mentioned: when it does not, we should be always suspicious of the extension of the disease. The bowels are, as we have before shown, the parts most disposed to participate in the diseases of the stomach; and therefore our treatment should not unfrequently be directed to them. Independently however of the implication of the bowels in the common affection, the action of certain medicines on these viscera is beneficially exerted on the secretions of the stomach and liver. Purgatives promote those secretions in two ways: by the mechanical stimulus derived from the peristaltic motions of the bowels, and through the medium of that sympathy so remarkably observable in the continued mucous structures. The proper use of aperients is a subject of great importance at all periods, and in all states, of indigestion. In the period under consideration, their object is merely to support a regular action of the bowels, which, as the secretions of the whole canal are inclined to fail, and the stomach and upper bowels do not discharge their contents so readily as they ought to do, should be rather freer than in health. Different aperients suit different constitutions. For the purpose of supporting a regular action of the bowels, we recommend pills composed of ipecacuanha, compound extract of colocynth, and soap, with the addition of a little gamboge when they are not sufficiently active, to be taken occasionally at bed-time. But we abound so much in forms of aperient medicines, that it were wasting time to mention many of them in this place.

It is a common practice to give some form of mercury to patients labouring under indigestion; and, in consequence of the stimulus this mineral exerts on the liver, its use is generally beneficial; but as a simple aperient it should not be resorted to, and that for two reasons: the first, that it exerts a prejudicial influence on the secretion of the gastric juice; and secondly, because it has the effect of often doing more than we require; as for instance, when it salivates (which it will sometimes do in very small quantities), or when it excites structures undiseased, and thus destroys the balance of action to the restoration of which our endeavours are ofteneft directed.

The use of aperients alone is not however always sufficient. The disordered secretion of the stomach continuing, it becomes necessary to excite the secreting vessels by artificial stimuli, for the purpose of altering their action on the blood, and causing them to elicit more appropriate fluids; as well as of exciting the muscular fibres and the nervous expansions to carry off their load. Among these, bitters hold the first rank. Those in common use are—gentian, chamomile, bitter orange-peel, wormwood, columba, and bark. We are not of opinion that much difference exists in the merits of these various substances. Many practitioners use one or the other of them exclusively, and perhaps with nearly equal success. It seems that the chamomile, orange-peel, gentian, and wormwood, are less inclined to promote the general circulation; and are therefore preferable when a plethoric state of system is observable. On the other hand, the cascarilla, columba, and the Peruvian bark, exert a more general influence on the system; and are therefore proper when, from the irritation of the nerves of the stomach, the cerebral mass communicates too languid an impression to the circulating system.

It is generally found advisable to combine bitters and aperients. A formula consisting of six drachms of compound infusion of gentian and of the same quantity of infusion of senna is of this kind: it is generally found to promote all the processes of digestion and abdominal excretion. The combination of salts with the same bitter infusion is likewise a common and excellent formula.

It is often requisite to administer stimuli derived from the mineral kingdom. Of these the mineral acids, the preparations of iron, and the sulphate of zinc, are in common use. Of the mineral acids, the sulphuric is per-
haps

haps the best in indigestion, and has this advantage over the other sorts, that it operates more distinctly on another part affected in dyspepsia, viz. the skin. It is peculiarly serviceable in those cases, where sweating, which is not unusual, is too easily induced by exercise; for much tendency to sweating indicates relaxation, not vigour of the skin.

There are few cases of indigestion in which iron is not found more or less useful at an early period, if no tendency to the second stage of the disease has shown itself. Its good effects are increased by combining it with bitters and aromatics; and, in idiopathic indigestion, the carbonate has appeared to us its best preparation, provided it can be taken scruple-doses, without producing a feeling of heat and oppression in the stomach. In the opinion of many, the sulphate of zinc given in very small doses, also holds a distinguished place among these medicines. It may be given at later periods than iron, but it requires caution; and, if its good effects do not soon appear, should be laid aside. It is one of those powerful agents, which must always be employed with some degree of suspicion.

The medicines we have spoken of hitherto seem principally to exert their influence on the contractility of the muscular fibre, or the capillary vessels. But, as we have before seen that, however various may be the causes which act on the muscular fibres of the stomach, or on its nerves; yet these powers are so connected, that whatever impairs the one necessarily affects the other; so we shall find that a similar observation applies to the means of relief; that those medicines which tend to restore a healthy nervous power to the stomach, tend likewise to form the food into that substance which is best fitted to excite the muscular fibres of this organ; and that whatever excites the natural action of these fibres, tends to relieve the nerves from uneasy impressions, and, in the most favourable way, to bring into contact with their extremities the food on which they are to operate through the intervention of the secreting vessels.

There are some remedies which act peculiarly on the nervous system of the stomach. These are irritants, or those which increase the production of the nervous power; and anodynes or narcotics, the effect of which is to dull the sensibility. The potent nature of the first class is shown by their exhilarating effects on the system at large. It is thus that distilled spirits and aromatic tinctures produce so much alleviation from the uneasy sensations of dyspepsia. It is well known, however, that the measure of vigour which spirituous potations afford is generally followed by increased debility; and we should therefore be cautious in the exhibition of them. They can be given with safety only under the following circumstances; viz. when patients have so long indulged in their use, that we have to fear the increase of dyspeptic symptoms from the sudden relinquishment of the habitual stimulant, or when we have so far corrected the state of the other viscera and of the system in general, that the stomach seems only to want some additional nervous excitement to call its natural action into full play. Even when exhibited with these intentions, it is best to give spirits only in conjunction with bitters, and in small doses. This rule does not of course apply to violent or spasmodic paroxysms of dyspepsia, in which somewhat active doses of distilled spirit are often admissible. When combined with bitters, the medicines of this class render the former medicaments more permanent in their effect; and indeed, the action of the latter seems often necessary to enable the stomach to bear the former without oppression. The quantity of distilled spirits in such mixtures should always however be small; a twelfth, at most an eighth, of the whole. In the exhibition of aromatics less nicety is required: the properties of all are similar, though some suit the stomach and the taste of individuals better than others. Thus ginger may be used when cardamoms stimulate the system

too much; and cardamoms will relieve flatulence and spasmodic pains, when ginger fails.

Among the drugs which augment nervous sensibility, we have to mention ammonia. The operation of this substance is by no means simple. It accelerates the pulse for some time after reception into the stomach, while it stimulates the contractile fibres of that viscera, and is also a grateful and permanent stimulus to its nerves. It is well calculated to relieve those patients in whom the force of the circulation is below par; provided, however, that no tenderness of the epigastrium, hard pulse, or any sensation of burning in the hands or feet at night, is experienced; for the latter symptoms would undoubtedly be formidably augmented by its administration. Camphor possesses some of the properties of ammonia in a slighter degree. Its property of alleviating sickness renders the mistura camphoræ a good vehicle for other medicines.

We have recommended much caution in the use of irritants: the use of anodyne remedies demands perhaps still more. The only medicine of this class which produces effects worth notice is opium. In violent spasms this medicine may be given somewhat freely; but Dr. Philip says, that very small doses, two or three minims of tincture of opium for example, repeated two or three times a-day, often prove highly serviceable in allaying morbid irritation; their constipating effect is easily counteracted; and sometimes indeed they have very little of this effect. A better mode of exhibiting opium is under the form of the Pulv. ipecac. comp. From two to four grains of this preparation, given every six or eight hours, appears to have a peculiar effect in allaying the irritation attending indigestion, which probably arises from its action on the skin. It appears to be best adapted to those cases in which that combination of languor and restlessness, often so remarkable in this disease, prevails. It is better from time to time to discontinue and renew its use, than to exhibit it for a great length of time without interruption; which, even when the dose is very small, is apt to occasion some confusion or other uneasiness of the head; an effect which goes far to increase eventually all the dyspeptic symptoms.

While these remedies are then in action, we still have to contend with paroxysms of pain and nervous irritation. To these, opium, ether, cardamoms, and the whole host of antispasmodics, are the usual and effectual remedial agents. Among these means of temporary relief, very-warm water holds a higher place perhaps than is generally supposed. To its frequent use there are the same objections as to other powerful stimulants; but occasionally it relieves dyspepsia in a very decisive manner. It deserves mentioning, although it is difficult to explain it, that a considerable degree of heat applied externally to the region of the stomach is as effectual, provided it be continued for a sufficient length of time, in removing cramp, as any application of heat we can make internally. It is also frequently relieved by heat applied to the feet. It is during this stage of dyspepsia that galvanism is often advantageous; but in the use of this stimulant we must be careful to regulate it so that it may not excite inflammatory symptoms.

When the bowels become implicated in the disease of the stomach, a more brisk and continued state of purging is required. To spasmodic affections of those parts the same spirituous remedies that relate to the gastric affection are applicable.

When, from the fullness of the right hypochondrium unattended by deficiency of bilious secretion, we have reason to suppose tardiness of action in the duodenum, those purgatives which excite the peristaltic motions are preferable to all others. Of these, the combination of rhubarb and fenna may be mentioned as one of the best. When, on the other hand, mucous secretions are apparent to excess in the fæces, the saline cathartics should be employed,

ployed. We reserve, however, further remarks on the due regulation of the bowels till we come to the next genus.

The functional derangement of the liver occurring as a consequence of dyspepsia, requires the particular treatment of the former complaints to be conjoined with that of the latter disease. The medicine best calculated to promote the secretion of bile is mercury. The different preparations of this mineral may be used according to the peculiar constitution of the patient. The most common are Abernethy's blue pill, Plummer's pill, and calomel. The first of these, given in doses of four or five grains every second or third night, as recommended by Mr. Abernethy, is particularly serviceable in those cases where the affection of the liver has supervened early, and where, consequently, it is the principal cause which supports and aggravates the dyspepsia. This pill disagrees however with some constitutions. We do not allude to the transient sensation of pain which is felt in some stomachs for the first half-hour after its reception; but the more permanent sensations of the same kind that are sometimes experienced. Calomel is perhaps, after all, the best kind of mercurial for the first stage of indigestion; and is chiefly applicable when irregularity of the secretion of bile is present. It also deserves notice that calomel necessarily occasions brisk purging, on which the benefit derived from it often greatly depends; so that, while, by its peculiar effect on the first passages, it excites a better action of the liver, by its purgative effect it tends further to emulge the gall-ducts, and relieve the distended state of the liver. Its operation, then, is most wanted where this distention is greatest, which may be known, we have seen, by the state of the right hypochondrium, and will be least injurious where the strength is most able to bear so considerable a call upon it. When there is little distention of the liver, and the strength is much reduced, the operation of the blue pill, provided it agrees tolerably well with the stomach, is preferable. The relief obtained from it may be less speedy, but it will be obtained at less expense to the constitution. Instances frequently occur of the bad effects of not attending to this distinction. What is only a salutary evacuation in one case, is an overpowering cause of debility in another.

Plummer's pill often sits well on the stomach when both of the former preparations of mercury fail. The proportion of antimony in its composition tends to cause its influence to be exerted on the skin as well as on the liver; and hence in the cure of cutaneous affections it is held in merited estimation.

As the effect of mercury is only required to be transient in the first stage of dyspepsia, whatever form of the mercurial remedy we employ should be carried off by an aperient, either given with it or at a proper interval afterwards. Of these alternatives, we should (with the exception of peculiar cases) incline to the latter; for it cannot be questioned, that much larger doses are required to promote the hepatic secretion when combined with the dry purgatives, as colocynth, aloes, &c. and we have seen cases where it failed entirely to produce such effect. In the milder form of disease we are now speaking of, a draught of salts and senna, taken in the morning after a mercurial pill the over night, will we think be found the least painful or debilitating in its operation. When mercury occasions much irritation of the bowels, its continued use brings on a degree of dysentery. The patient is tormented with griping and tenesmus, and at length passes little besides mucus, often mixed with a small quantity of blood. In such cases, we must discontinue its use for a short time; and when we find, as sometimes happens in such cases, that on returning to it the same symptoms constantly recur, and cannot be prevented by changing the preparation, or the use of anodynes and mucilages, it must be entirely laid aside.

Given under the above regulations, mercury is a very excellent remedy for the hepatic derangements of indi-

gestion. Its indiscriminate use undoubtedly does much harm; and there can be little doubt that various kinds of "antibilious pills" (as they are foolishly called), which are daily vended in great quantities, do upon the whole more harm than good. Indeed this must always be the case with patent medicines; no medicine can be energetic, unless it has the property of inducing derangement of some part; and therefore, if the production of a derangement from the natural state be not properly directed, much mischief must ensue. The indiscriminate use of mercury in gastric complaints has called forth these remarks; and we wish particularly to repeat to our medical brethren a fact well established by the testimony of the best authors; that mercury should hold no place in the treatment of simple indigestion, while the secretion of bile is unchanged; and that, when that change has occurred, its cure should be effected by the least possible quantity of this potent mineral. As mercury sometimes irritates the system at a rate not balanced by its beneficial influence, it becomes necessary to search for a substitute which may be employed instead of it. The combination of the nitric and muriatic acids, taken internally or used externally, as Dr. Scott first recommended, has appeared to us the most successful. See NITRO-MURIATIC ACID, vol. xvii. p. 104.

With respect to the more distant affections arising from dyspepsia, we have before shown, that, numerous as they are, they are for the most part the products of nervous irritation; hence depletion has little effect on them. When they are of that violent and uncontinued character which we have called, after Dr. Hall, the *Mimosis urgens*, antispasmodics, as musk, valerian, ether, emetics, &c. are the remedies indicated in addition to the usual dyspeptic treatment. The same remark applies to the spasmodic dyspnoea, palpitatio cordis, &c. When more permanent effects seem induced, counter-irritants are of essential service.

The affections of the head which occur in indigestion require more particular notice. We should be particularly careful to keep the circulation rather below than above the usual standard in cerebral affections, because of the formidable disposition to inflammation which they frequently and suddenly assume. On this account, when the pulse does not forbid it, and the cerebral is not relieved by the excitement of secretion in the gastric structure, topical bleeding is the most advisable step. This should be followed by the shower-bath, an agent at once exciting the skin and depleting the cranial circulation. This practice is useful in the state of *erethism* which we before noticed as described by Dr. Nicholl. That author recommends the use of the *puly. ipecac. comp.* but a specimen of the disease we lately saw seemed increased in violence after each exhibition of the above medicine. On the whole, topical bleeding, a cooled state of the external part of the head, the abstraction of strong light and of all irritating impressions from without, tolerably free purging, and the use of diuretics, are the best modes of treatment. In all head-affections, free discharges from the intestines and bladder are strongly required. In the head-ache of the first stage, emetics give temporary relief; but particular care is required to note the diagnostics, as stupor, or throbbing of the temples, which tend to show established disease in the head. When this occurs, or indeed when inflammation is set up in any structure, the usual treatment of the *phlogistica* must be combined with that in question.

The connexion between the functions of the skin and alimentary canal has been often adverted to. The former structure affords an excellent mean for relieving the disorders of the latter. Thus the medicated bath recommended by Scott is a more powerful agent in improving the secretion of the stomach, liver, and bowels, than the internal use of the acid. But the chief measure acting on the skin is the bath. Cold bathing is an old remedy in indigestion. It is seldom safe, however, in nervous or debilitated subjects. Where its use can be borne, a short plunge

plunge is the best mode of applying it; and much care should be taken that perfect dryness, and indeed re-action, of the skin, be produced, by rubbing with dry cloths. In some cases sponging only, followed by the same friction, is the furthest attempt at cold bathing which the delicacy of our patients' constitutions will allow us to make. The warm bath does not require the same limitation; and it deserves in our opinion more consideration than it generally obtains. A gentleman of much experience, Dr. J. Johnson, is of the same opinion; he observes that, if the general use of the warm bath should ever become prevalent in this country, it will produce a more beneficial revolution on the health and longevity of the inhabitants, than any change which the hand of time has ever wrought; and that, so far from weakening or enervating the constitution, it has a decidedly contrary effect; and therefore, in debilitated subjects, it is infinitely more proper and safe than the cold bath. Indeed the good effects of the latter result from the re-action of the system; but, as this re-action is entirely an effort of the constitution itself, to resist as it were, or undo, what the cold immersion had produced, a considerable degree of vital energy is necessary; otherwise some internal viscus may suffer. On the contrary, says Dr. J. the warm bath elicits the blood to the surface of the body, with hardly any of that re-action observed after the cold bath. The whole contaneous system of vessels is thus filled with blood, while the vessels of the interior organs are relieved, and that without any particular exertion of the heart which might render it liable to subsequent exhaustion. The spirits too are raised, the pulse mended, and the appetite increased; in short, a general renovation is felt throughout the whole frame; an effect more remarkably observed after exhaustion or fatigue. The oriental nations have long appreciated its virtues in this respect. Homer describes Ulysses, among others, as refreshing himself with the warm bath, on his return home; and the numerous and splendid baths, by the building of which the Roman emperors gained so much popularity, will show that this comfort, or luxury, was no less esteemed in the west.

The warm bath will by no means be an effectual remedy in dyspepsia, unless the immersion in it be of much longer continuance than is usual in this country. Dr. Thomas, a practitioner who has spent some time abroad, informs us, that "upon the continent, where so much good is produced by this powerful remedy, no one thinks of recommending a patient to stay less than an hour in the warm bath; and at Ussat, where so many cures have been effected by means of the bath, and by such means only, I have known many weakly delicate patients take two baths of one hour each every day for three weeks without intermission; and I have no doubt in my mind, and the same conviction pervades medical men in general in France, that it is owing to this manner of taking the warm mineral baths, that so much good is effected by that remedy; and, by parity of reasoning, I may say, that little good is obtained from them in this country, because there is not sufficient time allowed for bathing."

The vapour-bath is also a remedy of great efficacy in the complaint in question.

The diseases for which the warm bath may be employed, are much more numerous than those where the cold bath can be exhibited with safety. And in fact it may be used on most occasions without premising the accurate discrimination required ere we adopt the critical measure of cold bathing. See the article BATHING, vol. ii. p. 803.

On the treatment of the *second stage* of indigestion, we have seen that, after a certain period, a change takes place in the nature of dyspepsia; that a disordered state of the circulating vessels of the stomach supervenes to suspension of nervous influence and of muscular propulsion; that this change happens at various periods, sometimes in a few days or weeks, but that not unfrequently it is not manifested for many months, more rarely for

years; that this state is characterized by a change in the phenomena of the circulating system, indicated by a hard pulse; and that there is likewise pain in the stomach. We consider these symptoms as indicating chronic inflammation of the stomach; and we may remark, that this opinion is borne out by analogical reasoning on what takes place in other parts, and by the dissections of the more marked cases which are recorded by foreign practitioners. We have therefore to reduce inflammation; and of course the stimulating measures which we have used in the first stage of indigestion are to be laid aside; but, in adopting the opposite or antiphlogistic treatment, we must consider that the stomach is the seat of complex functions; and that, though inflammation has supervened, nervous derangement and muscular inaction still remain. Moreover, the periodical action of the stomach, and its constant exposure to irritants, render general or sudden depletion of the contents of its vessels of little avail, since, however the latter may be depleted, and however perfectly they may recover their natural diameter, the frequent stimulus of foreign substances will tend to reproduce the morbid state of vascular fullness. The impeded nutrition which is present causes a debility of the system quite obnoxious to vascular depletion. The treatment of this stage of dyspepsia requires therefore particular attention, inasmuch as we have to reduce inflammation by one train of processes, and produce muscular and nervous action by another. As these are incompatible indications, the less must give way to the more important; that is to say, we must reduce the inflammatory action first, and consider the muscular and nervous debility afterwards. The former intention must be effected by applying leeches to the epigastrium, by cooling applications, as effervescing draughts and solutions of nitre, cold water, &c. and by a very abstemious vegetable diet. When these measures are successful, we may cautiously return to the use of bitters, &c. and thereby endeavour to remove the causes, i. e. morbid distention and diminished nervous power, which have produced the disease in question. When the inflammatory state has not continued long, and has not appeared till the nervous indigestion has been of long standing, we generally prognosticate its removal by the above-mentioned means with certainty; but, in proportion as it becomes more thoroughly established, we shall find less marked relief from the bleeding; and a much more aggravated and sudden return to inflammation when we attempt to stimulate by bitters.

It is at this period of indigestion that ipecacuanha is an excellent remedy. The effect of this substance is to produce secretion from the stomach, though, it must be allowed, not that which is commonly called the gastric juice; the nature of that fluid, or at least its peculiar effect on the nervous expansion, being altered. That secretion is an excellent means of removing local plethora is well known; and hence appears the advantage we derive from this drug. In regard to its dose, we should give as much as induces secretion without causing nausea, a phenomenon which tends to debilitate the muscular fibres of the stomach. A grain and a half, two, or in some cases three, grains will be sufficient. It is necessary, however, to produce secretion from a more extensive surface than the stomach itself: the bowels should be kept in an open state, and the hepatic secretions should likewise be promoted. In taking the first step, we should employ those purgatives which produce the least pain or irritation in their operation. Vegetable diet, which we have before spoken in commendation of, will in many cases relax the bowels; but, where this effect is not produced, aperients must be given. They should be of a mixed kind; they should comprehend many ingredients of this numerous class, avoiding however such as produce nervous irritation. We have commonly recommended, when it is sufficiently active, the *Confectio sennæ*; but many other formula will no doubt answer the purpose equally well. Of course, when one part of the bowels is more sluggish

gills than another, we should endeavour to excite it by purgatives which act somewhat exclusively on it; as, for instance, rather more rhubarb must be administered when the duodenum seems inactive, &c. The number of motions must be somewhat regulated by the strength, &c. but three in the course of the day will seldom be too many.

We have noticed, that, when the first stage of indigestion has continued for some time, the function of the liver becomes disordered. A greater or less tendency to disorder in this organ, after it once appears, always continues throughout the disease, so that it is a constant attendant on the second stage; and those medicines which influence the secretion of this organ, therefore, always form part of its treatment. Of these we still find mercury by far the most efficacious. Several circumstances, however, render caution, in the use of this medicine, even more necessary in the second than in the first stage. Not only has the greater continuance of the disease occasioned a greater loss of strength; but its increase, and the change which has taken place in its nature, renders it necessary to employ this medicine for a longer time, and often in a way that more directly influences the state of the constitution.

In the first stage, as we have seen, we want only the transient effects of this medicine on the liver. On the other hand, we now want to induce a more permanent change in the diseased state of that viscus, and rather to restore the altered properties of its secreting vessels than simply to increase their action for the sake of removing plethora. It has been lately recommended, with this view, to give mercury in very minute and somewhat frequent doses. Dr. Philip says that he has "generally given a grain of the blue pill, sometimes only half a grain, twice or three times in twenty-four hours, till the secretion of bile appeared to be healthy, repeating these doses when it was again disordered; and by such doses, which may appear to many little better than trifling, I have seen the bile gradually restored to a healthy state, when larger doses had been employed in vain. They not only often succeed where larger doses fail, but the change, in proportion as it takes place more slowly, seems generally to be more permanent." We may add, that, in the second stage of indigestion, violent action of the abdominal viscera strongly tends to destroy their tone; and this forms another reason against employing large doses of mercury, since, by their action on the secreting surfaces, they promote sudden and debilitating evacuations; an effect very unfavourable in the weak state of the constitution which attends this stage.

By the above practice we avoid the occasional ill effects of mercury in a great degree, though some practitioners of distinction conceive it to be somewhat inert. Our own experience, however, is in favour of it; and in Dr. Hall's writings cases are mentioned in which the like diminutive doses of this medicine produced favourable results.

Much latitude will be allowed, however, in the use of mercury, since the difference of climate or of constitution renders a dose in some cases too-powerful, in others perfectly nugatory. There can be no doubt, for instance, that in hot climates a much larger proportion may be given of this medicine than in temperate; and the various degrees of susceptibility to its action, which different individuals exhibit, are equally well known and unaccountable.

When mercury disagrees with the bowels, conium, hyoscyamus, or extract. papaveris, may be conjoined with it; or we may have recourse to the nitro-muriatic-acid bath as a substitute. The latter remedy is indeed sometimes of use during the intervals of using mercury; but it too often happens that the cathartic tendency of the mercury is increased by the acid. The bath must not be used during the inflammatory state of the stomach, but may be very advantageously prescribed when local blood-letting has been premised. The degree of action which the nitro-muriatic-acid has to exert on the constitution is

regulated by the strength of the health, and by the extent of the cutaneous surface immersed, a hand or a foot being first bathed; and, if its effects are borne well, by degrees the rest of the body up to the chin. See vol. xvii. p. 106.

Dr. Philip has recommended dandelion to be used as a substitute for mercury in dyspepsia. He says that "it appears to possess greater powers in this disease than are usually ascribed to it, but it requires to be taken in very large doses. It is best adapted to those cases, in which the bile is deficient or much disordered, while the power of the stomach is still considerable. In such cases, I have seen the patient restored by a strong decoction of dandelion used for common drink, without the aid of any other medicine. In addition to its effect on the liver, it tends to cool, and consequently allay the inflammatory diathesis, and often excites both the bowels and kidneys. The latter effect, which is best counteracted by alum, when the stomach bears it well, is frequently such as to make it necessary to discontinue the dandelion. The former is seldom considerable, and can always be restrained. It is often given with great advantage in aid of the small doses of mercury when the stomach bears it well, and enables us further to diminish the quantity of this medicine."

The functional derangements which occur as remote consequences of dyspepsia, are to be cured only by removing the original disease. The topical inflammations require additional remedies; for we have before noticed that, when of long standing, they often act as counter-irritants to the gastric disturbance. The liver, lungs, spleen, and heart, are most liable to this affection; and are all to be treated on these principles; viz. to withdraw nervous irritation by counter-stimulation, to bleed locally or generally according to the frequency and hardness of the pulse, and procure secretions from the abdominal viscera, and from the skin, by the warm bath.

The same rules apply to the treatment of the head-affections. Here the sympathy between the external and internal parts allows the additional use of cold lotions to diminish the action of the vessels of the head: a simple measure, but one of great efficacy. The erect posture, or at least a near approach to it, should likewise be insisted on; and a more active kind of purging than in the derangements of the abdominal viscera. The erethismal state of the brain should be treated with continued counter-irritation, and with much assiduity; since, when once it has apoplexy, this latter calamity is generally fatal, and appears uninfluenced by bleeding or any other known means of relief.

In the gouty and rheumatic affections of this stage of indigestion, in addition to the usual means, the Colchicum is by no means a despicable remedy. Indeed, where this drug agrees, it seems to reduce both the arthritic and the gastric inflammation at the same time. The use of an anodyne liniment likewise affords temporary relief to the rheumatic pains.

When the inflamed state of the mucous membrane has been communicated to the bowels, and piles, stricture, or tenderness along the course of the cœcum, are present, the most efficient method of relief is *anal leeching*. This practice has not obtained in our country the attention it deserves, though the great benefit our continental neighbours derive from it, should have taught us its common use long ere this time. We find some prejudice opposed to it; but, if properly conducted, it is by no means unpleasant or indelicate. The leeches may be applied to the fundament by means of a glass formed like an eye-glass, but of larger dimensions; and, after they have laid hold, the patient should sit over a bidet, and by the warm vapour or by ablution promote the discharge of blood. We have found this method more successful than even leeching over the epigastrium, where tenderness of the part is present; and it has this further advantage, that, from the nature of the sanguineous distribution, it directly depletes the whole abdominal viscera.

Pain in the course of the colon is often relieved by friction with a liniment, by suppositories and clysters. Before leeching has been used, the inflammatory state of the bowels is rather increased than relieved by cathartics; and, after it, those only of the mildest nature should be had recourse to.

The subjects of mælena, diarrhœa, &c. which would naturally follow here, must be deferred till our nosological arrangement brings them before us.

When inflammation of the mucous membrane of the lungs is connected with Dyspepsia, we have a very powerful agent in the *hydrocyanic acid*. This remedy has indeed been prescribed with success by Dr. Elliotson for the relief of all dyspeptic symptoms dependent on disturbed nervous power; but we have not introduced it into our list, as we have not been able to collect, from mere general experience, the like favourable testimony of its virtues; and it is so potent a drug, that we would not hazard its occasional deleterious effects, since the correction of the first stage of dyspepsia may generally be accomplished by milder measures. In the removal, however, of bronchitis, this acid must be regarded as an important agent, and one which at the same time perhaps relieves the original source of disease. It is given in the dose of half a minim at first, and this is gradually extended in proportion to the effect observed from it. Of course this complaint requires more strict attention to the purity of air, the regulation of temperature, and the perspiration of the skin, than other forms of the dyspeptic sympathies. It is generally accompanied with hepatic derangement; and on this account is usefully treated by small doses of calomel, persevered in until a healthy bilious discharge is seen in the stools.

The cachectic diseases of indigestion require in general a very remarkable change in the diet of the invalid; nor does it seem that we need in these cases so particularly regard the species of change, since an *alteration* of whatever kind is generally found useful: thus, a meat-diet will produce a cachectic state of blood in some, as a vegetable diet will in others; and a *change* is in either case clearly indicated, both by reason and experience. We shall take up this subject under the head *Dyssthenia*.

The chlorotic indigestion mentioned at p. 139, requires in general a more generous diet and more active exercise; and as, in females, the uterus is often implicated in the disease, steel, aloes, &c. are appropriate remedies.

The connection between urinary gravel and indigestion does not lead to any difference in the usual plan of cure; since, from whatever cause gravel may arise, it will require a peculiar treatment. It is worthy of remark, however, that beer, especially if stale, will cause the deposition of fabulous matter; while spirits, especially alcohol, diminishes this tendency in a remarkable degree. These facts are of course of moment in relieving the symptoms in question.

In the use of all these measures, and in their application to the various forms of dyspeptic derangement, the practitioner should endeavour so to conjoin them, and adopt their use to the idiosyncrasy of his patient's constitution, that he may not materially disturb the balance of power in the various parts of the system; but the use of remedies will seldom avail much, if the primary and fundamental sources of the diseases in question, viz. bad air, improper or excessive quantity of food, and sympathetic irritations, be not removed.

Genus VI. *Colica*, [from *κωλον*, the colon; this part being the chief seat of the disease.] Gripping of the guts.

This genus contains six species. It is characterized by gripping pain in the bowels, chiefly about the navel, with vomiting and costiveness. The causes of the complaint are local irritants, whether undigested aliment, poison, or crude secretions of the upper parts of the alimentary canal. Or it may, and indeed most commonly does, arise from sympathy with a remote part; perhaps

more frequently with the skin. Seven species are enumerated by Dr. Good, and Cullen mentions more; but the proximate cause of all these appears to be the same; viz. spasmodic contractions of the muscular fibres of the intestines.

1. *Colica ileus*, (*Colica spasmodica*, *Cullen*.) Characterized by retraction of the navel, and spasms of the muscles of the belly. It begins with a sense of weight or pain, at the pit of the stomach, attended with loss of appetite, yellowness in the countenance, a slight sickness, and costiveness; the pain gradually increases, becomes fixed about the navel, from whence painful dartings proceed in various directions; wherever pain is felt, foreness and tenderness remain some time afterwards. The sickness increases with the pain; and, at length, a vomiting of bilious matter comes on, the function being of course deranged by the disease of the intestines. The urine is diminished in its usual quantity, and a tenesmus sometimes adds to the distress. While the pain is spasmodic, the pulse remains unaffected, except concurring circumstances produce a change in it. The urine is various. If the smaller intestines are the seat of the pain, it is felt more acutely; if the larger intestines are the parts aggrieved, the sense of pain are more dull and heavy; sometimes there is a bitter taste in the mouth, and a yellowness in the countenance. Sometimes the disorder simulates a fit of the gravel; stones passing through the ureters; rheumatic pains in the muscles of the belly; the blind piles; stones passing through the gall-duct. Gravel in the kidney produces often colic-pains, not easily distinguishable; but, when stones pass through the ureters, the testicle on that side is often retracted, the leg is benumbed, and a pain shoots down the inside of the thigh. Rheumatic pains in the muscles of the belly rarely affect so accurately the umbilical region, but dart, in various directions, to the chest or to the pelvis, and are attended with foreness, not confined to the abdomen. The pain from the blind piles is confined to the rectum; and that from a stone in the gall-duct is felt in the pit of the stomach, occasionally shooting through the body to the back.

When the disorder is purely spasmodic, the mere alleviation of the spasm is sufficiently obvious. Ether, valerian, ammonia, opium, &c. being premised, means are to be put in force for procuring stools. Therefore, either soon after or in conjunction with an opiate, some cathartic medicine should be administered, either by the mouth or in a clyster. If the constipation has been but of short duration, the neutral salts will generally be adequate to the purpose of procuring evacuations; such as the magnesiæ sulphas, for instance, or the sodæ sulphas: both have the advantage of being conveniently repeated at short intervals, in small quantities, until the desired effect is produced; and their action is increased by their union. Castor-oil, a mild and tolerably-certain purgative, is the best medicine we know of. Indeed most painters who are aware of the utility of castor-oil escape the attack of this malady, to which (as well as to the next species) they are very subject, by taking a large dose as soon as they perceive the slightest symptoms of the disease. Where sickness is present, if more active means are required, calomel, combined with jalap and rhubarb, may be employed. Moreover, remedies may be applied immediately to the part affected, by means of clysters. Large quantities of warm water (to the extent of some pounds), injected by a proper syringe, have frequently had the effect of removing the pain and spasmodic stricture of the colon, partly by the soothing effects of the warmth, and partly by mechanical dilatation. Opium may also be administered in the same menstruum, combined with neutral salts, with considerable advantage. These emollient clysters act also powerfully in aid of laxative medicines taken by the mouth, particularly where the latter are impeded in their operation by a collection of indurated fæces; for, while the peristaltic motion of the bowels is roused by the laxatives

laxatives in the upper part of the canal, the obstruction is mechanically loosened, in the lower part, by the clyster. A solution of assafœtida, also, administered in this way, tends both to relieve the pain by its antispasmodic qualities, and also to stimulate the lower bowel to evacuation. But, where there is very obstinate constipation, a clyster of more efficacy is one made of turpentine, properly suspended in water by means of mucilage or the yolk of an egg. In cases where every purgative medicine has failed, and the most powerful clysters have proved ineffectual, the action of the bowels may be excited by throwing cold water on the lower extremities. When inflammation does not seem likely to occur, and powerful cathartics are required, the oil of croton will be found a remedy of great avail.

It is of much importance, however, to distinguish spasm from inflammation of the colon, with which it is sometimes connected, and into which it is likely to run. In fact, this always happens before a fatal termination takes place.

The former is thus distinguished from the latter affection. The symptoms, which imply the spasmodic state, are a soft pulse of natural or of little-increased frequency; the pain intermitting occasionally, or moving from one part to another, and being relieved, or at least not increased, by external pressure, and the occurrence of feculent evacuations, though the latter circumstance is seldom to be relied on. The symptoms, on the contrary, which lead to a suspicion of inflammation, are, unremitting severity of pain, obstinate constipation, tension of the abdomen, and an aggravation of the pain by pressure; a very-frequent small and hard pulse; the skin being hot and dry, or partially moist with clammy sweats; frequent retching, with a dry brown tongue, hiccup; and, above all, pain in the head, or disturbance of the cerebral functions.

Where inflammation is threatened, recourse should be immediately had to the lancet, and a free bleeding from the arm, from a large orifice, should be effected. In plethoric habits, this operation may require to be repeated, if the pain should not remit; and the pulse should remain hard and frequent, and if the blood drawn should exhibit the buffy coat or contraction of the coagululum. Where the symptoms of inflammation are less violent, leeches to the abdomen, the warm bath, fomentations, or a blister, may be applied. In strong habits, indeed, if the pain has been of considerable duration, inflammation is always much to be apprehended; and a moderate venesection may be beneficially employed in anticipating its actual attack. The tobacco-clyster is likewise useful in violent cases; but the dreadful effects this agent is capable of producing should render us very cautious in the use of it. Of course, opium, an excellent remedy in the spasmodic colic, should be entirely proscribed in this.

In the aggravated form of this attack, a symptom arises which gives name to the disease; namely, the stercoraceous vomiting, or *iliac passion*. In it the peristaltic motions of the intestines are totally inverted, and all their contents, even clysters, will be vomited; a circumstance always to be accounted highly dangerous; but, if the passage through the intestines be free, even though their peristaltic motion should be inverted, there is much more hope of a cure than when the belly is obstinately coëive, and there is some fixed obstruction which seems to bid defiance to cathartic remedies.

Introsusception, ulceration, mortification, &c. are the ultimate consequences of the inflammatory process; occurrences for the most part fatal, or at least only deriving assistance from surgical operations.

A very severe kind of colic is produced by the poison of lead. It is our next species; viz.

2. Colica rachialgia, (C. Pisonum, *Cull.*) The colic of Poitou; otherwise called the painter's or Devonshire colic. In this disease the pain is at first dull and remitting; but progressively growing more violent and continued; ex-

tending to the back and arms, and at last producing paralysis. We copy the following more detailed account of its symptoms from the *Encyclopædia Britannica*. "The patient is generally first seized with an acute pain at the pit of the stomach, which extends itself down with gripping pains to the bowels. Soon after there is a distension, as with wind; and frequent retchings to vomit, without bringing up any thing but small quantities of bile and phlegm. An obstinate costiveness follows, yet sometimes attended with a tenesmus, and the bowels seem to the patient as if they were drawn up towards the back; at other times they are drawn into hard lumps, or hard rolls, which are plainly perceptible to the hand on the belly. Sometimes the coats of the intestines seem to be drawn up from the anus, and down from the pylorus, towards the navel. When a stool is procured by artificial means, as clysters, &c. the feces appear in little hard knots like sheep's dung, called *scybala*, and are in small quantity. There is, however, usually an obstinate costiveness; the urine is discharged in small quantity, frequently with pain and much difficulty. The pulse is generally low, though sometimes a little quickened by the violence of the pain; but inflammatory symptoms very seldom occur. The extremities are often cold; and sometimes the violence of the pain causes cold clammy sweats and fainting. The mind is generally much affected, and the spirits are sunk. The disease is often tedious, especially if improperly treated, inasmuch that the patient will continue in this miserable state for twenty or thirty days successively; nay, instances have been known of its continuing for six months. In this case the pains at last become almost intolerable: the patient's breath acquires a strong fetid smell like excrement, from a retention of the feces, and an absorption of the putrid effluvia from them by the lacteals. At last, when the pain in the bowels begins to abate, a pain comes on in the shoulder-joints and adjoining muscles, with an unusual sensation and tingling along the spinal marrow. This soon extends itself from thence to the nerves of the arms and legs, which become weak; and that weakness increases till the extreme parts become paralytic, with a total loss of motion, though a benumbed sensation often remains. Sometimes, by a sudden metastasis, the brain becomes affected, a stupor and delirium come on, and the nervous system is irritated to such a degree as to produce general convulsions, which are frequently followed by death. At other times, the peristaltic motion of the intestines is inverted, and a true iliac passion is produced, which also proves fatal in a short time. Sometimes the paralytic affection of the extremities goes off, and the pain of the bowels returns with its former violence; and, on the cessation of the pain in the intestines, the extremities again become paralytic; and thus the pain and palsy will alternate for a very long time."

The cure of this dreadful disorder is to be effected by removing the spasmodic constriction of the intestinal canal. In this form of colic there appears to be little disposition to inflammatory action; and therefore, wherever colic can be decidedly traced to the operation of lead, we should administer a large dose of opium, and repeat it at short intervals, until the pain (and of course the spasmodic stricture) is relieved. When this effect has been produced, we may proceed to excite the action of the bowels, and procure proper evacuations of feces; after which, the cure is soon completed by tonics and cordials. This practice of first relieving the pain and constriction by opiates, before the bowels are attempted to be forced by purgative medicines, was strongly recommended by Dr. Warren, (*Med. Transact.* vol. ii.) and was also employed by Dr. Darwin, (*Zoonomia*, vol. ii.) As assisting the antispasmodic operation of opiates, the warm-bath, fomentations, &c. should likewise be resorted to.

Of the palsy which succeeds to Colica pisonum there seems to be a tendency in the constitution, especially in recent cases, to recover itself, if the exciting cause is avoided;

avoided; and this may be aided by the local stimulus of warm water, friction, &c. and by mechanical support to the paralyzed hands. Dr. Pemberton has recommended that, for this latter purpose, the patient should have his hands and fingers extended upon a sort of battledore, tied to the fore-arm, which should be worn daily. He affirms that, in several instances, a perfect cure of the paralysis from lead has been effected in the course of a few weeks. (Treatise on Dis. of the abdominal Viscera.)

Some varieties are mentioned as arising from other causes than the poison of lead; but it does not seem that this peculiar form of colic called rachialgia, and attended with paralysis, is produced by any other materia. It has indeed been supposed, from its prevalence in cider-countries, that acid ingesta might produce it; but this occurrence seems to have arisen from the frequent employment of lead in the machinery of cider-making. The reader will find this opinion very clearly proved by consulting Sir George Baker's papers in the Medical Transf. vol. iii. Dr. Hunter, *ibid.* Dr. Fothergill, *Med. Obs. and Enq.* vol. v. Indeed the pain arising from acid ingesta is generally with tenesmus and relaxation rather than with constipation.

Alum has been strongly recommended in rachialgia. The *modus operandi* of this drug seems obscure; but it deserves mentioning from the respectability of those who introduced it. The same thing may be said of the Cupri Sulphas. Salivation, percussion, electricity, &c. may all be used with benefit in this kind of palsy; but they will seldom be successful if, as is generally the case, the attack of colic shall have left behind hindrance of the gastric and intestinal functions. It is in cases when the latter circumstance happens that the Bath water is a useful remedy.

It is obvious that the return of Colica pictonum, and of the palsy which succeeds it, can only be effectually prevented by relinquishing those avocations which necessarily expose the patient to the influence of the poisonous metal which excites the disease; or by refraining from those liquors with which any of its preparations are intermixed. When the business of the patient precludes this, much good may be derived from purgatives whenever constipation has continued for a whole day.

When colics arise from acrid poisonous matter taken into the stomach, the only cure is either to evacuate the poison itself by vomiting, or to swallow some other substance which may decompose it, and thus render it inactive. The most common and dangerous substances of this kind are corrosive mercury and arsenic. The former is easily decomposed by alkaline salts; the latter by magnesia in large quantities. Some kinds of fungi, when swallowed, are apt to produce colics attended with stupor, delirium, and convulsions; and the same sometimes happens from eating a shell-fish known by the name of muscles. The effect of the latter is removed by vomiting. See the article POISON.

3. Colica crapulosa, (*C. accidentalis*, *C. meconialis*, *Cull.*) Colic from indigestion. The pain accompanied with nausea, head-ache, and dizziness, before vomiting, and often terminating in a griping looseness. It is produced by eating indigestible aliments, or digestible aliments in too great abundance. In this species the vomiting or looseness, or both together, frequently operate a cure. When they do not, we may, following the natural indications, excite sickness and purging.

4. Colica flatulenta, wind-colic. In this species, the pain is acute, extending to the pit of the stomach, often impeding respiration; accompanied with great fulness and flatulency; and relieved by pressure, bending the body forward, or expulsion of wind. The disorder is produced by crude and flatulent fruits, and hence common among children. It is, however, more generally a symptom of dyspepsia, and hence the cure is obvious. The paroxysm is to be relieved by antispasmodics and opium; the causes removed if possible, and the bowels kept open.

VOL. XIX. No. 1294.

A similar treatment is requisite in the next species, with this restriction, however, that it is so often connected with general disturbance of the nervous and vascular systems, that opium should be less freely given, and suppurations and clysters used in preference to irritating purges.

5. Colica stipata is characterized by severe pain, obstinate coliciveness, great tension, with little flatulency: the vomiting is sometimes accompanied with fæces; the coliciveness, with bloody strainings: it terminates, where not fatal, in a free dejection of the infarcted matter. Dr. Good gives three varieties.

a. *A viscido meconio*, from viscid meconium. Colica meconialis, *Sauv. Cull.*

6. *A facibus induratis*, from indurated fæces. *C. stercorea*, *Cull.*

7. *Ab enterolitho*, from intestinal concretions. *C. calculosa*, *Cull.* Ileus calculosus, *Sauv.*—The early volumes of the Phil. Transf. contain some very extraordinary cases of this kind. The most singular is in No. 3. p. 68. anno 1681. continued in No. 181. p. 94. anno 1686. by Dr. König, of Bern. The patient, Margaret Lower, a young woman of twenty-five, discharged continually the contents of the intestines, and even the clysters that were injected, by the mouth, and at length a number of stones as hard as flint, some in fragments, some of the size of pease, others of that of filberts. A clashing of stones against each other was felt by pressing the hand upon the abdomen: there was great constipation, severe gripings, dysury; and the urine, when voided, was often loaded with a gravelly matter. The aliment and injections being constantly returned by the mouth, Dr. König desisted for four months from offering her either meat, drink, or medicine of any kind, excepting occasionally a spoonful of oil of almonds. Blood was now and then vomited from the violence of the spasmodic action of the stomach; and frequently urine, to the amount of three or four ounces at a time, of a strong taste and smell. The disease seems to have lasted, with remissions, from January 1678 to February 1683, at which period the history is abruptly dropped, though the patient seems to have been in a state of recovery. It was preceded by the appearance of vesicular eruptions in the skin, and was probably produced by their repulsion. The chemical examination of the calculi is loose and unsatisfactory.

6. Colica callosa. This species of colic differs materially from all the preceding; for here the contraction of the muscular fibres is limited to a small portion of the intestine; and, analogous to what we observe in the urethra and other membranous canals, the repetition of this action often ends in a certain permanently-contracted state of the part affected. In the early stages, however, this seems merely a diminished sphere of contraction acquired by the fibres in question; for they are still capable of dilatation, and no thickening of substance is at first perceptible. This state cannot however continue long; the stricture becomes thickened, and somewhat indurated, and the passage of fæces in a great degree interrupted.

The situation in which we meet with this stricture is more commonly about the termination of the colon, and at the projection of the sacrum, than any other part of the intestinal canal: and, when one stricture is discovered in this situation, there is often another a few inches lower in the gut. This does not, however, uniformly happen, a stricture-being often met with about the termination of the colon, where there is none in the intestine; and the same impediment has been found between three and four inches from the anus, where there has been none higher. But these contractions occur so exclusively in most cases about the sigmoid flexure of the colon, and near its termination in the rectum, that this part should be carefully examined in every case of obstruction.

Although the above parts of the colon are the most obnoxious to strictures, yet it is evident the complaint may take place in any part of it. "I have once seen," says Dr. Baillie, "one of the vulvulæ caniventes much

R r longer

longer than usual, and passing round on the inside of the jejunum like a broad ring. The canal of the gut was necessarily much narrowed at this ring; but no mischief had arisen from it. This malformation, however, might have laid the foundation for future mischief; some substance too large to pass might have rested on the ring, and produced inflammation, ulceration, and untimely death." And, in a case published by Dr. Combe, in the fourth volume of the Transactions of the College of Physicians of London, where there was an uncommon pulsation in the aorta, dissection discovered the lower part of the ilium, as far as the colon, contracted for the space of three feet, to the size of a turkey-quill; the aorta was in a perfectly healthy state.

The symptoms indicating the presence of stricture in the rectum, as chiefly copied from the accurate work of Mr. W. White, are, habitual costiveness; occasional uneasiness, arising from a sense of fulness in the course of the transverse arch of the colon, but more especially towards the termination of its sigmoid flexure, chiefly occasioned from wind meeting with some obstruction downwards. The patient is often sensible of the aggravation of this symptom from a variation in the quality or quantity of his food. Sometimes the fulness may be felt externally, in the course of the sigmoid flexure of the colon. Although this symptom frequently happens to be the first to arrest the patient's attention, and continues some time before any particular local inconvenience is experienced from the passing of the feces, yet this by no means invariably occurs. Besides the sense of fulness just noticed, other sensations are often excited in the course of the colon; viz. acute pain, a sense of pressure when the feces accumulate above the stricture; violent spasmodic contractions in different parts of the intestine, which usually happen after the colon has been exerted by expelling the feces. Sometimes the patient feels as if tightly girded with a cord. It may be proper to notice, that these different sensations are in general aggravated, in proportion as the stricture is seated high up in the rectum. Sooner or later the patient experiences an uneasiness on going to stool, attended with difficulty in voiding the feces. As the disorder advances, the alvine excretions become gradually more scanty, the feces are ejected sometimes flat, at others of a triangular form. They are smaller than natural; and are often discharged with a squirt, sometimes accompanied by a sudden and loud explosion of wind.

The same phenomena are thus concisely described by Dr. R. White in the fourth volume of the Memoirs of the London Medical Society. "When a person somewhat advanced in life is troubled with frequent constipation, complains of fulness and weight in the stomach, with repeated inclination to discharge the contents, and uneasy rumbling in the belly, and distention in the lower part of it, with a sensation of numbness toward the upper part of the sacrum, extending down the rectum; repeated fruitless efforts being also made to pass a stool, attended with a sense of constriction and tenesmus high up in the rectum, and flatus, which seemed to the patient to occupy the intermediate space, bursts forth; clysters failing as well as medicines, and the complaint unattended with fever or pain;—it will be reasonable to expect some mechanical obstruction in the passage."

After an evacuation, a sensation commonly continues for some time, as if the whole of the feces had not been expelled. This by degrees goes off, and the patient feels himself tolerably easy until the next time of going to stool, when a similar sensation recurs.

With regard to the lessened diameter of the feces just noticed, which must necessarily be the case whenever a permanently-contracted state of the gut takes place, there are some exceptions. If the stricture indeed should happen to be so low in the rectum as not to allow room for the accumulation of feces, it must appear evident that they will be found uniform in diameter, in proportion to

the degree of stricture, while they continue to be discharged in a figured state. And also, when the stricture is high up in the rectum, so long as the gut below retains its natural expulsive power, an accumulation will be prevented, and the diminished size of the feces will continue. But, as the disorder increases, the inferior portion of the intestine gradually loses that power; and, when the contraction becomes considerable, a small quantity of feces only passes at a time through the stricture, and, not being sufficient to stimulate the lower part of the rectum, (which in a great measure is deprived of its natural action,) an accumulation goes on from time to time, until at length it becomes difficult to remove; and, on those occasions, feces of a natural size have been sometimes discharged.

Pain of the back, about the sacrum, is a very common attendant on stricture in the rectum, and sometimes a primary symptom; the pain frequently shooting down the thighs, and in some instances to the soles of the feet. Hæmorrhage is also a frequent occurrence, as well as a mucous discharge. Mr. White also has found pain in the back part of the head a usual symptom of this disease.

When the foregoing symptoms lead us to suspect the presence of stricture, manual examination must be had recourse to. Indeed the matter can only be determined by this method. "This ought to be performed in the most careful and attentive manner, seeing there is a possibility of mistaking the complaint either for a diseased prostate gland, or for a scirrhus uteri, especially if the hardness is attached to the cervix uteri, or back part of the vagina. In prosecuting the examination, the first step to be taken (after the bowels have been emptied) is to introduce the finger (oiled) as high up the rectum as possible, at the same time desiring the patient to bear down, as if going to stool. For, if the examination is first made by introducing a bougie, it may happen that the instrument is pushed between the folds of the intestine, particularly if there should be particular laxity of its internal membrane; and the practitioner may be led to suppose there is a stricture, when in reality none exists. If, however, on introducing the finger, neither stricture nor induration can be discovered in the rectum, a bougie, ten or twelve inches in length and pretty thick, must be introduced, and passed as high as the termination of the colon; which will easily be done, if stricture is not likewise present at the lower part of the rectum.

This complaint is liable to be confounded with diarrhoea, dysentery, piles, indeed with almost every chronic disease of the intestines, and, above all, with scirrhus uteri, and scirrhus of the rectum. So much difficulty, indeed, occurs in respect to the former, that Dr. White says, "Symptoms of the contracted rectum in the female are so similar to that of a scirrhus uteri, that I do not know any mark whereby the one disease can be distinguished from the other, excepting that in the latter the urinary bladder is more liable to be affected than in the former; though sometimes pain and difficulty in discharging the urine attend that also."

In distinguishing this case from *Proctica callosa*, or scirrhus of the rectum, we should notice, that, in simple stricture, pain is only experienced on going to stool; while, in a scirrhus state of the rectum, the sufferings are not only greater at these times, but there is also, at other times, great pain about the sacrum, often shooting down the thighs, as well as a sense of burning heat and pain in the rectum. In this last deplorable disease, especially in its advanced stages, the feces passed are generally in a liquid state, so that the disease may be confounded with a chronic dysenteric complaint. In strictures of the rectum, there is little emaciation or loss of strength until the disorder is far advanced; the countenance then becomes fallow; and, in some instances, the pulse is quick, with other hectic symptoms. Moreover, as we before remarked, the simple stricture is higher up than

than the scirrhus, and not generally of so hard and yielding a structure. The clearest diagnosis is derived, however, from the introduction of a canula, as recommended by Mr. Coley of Bridgnorth, in a paper read to the Medico-Chirurgical Society. This gentleman having a patient under his care, whom he was unable to afford relief to by a common bougie, since that instrument invariably bent upon itself, had recourse to a tin canula, for the purpose of giving support to the yielding bougie. The experiment succeeded; and, having occasion some time after to increase the diameter of his canula, Mr. Coley found that, by holding a lighted candle at the end of it, he could readily distinguish the contracted part of the intestine.

In the treatment of this affection, the principal part consists in removing the causes of irritation by diet of the least irritating kind, as jellies, fago, &c. and evacuating the bowels daily by clysters of warm water. When injections cannot be thrown up in the ordinary way, from the contracted state of the passage, a large hollow bougie may be fastened (instead of a common pipe) to a bladder, by which means they may be conveyed beyond the obstruction.

Nervous irritation may be lessened by conium, hyosciamus, &c. and the combination of the blue pill with them is generally required to promote the biliary discharge, which is of course much deranged in cases of long standing. If purgatives are given by the mouth, none of this class should supersede castor oil. It is scarcely necessary to add, that aloetic cathartics tend to increase the complaint. In respect to the regulation of the alvine excretions it is proper to remark, that attention to this part is not only necessary in the constipated state of the bowels, attendant on the early stage of the disease, but also in its more advanced progress, when diarrhoea has supervened, because the evacuations are seldom in sufficient quantity to relieve the bowels, without the aid of laxatives.

The local application of the bougie is the next thing to be considered. This will often produce much irritation and aggravation, unless nervous excitement be removed by emptying the bowels and regulating the diet previous to its use. Before employing this instrument, we should be well assured that scirrhus is not present, as it uniformly aggravates that disease. The bougie should be, at first, of such a size as to pass the stricture without considerable resistance, lest irritation and inflammation be excited. The size should also be increased very gradually till the parts become accustomed to the stimulus. There being always more or less of spasmodic action excited by the bougie, it should be introduced slowly and gently, waiting a little when it touches the stricture, before it is pushed through. At first it should not remain longer than half an hour in the rectum; if there be much irritation, not so long. By degrees it may be allowed to remain eight or ten hours at a time, with little or no inconvenience to the patient. In general, it may be passed daily. From four or five to eight or ten weeks will elapse before the stricture admits a full-sized bougie; even then, the instrument must be gradually left off. It is found that the natural action of the bowels is generally much improved by the application of the bougie. As auxiliaries we may mention the hip-bath, and injections with extract of poppy. The former may be used for a few minutes before employing the bougie; and the anodyne injection after the bougie contributes to lessen the morbid irritability of the part. With respect to the kind of bougie, we should prefer that used by Mr. Coley, though perhaps, this is not a matter of the first importance. Mr. Coley's bougies are composed of lint rolled up, tied at the lower end with string, which forms a loop about three inches long, for the purpose of being secured to a T bandage. They are to be immersed in a composition of lead four parts, and wax one part; and then drawn through a wooden frame, having holes of various diame-

ters. Great advantage, our author observes, will be derived from making the points conical. His manner of applying them differs from the common mode in this, that they are *wholly concealed within the rectum*, as will be presently described; which he considers a great improvement, as it enables the patient to walk about, or even ride on horseback, during the use of them. He advises them to remain in the bowel, if possible, all night; which, he thinks, has the effect of promoting the absorption of diseased structure, by long-continued pressure, as well as of resisting the tendency to contract. At the same time, he observes, that the discharge of the cerate, produced by the heat and moisture of the anus, is avoided; the cerate *not being melted by any portion of the intestine above the sphincter*.

Mr. White mentions a variety of this disease, which arises in consequence of venereal infection. "When the disorder proceeds from this cause, it generally commences with an appearance either of ulceration, or excrescence about the verge of the anus. The sphincter ani becomes gradually contracted; and, the disease extending upwards within the rectum, a considerable thickening and induration of the coats of the intestine take place, which produce great irregularity and contraction in the passage. Sometimes there is a continued line of contraction from the anus, as far as the finger can reach, then terminating in a kind of cartilaginous border, the inner membrane having a thickened and condensed feel. There is often a discharge indicating a diseased, if not ulcerated, state of the inner membrane above the contracted portion of intestine. All the cases which I have hitherto met with of this nature, have occurred in females, and they have uniformly proved incurable, when attended with the structural derangement just described."

The rectum is also liable to contraction from tubercles situated immediately above the sphincter ani, very different from the soft bluish hæmorrhoidal tubercles which often surround the anus. These last protrude when the patient strains; and, when returned within the sphincter, no hardness can be perceived in the gut. It is the reverse with the other tubercles; they do not come below the sphincter, and they have an indurated feel.

The species of contraction noticed as the consequence of venereal infection, Mr. W. has found exasperated by the bougie, even when conjoined with a regular course of mercury. "In the tuberculated state, however, arising from a similar cause, (he says,) the bougie will be found of great service." In scirrhus of the rectum, the bougie would manifestly be improper.

Sometimes stricture is attended by prolapsus ani, fleshy excrescences, or hæmorrhoidal tubercles, which prove a hindrance to the use of the bougie, and require to be previously removed by ligature or the knife. But, in doing this, he must be careful not to include any portion of the prolapsed intestine, which sometimes comes down with the excrescence. The prolapsus ani, however, which occurs as the consequence of stricture in the rectum, is very partial, and unlike the common prolapsus. Whilst the whole of the lower portion of the rectum protrudes from a relaxation of the sphincter, this only occupies one side of the anus, forming a pendulous flap. It is necessary to push this flap gently up with the finger beyond the sphincter, to make way for the bougie to pass, which otherwise would be apt to get entangled in the prolapsed portion of the intestine. The use of the bougie will sometimes overcome this impediment; but, if it should continue after the passage is dilated, and prove troublesome, the pendulous part may be removed with the knife, and the patient freed from future inconvenience.

With regard to the division of the stricture, as practised by Wiseman and others, there can be no doubt of the expediency of the operation in some instances, where the bougie fails, and the stricture is of a cartilaginous hardness. See the article SURGERY.

Genus VII. *Coprostasis*, [from *κοπρος*, dung, and *στασις*, stagnation.] Retention of the Fæces. This genus has only two species.

1. *Coprostasis coacta*, (Obstipatio, *Cull*) Costiveness. This is a complaint to which sedentary persons and non-vivants are much exposed, and which has long and justly been considered a frequent cause of the numerous dyspeptic cases we daily witness. Its obvious cure is the use of cathartics; and for these medicines formulæ abound in every family. The frequent recourse which is had to purgatives tends, however, to impair the functions of the intestines, by rendering the peristaltic powers inactive except under the influence of stimulus; and further, even this stimulus, as is well known, gradually loses its effect by repetition. On this account our therapeutical indications should embrace a wider field of remedial agency. As the muscular fibres are the agents of the peristaltic motion, we should endeavour to strengthen the tone of the muscular system generally, since one part is seldom weak without all participating in the same debility. This purpose is peculiarly to be effected by exercise to such a degree as to strengthen muscular contraction without producing fatigue; by the cold bath, and by medicines which are said to give tone to the muscles. Mr. Howship, in his work on the intestines, says, that bark internally administered for some continuance will bring on the healthy action of the bowels to such a degree that purgatives become unnecessary. The best method of using it seems to be to unite it with a moderate dose of cathartic medicine, and then gradually diminish the dose of the latter, and increase that of the former.

If costiveness continues, however, a clyster of warm water will produce the alvine discharge, and without, of course, stimulating in any inordinate degree the entire secretion, since this measure does nothing more than dissolve the fæces. The use of clysters is becoming more fashionable in this country, and there is every reason to believe, that, if we used them oftener, and applied drastic purges less frequently, the digestive apparatus of most persons would be found in a better condition. It has been recommended by some to endeavour to institute regular stools by voluntary endeavours at regular periods; but we believe this will seldom do good, except when an indolent habit of neglecting the calls of nature has been the cause of the complaint; and, even then, straining should not be long persisted in.

Costiveness seldom occurs in young infants. When it does, it always arises from badness or deficiency of the nurse's milk, or from the food. If one copious evacuation take place every twenty-four hours, and the infant be thriving, there is no occasion for interference; but, if there be any greater torpor of the bowels than this, suitable remedies are to be employed. For this purpose, a brisk laxative may be given every day, for four or five times successively. The best laxatives for infants are manna, calcined magnesia, and cold drawn castor-oil. Where these means fail, and there is reason to attribute the costiveness to the nurse's milk, we must regulate the diet, and open freely the bowels, of the latter. But, if it be found that the milk still possesses that injurious quality, the nurse should, if possible, be changed. Where this cannot be done, four or five drops of antimonial wine may be given to the infant every night at bed-time.

2. *Coprostasis adstricta*. In this species the same general treatment should be regarded. Purgatives of a gentle kind, and gradually lessened as they are found effectual, are the first agents. Diet should be used of a relaxing kind, we mean such as is principally composed of green vegetables. The sympathy which exists between the skin, the mucous lining on one part of the alimentary canal and another, render medicines applied to the stomach and skin of effect on the bowels; so the warm bath, nauseating doses of calomel and antimony, will, if persevered in, sometimes effect a cure. Constipation

often occurs without producing much inconvenience. Some persons are accustomed to have their bowels moved not oftener than twice a-week; and, to such, a week's costiveness is attended with no particular inconvenience. Chaptal mentions the case of a female patient, who, for four months, had no discharge either from the bowels or kidneys, and as little evacuation by sweat, notwithstanding that her diet was confined to milk-whey and broths. And the writer of this article is acquainted with a lady who often passes a week or a fortnight, and on one occasion passed a month, without a faecal evacuation: her urinary discharge is copious, but clear; and no extraordinary degree of perspiration is manifest on her skin. But this is nothing to cases related in old books, as in the early volumes of the Phil. Trans. and of the Journal des Sçavans: from these and such like authorities, Dr. Mason Good has quoted cases of fæces retained for six months—two years—three years—seven years! *Credat Judæus apella!*

Genus VIII. *Dysentery*, [from *δυσ*, bad, and *εντερον*, bowel.] Dysentery. Gripping and tenesmus; frequent mucous and bloody digestions, the fæces seldom discharged, and in small quantities. Bloody flux.

The word *dysentery*, as used by the ancients, had no very precise signification. Originally its import was "an affection of the bowels" in general; and we find Hippocrates using it, not only to signify all ulcerations, but all hæmorrhages, of the intestines (even those which are critical and salutary), and likewise every kind of flux, with or without blood. (*Prorrh. 2. et Epidem. lib. ii.*) It would seem, however, that, after his time, some of the other Greek authors, whose works are lost, were sensible of this want of precision, and therefore restricted the meaning of the word to an ulceration of the bowels, attended with gripes and tenesmus, (or straining,) and with mucous and bloody stools. For a disease with these symptoms Celsus calls *tormina*, and says it is the *dysentery* of the Greeks; and Cælius Aurelianus, retaining the Greek name, describes the dysentery much in the same manner with Celsus. (See Cels. de Med. lib. iv. cap. xv. Cæli. Aurel. de Morb. Chron. lib. iv. cap. vi.) Yet Galen returns to the looser acceptation of the word, sometimes defining a dysentery "an ulceration of the bowels," at other times mentioning four species of that distemper, all with bloody stools; but of which only one agrees with the *tormina* of Celsus, or the dysentery of the moderns. Aretæus confines the term to an ulceration of the bowels; and this notion of the constant ulceration of the bowels, in conjunction with dysenteric symptoms, prevailed in all medical writings until the time of Sydenham and Willis. Dr. Good mentions two species of this disease:

1. *Dysentery simplex*; unaccompanied with fever: the fæces, when discharged, evacuated without considerable pain, of a natural quality, and affording ease.

2. *Dysentery pyretica*, accompanied with fever, great loss of strength, and depression of spirits: the fæces, when discharged, of various colours and consistence; highly fetid, and mixed with putrid sanies, sebaceous matter, or membranous films.

Of the first species of dysentery it is unnecessary to say much; its cure is effected by milder means than the second, though according to the same indications. Nor, important and dire as the second form is, will it require a long discussion, since its nature has been so closely studied, and its method of cure so well established of late by our colonial surgeons, that we have the satisfaction of presenting more general principles as guides on this subject than we are enabled to do with regard to most other diseases.

In speculating on the nature of dysentery, the first thing that requires our consideration is the increased discharge from the bowels: Of the cause of this phenomenon one explanation alone presents itself; viz. a more rapid passage of the secreted fluids through their vessels;

or, in other words, excitement of those vessels. Whether this excitement be deserving of the name of *inflammation* has been disputed. It is, however, a question of no great moment. We shall have occasion to show, when the subject comes before us, that the two above-mentioned states are, as far as regards the mucous membranes, very closely allied; and in the present case, even if inflammation be not the mode of action primarily established, dissection shows that it is almost always unequivocally and extensively present in fatal cases.

It has been objected against considering this disease as inflammation of the bowels, or *enteritis*, that the latter disease is uniformly accompanied with *costiveness* and suppressed secretion. It must be noted, however, that a distinction should be made between inflammation as it affects the exhalant orifices of vessels, and the same action affecting the blood-vessels more extensively. As far as regards the bowels only, it seems very clear that diarrhoea and dysentery are the same disease, since increased and morbid secretion are in each apparent. Dysentery, however, appears to affect a larger extent of the system than the former complaint; and indeed we cannot help coinciding with Dr. J. Johnson in considering that we must look to a series of causes rather than to a proximate one for illustrating the nature of this disease. From the labours of this author and of several of his contemporaries it is made evident, that the skin and liver are the parts primarily affected in dysentery. The disease happens for the most part in warm climates, where of course these organs are subjected, as is well known, to the influence of debilitating agents. It happens too, most commonly, when wet or damp weather supervenes to that which was airy and warm. That such change of temperature should produce this disease in some cases, while enteritis or other maladies are caused by the same agent at other times, can only be accounted for on the assumption of predilection to disease. Thus we should be inclined to think, *a priori*, that hepatitis, cholera, and dysentery, might be brought on by the same causes, according to the debility which the habits or constitution of the individual affected might produce in a particular part of the system: and this accords with the experience of the best practitioners. In fact a little consideration shows us, that this opinion may be pushed much further. In cold climates the lungs are the organs which undergo the greatest degree of stimulation from the atmosphere; and hence, if the cutaneous perspiration be checked, we find a vicarious discharge take place on the bronchial membrane, and pneumonia and phthisis become common. So, the liver being the part most called on for exertion in warmer climates, and the whole of the digestive powers being weakened in the same ratio, we find, in these situations, that the hindrance of the cutaneous discharge causes larger afflux of fluids to the abdominal viscera, and a consequent disturbance of function.

Stimulating and indigestible diet, which is often used by the European in tropical climates, has been mentioned as another cause of the prevalence of dysentery; and Mr. Bampfield (*Practical Treatise on Dysentery*) is of opinion, that the peculiarities of clothing may be looked to as another cause. He says, "The copious perspiration of the newly-arrived European becomes accumulated, when he is sitting or walking, on the lower part of the shirt, more especially about that part of the abdomen where the waistband of the small-clothes or pantaloons presses against it, the tight or close application of which occasions an increase of heat and of perspiration at this particular part during the day, and intercepts the exhalation as it flows down the body; hence, if he should lie down in this state, cold will be induced on a particular part of the abdomen, by the evaporation of the exhaled fluid from the wet linen in contact with it; perspiration, before profuse, will be now effectually suppressed, and its injurious consequences be felt by the chylopoietic viscera."

It is a proposition almost proved; then, that the skin

is first affected in dysentery, and that a vicarious discharge of mucus takes place from the bowels. The stoppage of the perspiration induces moreover a general plethora of the abdominal viscera; and, as the liver commonly participates in the inaction of the vessels of the surface, this important gland, and probably other glands, fail to unload this plethora by secretion; so that not only is a great discharge thrown on the bowels, but, the latter organs being insufficient for its removal, a generally plethoric and febrile state is established. The irritation made on the nerves of the bowels by the morbid secretions induces irregular and violent contractions of the muscular fibres; and hence we explain the occurrence of pain, tenesmus, and retention of fæces, as well as of those permanent strictures which are sometimes found in these parts on dissection.

The first notice of this disease is generally a sensation of chilliness and slight rigour; to this succeed anorexia and uneasiness in the bowels; in a few hours this is followed by griping and purging, attended with tenesmus, during which mucus only is evacuated; at the same time febrile symptoms make their appearance; the skin becomes hot and dry; and restlessness, and sometimes delirium, occur; an indescribable languor soon after this pervades the muscular system, blood is poured forth (when from the rectum in streaks, when from the higher parts of the bowels perfectly mixed) with mucus. Severe pain and incessant purging attend the motions, emitting little odour, and often containing membraniform lymph. If the complaint continues uninfluenced by medicine, or receives no relief from the exhaustion of the vessels by their spontaneous action, death occurs with the usual symptoms of high inflammation and mortification. Or, if the disease does not arrive at this termination, a chronic state of the disease is induced, which, lasting for a longer or shorter time, ends in simple diarrhoea, in ulceration of the villous coats, in permanent contractions, or more favourably and less frequently in recovery.

The degree of violence with which the sanguineous and nervous systems are affected is various. Sometimes the pulse is little altered; and in this case we seldom find much blood in the stools, but merely mucus and serum, and those in small quantities. A pain in the abdomen is felt just before each evacuation, and at that period only. From this state we find every grade of fever, and increase of the other symptoms in proportion, until we arrive at a variety in which the pulse is accelerated to an amazing height, and delirium manifest; in which there is a constant fixed acute pain of some part of the abdomen or intestinal canal, including the parts contained in the pelvis; obstinate retention of fæces, but very frequent and copious dejections of mucus, serum, or blood, or a mixture of these, together with severe tormina and tenesmus. The blood drawn and concreted exhibits the inflammatory buff. Sometimes the fever is of the intermittent or remittent kind.

The cure of dysentery is founded on the following indications: viz. to remove the violence of morbid action, left inflammation, and its fatal consequences, should come on; to restore the balance of the circulation; and, lastly, to correct the altered state of the secreting vessels of the intestines, and allay the contraction of the muscular coats of the same structures. The first is, of course, done by bleeding. Sydenham used this measure, though not to any important extent; and it was not till after the late war on the peninsula that its use became general.

As to the extent which bleeding should be carried to in dysentery, no general rules can be given, since this must be regulated rather by its effects on the pulse than by quantity; and in fact it sometimes happens that so little fever attends, that bleeding is unnecessary. In violent cases bleeding ad deliquium should be had recourse to, since, as in all other complaints characterized by increased vascular action, the suddenness with which we abstract blood is of great importance.

As the fæces are retained notwithstanding the urgency for

for evacuation, purgatives may be administered. They are admissible only with much restriction. Castor oil seems the only purgative which can be prescribed with safety, since most others in common use irritate the nervous expansion of the bowels, and in even the morbid contractions. This oil is said indeed to sheathe the nerves, by its lubricity, from the irritating secretions, while it produces natural and general secretion. Clysters have been recommended; but the stimulus of distention is of all other stimuli the most irritating to the diseased intestine. Moreover they do not reach to those points where the establishment of secretion would be a desirable matter; and consequently little good can be expected from them.

It has been urged by Dr. J. Johnson, that we should not be obedient to every call of nature, the straining which ensues being highly detrimental, and augmenting, in many cases, the discharge of blood. Every motion of the body indeed, increases the desire to evacuate. As little or nothing, except mucus and blood, comes away in four efforts out of five, we should therefore endeavour to stifle the inclination to stool; and we shall often succeed; for the tormina go off in a few minutes, and by those means we elude not only the straining, but the painful tenesmus which continues so long after every fruitless attempt at evacuation. This circumstance, though apparently of a trifling nature, Dr. J. thinks of considerable importance, though it has seldom been attended to. It has the sanction of antiquity, however, as may be seen in the following precept of Celsus: "Et cum in omni fluore ventris, tum in hoc precipue necessarium est, non quoties libet desiderare, sed quoties necesse est; ut hæc ipsa mora in consuetudinem ferendi oneris intestina deducat."

Diaphoretics are of course to be used, and the secretions of the skin encouraged by the warm bath; but this is by no means an easy task, since, independently of the uncertain operation of these remedies, the perspiration is liable to frequent checks on account of the patient's frequently rising from bed to evacuate his bowels. The painful contractions of the bowels are best allayed by opium. A small pill may be introduced into the rectum; or it may be given in the form of the pulv. ipecac. comp. in which combination its effects are also beneficially exerted on the skin.

The action of the secreting vessels is altered by mercurial medicines; calomel in large and frequently-repeated doses being indeed our principal dependence in this complaint. The modus operandi of this medicine is by no means generally understood. Those who have used it most successfully assert indeed, that it corrects the condition of the liver by emulging its ducts, unloading its congested or over-gorged vessels, removing undue determinations of blood to its yielding texture, prompting the healthy secretion of its peculiar fluid, and thereby resolves pyrexia. But all this is of course gratuitous assumption. The medicine may certainly stimulate the liver; but it is too much to assert that by so doing it cures dysentery, since it is seldom successful till ptyalism is produced; and every one knows that the secretions of the liver may be corrected by mercury in very small doses. Mercury is said to equalize the circulation; but this appears an illogical proposition. If the assertors of this imply that it produces *general secretion*, and thus brings into action torpid secretants; it is a truism which cannot be questioned; but to speak of equalising circulation in any other manner implies that calomel affects morbid structures in one mode, and healthy ones in another; a notion which does not seem to have the least probability on its side. However this may be, mercury is the only medicine to be trusted to in dysentery: and it must be pushed to such an extent as to induce salivation. It may be given from doses of a few grains to that of one scruple three times a-day; and it is assisted by other medicines in conjunction: thus opium, ipecacuanha, and calomel, answer the desired end with less uncertainty than the separate exhibition of any single one.

The diet of the dysenteric patient should be very spa-

ring, and should consist of the least irritating substances, the various preparations of the farinacea, as sago, arrow-root, rice, &c. are alone admissible; but the less food of any kind that is taken in the beginning of the disease, the better. In chronic dysentery, where our principal effort must be directed to keeping the biliary secretion by gentle doses of calomel, and inducing regular action of the skin by diaphoretics, by flannels next the skin, and as much as possible by regulated temperature; the diet should consist of the same kind of substances as in the acute stage; and it is sometimes advisable to use astringents, as the kino, &c. A dish is recommended by Dr. J. Johnson, which he says the patients relish much: it consists of flour and milk boiled together, and rendered palatable with sugar and spice.

When the disorder is pretty well removed, gentle stimulation by the bitters and the mineral acids, particularly the nitric, must be had recourse to. At the same time we must guard against suffering the patient to indulge in too much food; for after this complaint the appetite is often greater than the powers of digestion, and its indulgence is sometimes followed by a relapse into the original disease, or other diseases, equally distressing and dangerous, are brought on.

The question concerning the *contagion* of dysentery will be discussed when we speak of the subject at full under the order PYRECTICA of this arrangement.

Genus IX. *Diarrhœa*, [from *ῥέω*, to flow.] Flux, or Looseness. Generic characters—Alvine evacuations crude, loose, and too frequent: with little or no griping or tenesmus. There are six species.

1. *Diarrhœa fusa*. Fæces of common quality, but immoderately loose and copious.
2. *Diarrhœa biliosa*. Fæces loose, copious, and peculiarly yellow.
3. *Diarrhœa mucosa*. Dejections consisting of, or containing, a copious discharge of mucus. This is ascribed by Cullen to acrid ingesta, or taking cold, particularly in the feet. When produced by cold, it forms the *Catarrhus intestinorum* of various authors: the motions are acrid, often with but little bilious tinge, and the lower part of the rectum is excoriated, like the nostrils in a coryza.
4. *Diarrhœa chylosa*. The dejections milky or chylic form.
5. *Diarrhœa lenteria*. The dejections consisting of the aliment passed rapidly and with little change.
6. *Diarrhœa serosa*, the watery looseness, in which the dejections are almost entirely liquid. It is frequently metastatic, and still oftener produced by elaterium, or other drastic purgatives. Sometimes urinous, occasionally tinged with blood.

Diarrhœa is a leading and characteristic symptom in many disorders, both acute and chronic, general and local. This genus is to be distinguished from the foregoing by being generally without fever, and by the alvine evacuations consisting of the natural *fæculent* matter, though in a more liquid state; and by the absence of *tenesmus*, or violent bearing down, which attends dysentery. There is also in the latter disorder more severe griping than in *Diarrhœa*: but this occasionally occurs in the *Diarrhœa*, and therefore is not a decisive distinction. There is, however, as we said before, a mutual alliance between the two diseases, which occasionally pass into each other; a *diarrhœa*, if neglected or improperly treated, sometimes being converted into dysentery; and a dysentery, when its worst symptoms have been subdued, sometimes leaving a *diarrhœa* behind.

The essential part of this disease, in all the species we have enumerated, consists in a preternatural increase of the peristaltic motion, and of the secretions, in the whole or a great part of the intestinal canal; and the predisposing cause of the disease is a peculiar irritability of the intestines, and of the secreting vessels which open upon their internal surface.

The several exciting causes of diarrhoea may be referred to two different classes. The first comprises disorders of certain parts of the body, which, either from a sympathy of the intestines with these parts, or from their connection with the system at large, occasion an increased action of the intestines, without the transference of any stimulant matter from the primary diseased part to them. Thus, the general sympathy of the intestines is often manifested in persons under the influence of certain passions of the mind, as anger, fear, and some others, which occasionally excite a diarrhoea. And among the diseases of other parts of the body, which affect the intestines, the irritation of dentition, in infants, may be mentioned as a familiar illustration, as it is seldom difficult and painful without occasioning diarrhoea. The sympathy between the skin and the bowels is particularly great in many individuals, so that a chill, or the application of cold and moisture, especially to the feet, will generally excite a diarrhoea: and the same sympathy is shown in others by the occurrence of diarrhoea from the suppression of cutaneous eruptions, or the stopping of profuse or habitual discharges from fores, &c.

The second class of occasional causes of the increased action of the intestines, consists of the stimuli which are applied directly to the intestines themselves: and these are of various kinds. They may be substances introduced by the mouth, as indigestible aliment, purges, &c. or poured into the intestines by the several excretories opening into them, as the secretions of the liver, &c.

Diarrhoea, when it occurs in fevers, is often a very unmanageable and dangerous symptom. After the measles it is often salutary; but in many instances it has proved more fatal than the disease itself, as is said to have been the case in the fatal epidemic measles in the island of St. Helena in the year 1807. Diarrhoea is one of the most common disorders attendant on difficult dentition in children: in fact, almost every irritation which excites feverishness in young children, is apt to occasion it. It is likewise a symptom of the presence of worms in the intestines. In the last stage of pulmonary consumption, a colliquative diarrhoea, which is liable to alternate with the colliquative sweats, is an almost universal occurrence.

The leading indications of the cure of diarrhoea will turn upon one or other of the following circumstances. Whether it appear to arise from, 1. a morbid irritability of the intestines; 2. a preternatural stimulus applied to them; or, 3. a combination of these two. The first indication will require the irritability to be allayed; the second, that the offending matter be expelled, or its acrimony corrected; and the third will demand a mixed plan, consisting of the other two, either jointly or alternately, together with an attention to the state of other functions and organs, which may affect that of the *primæ viæ*.

The means adapted to fulfil the *first* indication, or to allay the morbid irritability of the intestines, will consist in the administration of opiates. In most of the forms of diarrhoea, small doses of rhubarb are a good astringent. In the cases of *D. mucosa* or *D. lienteria*, especially when it has arisen from acrid purgation, constituting a hypercatharsis, and in all instances of colliquative diarrhoea, the administration of opiates is particularly requisite. The vicarious discharge must be solicited to the skin by warm bathing and sudorifics; and, if disorganization is threatened, the use of calomel, as in dysentery, must be resorted to.

The means adapted to fulfil the *second* indication, of removing a preternatural stimulus from the intestines, consist in the administration of evacnants, or correctors of acrimony. Hence the use of emetics, of purgatives, of clysters, with the one view; and of mucilaginous diluents, alkalies, and absorbents, with the other.

The acrimony, which excites diarrhoea, especially in children, is most commonly of an acid nature, and is generated in the stomach during the imperfect digestion of

the food. Alkaline and absorbent medicines tend to neutralize it, and therefore to remove the irritation of this acrimonious cause of diarrhoea. Cordials and stimulants also are useful auxiliaries in removing such a diarrhoea.

When the *third* indication occurs; when there is, at the same time, a morbid irritability of the intestines, and an unusual stimulus applied to them, the latter must be removed or corrected, where that is practicable, by evacnants or other means, and the irritability moderated. Absorbents, such as preparations of chalk, testaceous powders, lime-water taken with milk, &c. will tend to correct any acid acrimony that may be formed in the canal; while gentle laxatives may be combined with them, such as rhubarb. These are principally indicated in cases of chronic diarrhoea, and in debilitated habits. A determination of the fluids to the skin, by diaphoretics, by warm-bathing, by restoring suppressed discharges, or substituting such as may be equivalent, by warm clothing, friction, and the exercise of gestation, will aid in fulfilling this indication; especially in cases where the occurrence of diarrhoea is obviously connected with the application of cold, the suppression of cutaneous excretions, or with a generally debilitated habit. This purpose is also more effectually accomplished, when a course of suitable diet is pursued at the same time; especially the use of milk, rice, the amylaceous parts of vegetables, such as arrow-root, tapioca, sago, &c. with animal broths and jellies. Dr. Heberden recommends the combination of spices with the vegetable mucilages, as the nutmeg, cinnamon, &c. or the combination of cretaceous medicines with spices and opiates. He also advises the use of a spoonful of mutton suet, dissolved in four ounces of warm milk, twice a-day, both as medicine and nutriment to a patient under chronic diarrhoea.

Dr. Good mentions a case of *D. serosa*, which occurred to himself in 1806. The patient was a young woman, aged twenty-four; the disorder had continued for ten years, and had never produced fewer than nine or ten watery stools a-day, sometimes tinged with blood. She was often in great spasmodic pain in the stomach or intestines; and had tried a long list of astringents, anodynes, and other medicines, to little purpose. She was much reduced; and it appeared to be a case of great local irritation from local debility. Gentle stimulants were here of essential service; and the disease gradually yielded to camphor mixture and pills of the resinous gums.

Diarrhoea is a common complaint among infants. The natural appearance of the stools is altered from the bright orange colour, pulpy and curdled consistence, and inoffensive smell; and they become green, slimy, and at the same time emit a sour smell, which arises from the prevalence of acidity in the first passages. The complaint is not often dangerous; it generally yields to a laxative composed of a little magnesia and rhubarb. But the nurse's food should be regulated; and the infant ought to have no other food, in addition to the milk, than arrow-root.

This complaint generally arises from exposure to cold, or from some irritation or accumulation in the bowels. The linen and stools are streaked with blood; and there is violent pain, or symptoms of fever. Where slimy stools are of the colour of clay, and emit a putrid smell, the infant soon becomes emaciated; and the disease often terminates fatally, though its progress be slow.

As the disorder proceeds, very unfavourable symptoms occur, such as emaciation and dryness of the skin, swelling or shrinking of the belly, with an altered appearance of the countenance; and there is a constant fretting or peevishness of temper. Swellings of the glands of the groin, and a little uneasiness of breathing, as if there were a slight tendency to cough, are also very unfavourable symptoms. In many of these cases the purging is the effect of a diseased state of some of the digestive organs, or of the mesenteric glands; but in others it arises from an irregular action of the former organs. The

continued

continued use of alterative medicines, which maintain a steady but gentle action upon the alimentary canal, and the adjoining viscera, seems to be the most successful treatment. At the same time we must correct and modify their operation according to circumstances, and palliate urgent symptoms. The occasional use of injections of thin starch and laudanum, in the proportion of eight or ten drops of the latter to two table-spoonfuls of the former, may likewise be employed.

A severe and often fatal species of diarrhoea is known in Scotland by the name of the "weaning brash." It occurs after weaning a child too suddenly, especially at an unfavourable season, as the autumn. It commences sometimes two or three days after weaning, but frequently not for three or four weeks, with a purging and griping, and green stools. If this be neglected, the symptoms increase, retching and vomiting supervene, followed by a loathing of every kind of food, emaciation and softness of the flesh, restlessness, thirst, and fever of a hectic character. But the most characteristic symptom of this disease is a constant peevishness, the effect of unceasing griping pain, expressed by the whine of the child, but especially by the fretted discontent of its features. In the progress of the disease, the evacuations from the belly show very different actions of the intestines, and great changes in the biliary secretion; for they are sometimes of a natural colour, at other times slimy and ash-coloured, and sometimes lienteric. The disease seldom proves fatal before the sixth or seventh week; but sometimes an earlier termination is suddenly produced by incessant vomiting and purging, or by convulsions, from the extreme irritation in the bowels.

On dissection, the intestinal canal, from the stomach downward, is found abounding with singular contractions, and has in its course one or more intus-susceptions; the liver is firm, larger than natural, and of a bright-red colour; and the gall-bladder, which is enlarged, contains a dark-green bile. In some cases the mesenteric glands have been found swelled and inflamed; in others, however, scarcely enlarged, and having no appearance of inflammation. It is probable, therefore, that this disease is owing to the morbid state of the liver, and that the extremely irritable state of the whole abdominal viscera, marked by the spasmodic contractions and intus-susceptions, &c. is occasioned by sympathetic irritation.

The diet should consist of eggs, the finer kind of light ship-biscuit, or arrow-root, cultured, the juice of lean meat, plain animal jellies, broths freed from their oily part, and milk. The breast-milk might perhaps be restored with advantage. Vegetables of all sorts, particularly fruits, acids, and compositions of which sugar or butter form a part, and fermented liquors of every kind, should be strictly prohibited. The feet should be kept warm by woollen stockings, and flannel worn next the skin; and the warm bath and fomentations may be frequently used to alleviate the continual spasms. Small doses of calomel are however the most effectual remedy against the weaning brash, as against other chronic forms of bilious diarrhoea. We may generally give half a grain of calomel morning and evening, or a grain every night, for a week or ten days. After the third or fourth dose, there is generally a great change in the colour of the alvine discharge; it becomes of a dark mahogany-colour, and is in general more offensive. When this change takes place, it produces a favourable change in the disorder. Soon afterwards, the children become free from fever, more placid; and in a day or two more their appetite returns, with their former complexion, and every other demonstration of health.

Connected with diarrhoea, we have to notice a complaint of the bowels clearly described of late by Dr. Powell. Like the foregoing, it consists in a diseased secretion from the mucous lining of the alimentary canal; the matter evacuated being of a substantial form, and consisting of layers of coagulable lymph moulded into the form of the intestinal cavities. The same matter is

often formed towards the termination of dysentery, and Villermé (*Dict. des Sciences Médicales*) says, "I have had occasion to see great quantities of these adventitious membranes passed by stool, in the colic of Madrid. They were generally of a gelatinous consistence, and enveloped in mucus. One of these exhibited an exact mould of the intestine, being tubular, and some inches in length." In this case it is easily referred to throwing out of lymph, a consequence of inflammation. In the complaint in question, it does however follow inflammatory action. Indeed we meet with the same membranous substances in sedentary persons, especially females, who have languid and imperfect digestion, with a torpid state of the biliary and intestinal secretions. Here gelatinous concretions would appear to take place on the internal surface of the intestines, and even the hepatic ducts themselves, from mere remora of the fluids and want of energy in the secretory glands and organs. Sometimes these flakes are considerable; and, when developed in water, represent entire tubes broken off irregularly at the ends; which has led to the erroneous opinion that they were portions of the mucous membrane of the intestines.

The symptoms of this disease resemble very closely those which attend the passing of gall-stones; so much so, indeed, that Dr. Powell says, "Whenever violent pain takes place in the epigastric region of the abdomen, exacerbating in paroxysms accompanied by sickness, yellowness of the eyes and skin, and urine, by clay-coloured faeces, and without any proportionate increase of action in the circulation, biliary concretions are supposed to be forcing through the ducts; and, when these symptoms abate, it is inferred that their passage into the duodenum has been effected." In the case of biliary concretions, however, we naturally expect a repetition of attacks, and no very speedy termination of the patient's sufferings: on the contrary, the sort of attack here described is more insulated, and, when once it has passed, its recurrence is by no means equally to be dreaded as is that of the former.

In establishing his diagnosis more particularly, however, Dr. Powell directs the usual large pan to be filled with water, and the faeces to be stirred in it, after which the water has been left to rest long enough to ascertain whether the concretions, as they often do, have risen to the surface. This water he pours off; and repeated similar affusions are made, time being allowed for subsidence between each. The residue is then to be examined. This residue, in the cases to which the author refers, "has exhibited a large quantity of flakes, mostly turned into irregular shapes, and appearing to have formed parts of an extensive adventitious membrane of no great tenacity or firmness." In the first case that came under Dr. Powell's notice, this membrane was passed in perfect tubes, "some of them full half a yard in length, and certainly sufficient in quantity to have lined the whole intestinal canal." In the others also, the aggregate quantity has been very large, and continued to come away for many days, in irregular thin flakes, of but one or two inches in extent, and not perfectly tubular. Dr. P. has definitely examined four such cases, in all of which the leading symptoms led him to suspect the passage of biliary concretions at the time. They were all adult females. In but one of these our author had been consulted for *previous* ill health. "She had frequently suffered from occasional pain in the intestines, and derangement of her powers of digestion, with flatulence and a sense of suffocation. She was always relieved, at the time, by mild opening medicine, and believed herself able to prevent the attacks of pain from increasing to any serious degree of violence, by repeating it according to circumstances. A similar history of liability to frequent recurrence of pain, accompanied by indigestion, was related to me in the other instances. The more violent seizures under which I saw all the patients, consisted in a sudden and excessive pain in the epigastric region, increasing in paroxysms very frequently,

quently, rather relieved by pressure of the patient herself at the time, but leaving great foreness and tenderness during the intervals. This state continued under four days; during it the stomach was very irritable, and the tongue coated and clammy. Jaundice came on at an early period; and the stools were white, brown, or somewhat greenish, and streaked in colours, until the films began to pass, when they were mixed with a full sufficiency of bile, but not at first of a healthy colour. The pulse throughout was calm, moderate, and natural, in none of the instances amounting to 90." There was no indication of inflammation. In one instance Dr. Powell noticed a considerable hardness and contraction of the abdominal muscles; in another case there was superadded to the above symptoms a difficulty in passing the urine, with pain in the region of the bladder, requiring the use of the catheter.

The practice which appeared to Dr. P. most advantageous, was the steady use of a mixture of the infusum gentianæ compositum and infusum sennæ, with the addition of from ℥x. to ℥xx. of liquor potassæ, repeated so as to produce four or more stools in the twenty-four hours. Under its use the flakes first separated, and continued to do so in great abundance; the jaundice disappeared, and the patients recovered health and strength. During the paroxysms, the warm bath, warm fomentations, leeches, and blisters, are serviceable as external remedies; and internally, we should attempt to allay the pain and irritation, first by pretty large doses of opium and hyosciamus, and then acting on the bowels pretty briskly by compound extract of colocynth, calomel, and hyosciamus, aided by purgative enemata to solicit the peristaltic action. The recurrence of these distressing attacks can only be prevented by regulating the state of the bowels, and by correcting the depraved secretions themselves. This is to be done by strict regimen, great attention to the functions of the skin, and by such remedies as act on the biliary secretion. In conjunction with those measures, a steady perseverance in the use of the nitromuriatic acid bath has been used in obstinate cases with success.

Genus X. *Cholera*; [supposed by Celsus to be derived from *χολη*, bile, and *ῥεω*, to flow, (literary *bile-flux*;) but Trallian traces it from *χολακ*, an intestine, and *ῥεω*, (literally *bowel-flux*;) a derivation which agrees better with the phenomena of the disease.] Purging and Vomiting; wind and cramp in the stomach and bowels.

The cause of cholera is, as we have before hinted, referrible, in common with dysentery, to a disturbed state of circulation, induced in the first instance by inaction and constriction of the vessels of the skin, and thereby communicating a plethoric state to the abdominal viscera. In cholera, however, the disease affects more severely the liver and superior part of the alimentary canal, and the lower bowels seem influenced but in a minor degree. In mild cases, the plethoric state of the liver unloads by secretion, and the bile is evacuated by vomiting and purging. In cases of extreme violence, however, no such effect takes place; and hence the old authors seem to have fallen into a great error in attributing cholera to increased secretion of bile: for, as the colonial practitioners have well shown, a copious flow of this secretion is rather to be considered as salutary or critical than indicative of the disease in question. We have three species of this genus.

1. *Cholera vulgaris*, or *Cholera morbus*. Specific character—Vomiting and purging frequent and copious. The following excellent description of this disease is copied from Sydenham. He says, "Malum ipsum facile cognoscitur, adfunt enim vomitus enormes, ac pravorum humorum cum maxima difficultate et angustia per alvum dejectio; cardialgia, sitis. Pulsus celer ac frequens, cum æstu et anxietate, non raro etiam parvus et inæqualis, insuper et nausea molestissima, sudor interdum diaphoreticus, crurum et brachiorum contractura, animi deli-

quium, partium extremarum frigiditas, cum aliis notæ symptomatibus, quæ adstantes magnopere perterrefaciunt, atque etiam angusto viginti quatuor horarum spatio ægrum interimant." The practitioners who followed Sydenham described the disease as attended from the first by *bilious* vomiting; but later writers deny this. And that close observer of nature, Aretæus, says, "In primis quæ evomuntur, aqua similia sunt; quæ anus effundit, fæcorea, liquida, tetrique odoris sentiuntur. Siquidem longa cruditas id malum excitavit, quo si per clysterem eluanter, primo pituitosa, nov biliosa feruntur."

2. *Cholera flatulenta*, windy or dry cholera. The vomiting and purging rare or absent; great and oppressive flatulence; retching; flatulent dejections and eructations. Sydenham says, that in the epidemic cholera of 1659 he met with but a single instance of the dry or flatulent species. It seems, indeed, a disease of rare occurrence, and the discriminating symptom, *flatulence*, is probably owing to the nature of the swallowed food.

3. *Cholera spasmodica*, Indian cholera; emphatically called "mort de chien." The dejections watery; ineffectual retching; spasms successive and violent, commencing in the thoracic and abdominal muscles. We copy the ample account of the symptoms of this dreadful malady from the authentic Reports on the Epidemic Cholera which raged throughout Hindostan and the peninsula of India, in 1817, 18, and 19; published under the authority of the Bombay government.

"The attack was generally ushered in by a sense of weakness, trembling, giddiness, nausea, violent retching, vomiting, and purging, of a watery, starchy, whey-coloured or greenish, fluid. These symptoms were accompanied or quickly followed by severe cramps, generally beginning in the fingers and toes, and thence extending to the wrists and fore-arms, calves of the legs, thighs, abdomen, and lower part of the thorax. These were soon succeeded by pain, constriction, and oppression of stomach and pericardium; great sense of internal heat; inordinate thirst, and incessant calls for cold water, which was no sooner swallowed than rejected, together with a quantity of phlegm, or whitish fluid, like seethings of oatmeal. The action of the heart and arteries now nearly ceased; the pulse either became altogether imperceptible at the wrists and temples, or so weak as to give to the finger only an indistinct feeling of fluttering. The respiration was laborious and hurried, sometimes with long and frequently-broken inspirations. The skin grew cold, clammy, covered with large drops of sweat; dank and disagreeable to the feel, and discoloured of a bluish, purple, or livid, hue. There was great and sudden prostration of strength, anguish, and agitation. The countenance became collapsed; the eyes suffused, fixed and glassy, or heavy and dull; sunk in their sockets, and surrounded by dark circles; the cheeks and lips livid and bloodless; and the whole surface of the body nearly devoid of feeling. In feeble habits, where the attack was exceedingly violent, and unresisted by medicine, the scene was soon closed. The circulation and animal heat never returned; the vomiting and purging continued, with thirst and restlessness; the patient became delirious or insensible, with his eyes fixed in a vacant stare, and sunk down in the bed; the spasms increased, generally within four or five hours.

"The disease, sometimes at once, and as if it were momentarily, seized persons in perfect health; at other times, those who had been debilitated by previous bodily ailment; and individuals in the latter predicament generally sunk under the attack. Sometimes the stomach and bowels were disordered for some days before the attack, which would then, in a moment, come on in full force, and speedily reduce the patients to extremities.

"Such was the general appearance of the disease where it cut off the patient in its earlier stages. The primary symptoms, however, in many cases, admitted of considerable variety. Sometimes the sickness and looseness were

preceded by spasms; sometimes the patient sunk at once, after passing off a small quantity of colourless fluid, by vomiting and stool. The matter vomited in the early stages was, in most cases, colourless or milky; sometimes it was green. In like manner, the dejections were usually watery and muddy; sometimes red and bloody; and, in a few cases, they consisted of a greenish pulp, like half-digested vegetables. In no instance was feculent matter passed in the commencement of the disease. The cramps usually began in the extremities, and thence gradually crept to the trunk; sometimes they were simultaneous in both; and sometimes the order of succession was reversed; the abdomen being first affected, and then the hands and feet. These spasms hardly amounted to general convulsion. They seemed rather affections of individual muscles, and of particular sets of fibres of those muscles, causing thrilling and quivering in the affected parts, like the flesh of crimped salmon; and firmly stiffening and contorting the toes and fingers. The patient always complained of pain across the belly, which was generally painful to the touch, and sometimes hard and drawn back towards the spine. The burning sensation in the stomach and bowels was always present; and at times extended along the cardia and œsophagus to the throat. The powers of voluntary motion were, in every instance, impaired; and the mind obscured. The patient staggered like a drunken man, or fell down like a helpless child. Head-ach over one or both eyes sometimes, but rarely, occurred. The pulse, when to be felt, was generally regular, and extremely feeble, sometimes soft; not very quick; usually ranging from 80 to 100. In a few instances, it rose to 140 or 150 shortly before death. Then it was indistinct, small, feeble, and irregular. Sometimes very rapid, then slow for one or two beats. The mouth was hot and dry; the tongue parched, and deeply furred, white, yellow, red, or brown. The urine at first generally limpid, and freely passed; sometimes scanty, with such difficulty as almost to amount to strangury; and sometimes hardly secreted in any quantity, as if the kidneys had ceased to perform their office. In a few cases, the hands were tremulous; in others, the patient declared himself free from pain and uneasiness, when want of pulse, cold skin, and anxiety of features, portended speedy death. The cramp was invariably increased upon moving.

“Where the strength of the patient’s constitution, or of the curative means administered, were, although inadequate wholly to subdue the disease, sufficient to resist the violence of its onset, nature made various efforts to rally; and held out strong, but fallacious, promises of returning health. In such cases, the heat was sometimes wholly, at others partially, restored; the chest and abdomen in the latter case becoming warm, whilst the limbs kept deadly cold. The pulse would return; grow moderate and full; the vomiting and cramps disappear; the nausea diminish, and the stools become green, pitchy, and even feculent; and with all these favourable appearances, the patient would suddenly relapse; chills, hiccup, want of sleep and anxiety, would arise; the vomiting, oppression, and insensibility, return; and in a few hours terminate in death.

“When the disorder ran its full course, the following appearances presented themselves. What may be termed the cold stage, or the state of collapse, usually lasted from twenty-four to forty-eight hours, and was seldom of more than three complete days’ duration. Throughout the first twenty-four hours, nearly all the symptoms of deadly oppression, the cold skin, feeble pulse, vomiting and purging, cramps, thirst, and anguish, continued undiminished. When the system shewed symptoms of revival, the vital powers began to rally, the circulation and heat to be restored; and the spasms and sickness to be considerably diminished. The warmth gradually returned; the pulse rose in strength and fullness, and then became sharp, and sometimes hard. The tongue grew more deeply furred; the thirst continued, with less nau-

sea. The stools were no longer like water; they became first brown and watery; then dark, black, and pitchy; and the bowels, during many days, continued to discharge immense loads of vitiated bile, until, with returning health, the secretion of the liver and other viscera gradually put on a natural appearance. The fever, which invariably attended this second stage of the disease, may be considered to have been rather the result of nature’s effort to recover herself from the rude shock which she had sustained, than as forming any integrant and necessary part of the disorder itself. It partook much of the nature of the common bilious attacks prevalent in these latitudes. There was the hot dry skin; foul, deeply-furred, dry, tongue; parched mouth; sick stomach; depraved secretions; and quick variable pulse; sometimes with stupor, delirium, and other marked affections of the brain. When the disorder proved fatal after reaching this stage, the tongue, from being cream-coloured, grew brown, and sometimes dark, hard, and more deeply furred; the teeth and lips were covered with fordes; the state of the skin varied; chills, alternating with flushes of heat; the pulse became weak and tremulous; catching of the breath; great restlessness, and deep moaning, succeeded; and the patient soon sunk, insensible, under the debilitating effects of frequent dark pitchy alvine discharges.

“Of those who died, it was believed, perhaps rather fancifully, that the bodies sooner underwent putrefaction than those of persons dying under the ordinary circumstances of mortality. The bodies of those who had sunk in the earlier stages of the malady, exhibited hardly any unhealthy appearance. Even in them, however, it was observed, that the intestines were paler, and more distended with air, than usual; and that the abdomen, upon being laid open, emitted a peculiar offensive odour, wholly different from the usual smell of dead subjects. In the bodies of those who had lived some time after the commencement of the attack, the stomach was generally of natural appearance externally. The colour of the intestines varied from deep rose to a dark hue, according as the increased vascular action had been arterial or venous. The stomach, on being cut into, was found filled, sometimes with a transparent, a green, or dark, flaky, fluid. On removing this, its internal coats, in some cases, were perfectly healthy; in others, and more generally, they were crossed by streaks of a deep red, interspersed with spots of inflammation, made up of tissues of enlarged vessels. This appearance was frequently continued to the duodenum. In a very few cases, the whole internal surface of the stomach was covered with coagulable lymph; on removing which, a bloody gelatine was found laid on the interior coat, in ridges or elevated streaks. The large intestine was sometimes filled with muddy fluid, sometimes livid, with dark bile, like tar; just as the individual had died in the earlier or later periods of the attack. In most cases, the liver was enlarged, and gorged with blood. In a few, it was large, soft, light-coloured, with greyish spots, and not very turgid. In others again, it was collapsed and flaccid. The gall-bladder was, without exception, full of dark-green or black bile. The spleen and thoracic viscera were, in general, healthy. The great venous vessels were usually gorged; and, in one case, the left ventricle of the heart was extremely turgid. The brain was generally of natural appearance. In one or two instances, lymph was effused between its membranes, near the coronal suture, so as to cause extensive adhesions; in other cases, the sinuses, and the veins leading to them, were stuffed with very dark blood.”

The treatment of cholera in each species will be founded on the same general principles; viz. to restore to the skin and external parts the balance of action by means of very-hot baths, diaphoretics, urtication, &c. to remove the plethora of the system, and especially of the portal system, by active bleeding; and to promote secretion by mercurial remedies. The combating of particular symptoms, which is an indispensable task, will require us to administer opium for the allaying of spasm and nervous

nervous irritation, and to give emetics to provoke, or effervescent medicines to restrain, vomiting; and so on. In our country the cure of cholera may, in general, be effected by diaphoretics, as the *puly. Doveri. comp.* small and frequently-repeated doses of colomel, the warm bath, cold drinks, and abstinence; after which, columbo and other stimulants of the stomach may be used to perfect the approaches to health.

In the Cholera *spasmodica* we have however a much more terrible malady to contend with. In the Report we have just quoted, we are told that "the centre-division of the army, under the commander-in-chief, exhibited an awful specimen of the fatality of the disease. It consisted of less than 10,000 fighting men; and the deaths, within twelve days, amounted, at the very lowest estimate, to 3000; according to others, to 5, and even 8000!" The dread of a mortality so great will, no doubt, stimulate us to use the measures commonly successful with the utmost care and promptness; and, considering the immense body of information which we have received from the surgeons who witnessed the ravages of the disease in the vast populations of either Ind, we can have little hesitation in establishing therapeutical dogmas.

A measure which strikes at the *fons* and *origo mali* is bleeding. This should be at once carried ad deliquium *animi*, and should form the first part of the treatment. The alleviation of pain, the restoration of the biliary secretion and of the perspiration, must be attempted by large doses of calomel, varying from a few grains to a scruple, and combined with opium. Antimony being scarcely ever retained on the stomach, the sickness is to be moderated by clysters composed of aqueous solutions of opium, since even the latter substance, in a solid form, is rejected when given by the mouth. Mr. J. Boyle (*Treatise on the Epidemic Cholera of India, 1821.*) is of opinion, however, that sickness should by no means be checked. He says, "The constant nausea and irritation of stomach, which is observable in the early stages of this complaint, without full or violent vomiting, simply spouting up, as it were, any thing swallowed; the obstruction of the biliary ducts observed in dissection, and a general want of success in practice; induced me to embrace ideas perfectly new on the subject. The obstruction of the biliary ducts I looked on as a source of irritation to the nervous system generally, and the nausea and sickness of stomach as an effort of nature to free herself of an unaccustomed evil. In accounting for the causes of this disease, it has been observed, and with great justice, that when, from the exertions to vomit, bile makes its appearance, a favourable prognosis may be formed. Now, if the appearance of bile be a salutary one, (and it certainly is,) why not favour the progress of its formation, instead of obstructing its passage by the administration of sedatives? We know of nothing which will increase the secretion of bile so quickly or so effectually as the act of vomiting; we also know the sympathy which subsists between the liver and stomach, and that derangement of either organ will more or less affect both. It is evident, then, that the gastric derangement peculiar to this disease, is not only indicative of the existence of lurking mischief, but directly points to the treatment. Further, of all the cases of which I have seen or heard, there was not one fatal termination after bile had, in any way, or by any means, made its appearance."

The diaphoretics which the Indian practitioners give are often of a highly-stimulating nature; as arrack-punch, &c. but these should not be used till the plethora and consequent cerebral disturbance, which in some cases is dreadfully violent, is subdued by venesection. In using the bath, we should be careful to employ it hot; for it is established on good authority, that, till the temperature is raised to an unpleasant height, no good is derived from it.

The convalescents of cholera should be subjected to the

influence of the nitric-acid bath; and the acid internally administered likewise forms a cooling palatable drink, which tends to restore the tone of the alimentary canal, and improves the secretion of the liver.

With regard to the contagious nature of this complaint, the reader is referred to *PYREĆICA*.

Genus XI. *Enterolithus*, [from *εντερον*, bowel, and *λιθος*, stone.] Stony concretions in the stomach and bowels.

For the information under this head we are wholly indebted to Dr. Mason Good; as no other system contains a similar genus. We have therefore no synonyms to put down. Dr. Good very justly observes, that "almost all animals are endued with a power of separating or secreting lime and other earths from the blood for particular purposes; as that of forming a shell covering in insects and worms, and of giving hardness to the bones in all other animals. Under a morbid action of single organs, or of the system generally, this is often secreted in an undue quantity, and poured forth into cavities where its accumulation and crystallization must be attended with mischief. Such, at times, is the case in respect to the stomach and intestines. But, independently of concretions derived from this source, we often meet with others produced by an agglutination or crystallization of the juices which are contained in the aliment, and which, not unfrequently, give immediate proof of their origin by the aromatic taste, smell, or other qualities, which such concretions exhibit. There is also a third kind of concretion occasionally to be traced in the intestinal canal, of a softer structure, and cetaceous or saponaceous feel, which appears to be produced by a peculiar combination of the materials of the fæces, and constitute proper *scyballa*, although this term has not unfrequently been employed to signify portions of common fæces or stercoraceous matter in an indurated state." Thus, then, we have three species.

1. *Enterolithus bezoardus*, the intestinal bezoar: in concentric layers closely agglutinated or crystallized; capable of a fine polish; frequently with a metallic lustre on the surface of each layer; and an accidental nucleus in the centre: of a spheroidal figure; chiefly consisting of vegetable matter. It is said, (though not proved) to be found in the human stomach; but more commonly in that of the smaller ruminating quadrupeds, as the goat and antelope, particularly the beautiful and elegant species of antelope denominated *gazal* by the Arabians and Persians, and *tsebi* by the Hebrew poets; the *ahv* of the Turks; the Antelope gazella of Linnæus. It was formerly employed as a febrifuge and alexipharmic in medicine; and worn as an amulet by the superstitious, who have sometimes purchased a single one at six thousand livres when very fine, and hired them in Holland and Portugal on particular occasions at a ducat a-day. See the article *BEZOAR*, vol. iii.

2. *Enterolithus calculus*, intestinal calculus: radiating from a common centre, or formed in concentric layers; mostly with an accidental nucleus; more or less porous; spheroidal or oblong; admitting an imperfect polish; composed chiefly of earths and animal matter. This species, Dr. Good says, is by no means unfrequently found in the human stomach and intestines; but far oftener in the digestive channel of other animals, and particularly in the larger ruminating quadrupeds, or those with a long complicated digestive organ, where the food, as in the formation of bezoars, is slowly carried forward; and in tardy draught-horses, particularly those of millers, which are fed largely on bran, which seems to yield a ready basis for these concretions. See *Phil. Transl.* xxiv. 1705. xlv. 1746. xlviii. 1754. In the last case, the disease had existed for years: the animal died aged twenty-two, nearly foaling; but gave no sign of pain or inconvenience till three months before her death. The calculus weighed 15 lb. 12 oz. average diameter $8\frac{1}{2}$ inches by 8 inches. When chemically analyzed, they are chiefly found to consist

consist of a triple or ammoniaco-magnesian phosphate, like the earthy or white-sand calculi of the human bladder; though it is difficult to conceive from what quarter the magnesia is obtained. In the case of millers' horses, some portion of this earth may be derived from the bran, in which it is always to be traced; but the difficulty still remains with respect to other animals. The figure, whatever be the size of the calculus, is usually spheroidal, except where broken into separate fragments: the matter is deposited for the most part, as in the former species, upon a nucleus of some sort or other, as a small piece of flint, an iron nail, a seed or husk, a piece of hay or straw; the structure sometimes radiating from such common centre to the surface, and sometimes evincing distinct plates more or less united to each other. In the human subject, these calculi vary from the size of a pea to that of a filbert, chestnut, or hen's egg, and are often still larger. In the case of Margaret Lower (see p. 151.) they were usually of the two former sizes, and appear to have been formed in great abundance and with wonderful facility; for her abdomen, upon pressing it, often rattled from the quantity it contained, with the sound of a bag of marbles. Many of these were rough and sharp-pointed at the edge, evidently fragments or nodules of larger concretions, and gave great pain in the rejection, whether above or below, for they were discharged both ways. The larger-sized weighed rather more than two drams; and Dr. König, who relates the case, calculated that the whole that were discharged during the continuance of the complaint could not amount to less than 5lb. avoirdupois. In a case related by Mr. Martineau, (Phil. Transf. vol. xxxii. 1723.) five calculi, some of them much larger than the preceding, were voided per anum, by a poor woman in the third month of pregnancy, after having suffered from colic about four or five days: of these, the largest, 8 inches in circumference and $6\frac{1}{2}$ in length, weighed two ounces sixteen pennyweights and twelve grains. In this case, and in various others, the calculi seem to have been in the intestines for a considerable period of time without inconvenience; for it is hardly possible to conceive that all these should have been produced in the course of a week. In another case in the same journal, vol. xli. 1740, related by M. Mackarnes, a calculus of this kind was extracted with some difficulty from the anus by the surgeon who attended, which weighed $8\frac{1}{2}$ oz. and was $10\frac{1}{2}$ inches in circumference. It is described as "a hard unequal ragged flinty stone," but was not examined chemically. There is some doubt whether this had not forced its way from the bladder into the rectum; but there is little doubt that it had been present in one organ or other, and nearly of its full size, for several years before its extraction; for the patient's stools were obtained with difficulty; and "three children, which she had successively borne in the three preceding years, were all marked with a large hollow or indentation in some part of the head, in one instance of sufficient extent to hold the moiety of a small orange!"

3. Enterolithus scybala, concretions resembling indurated feces: soapy or unctuous; mostly continuous; sometimes in layers; spheroidal or oblong; varying in colour; consisting chiefly of mucous and oleaginous matter. "This species," says Dr. Good, "has not hitherto received the degree of attention to which it is entitled; and even Fourcroy and Walther seem to have mistaken it for a biliary calculus. The specific character is drawn up from various instances that have occurred to the writer, or have been shown him by others. A laminated scybalum, taken from the feces of a woman who had long been suffering from costiveness and abdominal pain, an inch and a half in length, and nearly two inches in circumference, of an oblong irregular shape, and reddish brown colour, was lately presented to a medical meeting in this metropolis as a biliary calculus, the donor expressing his astonishment that it could by any means be protruded

through the ductus communis. It had neither the specific levity, nor the peculiar bitter, nor the resinous stratification, of gall-stones; and there can be little doubt that it was formed in the intestinal canal."

In sir Everard Home's paper On the Formation of Fat in the Intestines of living Animals, Phil. Transf. for 1813, a variety of ingenious facts and experiments are advanced to show the mode in which scybala are formed in the alvine passage, the component parts of which sir Everard supposes to be fat or oil, and mucus. The same paper contains, in support of this opinion, two interesting cases by Dr. Babington: the one that of a lady, who, upon taking olive-oil, constantly voided a number of globular concretions, "varying in size from that of a small pea to the bulk of a moderate grape, of a cream colour and slightly translucent, of a sufficient consistence to preserve their form and to bear being cut by a knife, like soft wax;" all which, like the scybalum above, had till this period been regarded as gall-stones: the second case that of a girl four years and a half old, who appears to have had a power of secreting oil in the intestines, and of discharging it per anum: "At three years old her mother observed something come from her as she walked across the room, which, when examined, was found to be fat in a liquid state, which concreted when cold. Ever since that time to the present she has voided at intervals of ten or fourteen days the quantity of from one to three ounces, sometimes pure, at others mixed with feces: when voided, it has an unusually yellow tinge, and is quite fluid like oil. Her appetite is good, as well as her spirits, and her flesh firm: her belly rather tumid, but not hard; she is subject to occasional griping." The medical records furnish numerous instances of similar formations. In the Act. Nat. Cur. vol. iii. obs. 51. we have a case very similar to Dr. Babington's, of soapy or oleaginous globules excreted in a paroxysm of colic: "excreti globuli, quasi saponacei, cedente dolore hypochondriorum." So in the Edinb. Med. Comment. vol. iv. p. 335, we have a case from the pen of Mr. Scott, of various adipose masses dejected in a softened state.

Genus XII. [*Helminthia*, from ἑλμινθία, an intestinal worm.] Worms or larvæ of insects inhabiting the stomach or intestines.

The existence of worms or parasitic animals in the intestines of other living creatures, is to the physiologist an important subject of contemplation, inasmuch as, the question so long agitated concerning the spontaneous generation or external introduction of worms once settled, we should be enabled to obtain some clearer ideas on the nature of life. In the practice of medicine, however, we are not required to enter into this difficult question. It is enough for the pathologist to know that worms in the alimentary canal are to his fellow-creatures a source of annoyance and pain, by what signs to detect their presence, and to know likewise by what means they are to be expelled. The latter view may lead him to make some classification of the animals in question, simply however for the reason that it is necessary to vary the remedial agent according to the species or genus of the offending animal. The usual seat of worms is the alimentary canal; but they have been found in all parts of the body. Sennertus says, "Præter vermes intestinales, sunt et alii, omnes fere corporis partes incolentes, uti vermes dentales, gingivales, rhinarii, pulmonarii, cardiaci, sanguinari, urinarii, umbilicales; vermes in hepate, in saliva, &c. Sed hi omnes non nisi in statu morbidò inveniuntur." And to this list we might add a hundred others. The alimentary canal appears however to be the only part in which the presence of worms can be detected by symptoms; or from which they can be expelled by medicine; so that we shall confine ourselves to the parasitic inhabitants of this cavity.

For an ample description of the various kinds of intestinal worms, with plates representing their external form

and internal structure; the reader is referred to the article HELMINTHOLOGY, and to each tribe under its generic name; as ASCARIS, HIRUDO, LUMBRICUS, TÆNIA, &c. We shall therefore merely copy in this place, with a few additions, the classification of Dr. Good, which must be allowed on all hands to be sufficiently comprehensive for practical purposes; and which, at the same time, compresses the immense body of research from which it is composed into a very small space. The following are the three species and their varieties.

1. *Helminthia alvi*, or worms existing and finding a proper nidus in the stomach or alvine canal, chiefly of children and sickly adults; producing emaciation, a swelled hard belly, gnawing or pungent pain in the stomach, pale countenance, fetid breath, and irritation of the nostrils. Of this species of disease there are five varieties, occasioned by the different genera of worms whose names they bear.

α. *H. Ascaridis lumbricoidis*, commonly called the long round worm; by Dr. Baillie, *Lumbricus teres*. For its specific character, and a representation of it, see vol. ii. p. 251. The body is transparent, light yellow, with a faint line down the side; it is gregarious and vivacious, and, according to Brera, possesses much sensibility: is from twelve to fifteen inches long. It inhabits principally the intestines of thin persons, generally about the ileum, through the parietes of which it sometimes eats its way. It has been known to ascend into the stomach, and creep out of the mouth and nostrils: it occasionally travels to the rectum, and passes away at the anus. This animal, being possessed of a cutting sharp point, often causes pungent and rending pains, especially about the umbilical region. Colic and borborygmi are symptoms peculiar to it.

β. *H. Trichocephali hominis*, the long thread-worm; (*Trichurus vulgaris*, *Baillie*.) Body above slightly crenate, beneath smooth; finely striate on the fore-part: head obtuse, and furnished with a slender retractile proboscis; tail or thinner part twice as long as the thicker, terminating in a fine hair-like point; about two inches long; in colour resembles the maw-worm, or common ascaris: gregarious, and found chiefly in the intestines of sickly children; generally in the cœcum.

γ. *H. Tæniæ solii*, the long tape-worm: articulations long and narrow, with marginal pores by which it attaches itself to the intestines, one on each joint, generally alternate; ovaries arborecent: head with a terminal mouth surrounded with two rows of radiant hooks or holders; and a little below, on the flattened surface, four tuberculate orifices or suckers, two on each side: tail terminated by a semicircular joint without any aperture: from thirty to forty feet long, and has been found sixty. It inhabits the intestines of mankind, generally at the upper part. Is sometimes solitary, but commonly in considerable numbers. As the head of the *Tænia solium* is furnished with pointed fangs, it sometimes attaches itself with such force to the mucous membrane of the intestines, as to produce the most severe, and even deadly, symptoms, since the membrane is mangled, and inflammation, or even gangrene, may be the consequence. A singular symptom of this *tænia* is a frequent sense of tension or tightness in the nose. See HELMINTHOLOGY, vol. ix. p. 343-6.

δ. *H. Tæniæ vulgaris*, (*T. lata*, *Baillie*.) the broad tape-worm: articulations short and broad, with a pore in the centre of each joint, and stellate ovaries round them; body broader in the middle, and tapering towards both ends; head resembling the last, but narrower and smaller; tail ending in a rounded joint. Like the last, it inhabits the upper part of the intestines, from three to fifteen feet long; usually in families of three or four. The symptoms of *tænia* are pain in the belly, with a turning motion and weight in the side; occasional prickings or bitings in the region of the stomach; swelling of

the abdomen at intervals, with sense of coldness there; appetite enormous, while emaciation continues, with sense of increasing weakness; complexion livid; pupils unusually dilated; eyes suffused with tears; vertigo with nausea; vacillation of the legs, and sometimes convulsive tremblings of the whole body; occasional evacuation, per anum, of small substances resembling the seeds of the lemon or gourd, which are portions of the marginal papillæ of the worms.

ε. *H. Fasciolæ*, from the fluke, or gourd-worm. Body flattish, with an aperture or pore at the head, and generally another beneath: intestines flexuous: ovaries lateral: hermaphrodite, and oviparous.

z. *Helminthia podicis*, worms, or the larvæ of insects, existing, and finding a proper nidus, within the verge of the anus, exciting a troublesome local irritation, sometimes accompanied with tumour; frequently preventing sleep, and producing pain or faintness in the stomach. Here we have three varieties.

α. *H. Ascaridis vermicularis*, from the maw-worm, or thread-worm: head subulate, nodose, and divided into three vesicles, in the middle of each of which is an aperture by which it receives nourishment; skin at the sides of the body finely crenate or wrinkled; tail finely tapering, and terminating in a point; the female has a small punctiform aperture a little below the head, through which it receives nourishment. Gregarious; viviparous; about half an inch long; sometimes wanders into the intestines, and occasionally as high as the stomach.

β. *H. Scarabæi*, larvæ of several species of the beetle, as of the *S. nobilis*; *S. Schœfferi*, *S. volvens*, which, when out of the body, deposit their eggs in round balls of animal dung, which they roll up and bury with their hind feet.

γ. *H. Cæstri*; bots, or larvæ of the hæmorrhoidal breeze or gad-fly. Round; pale-green; tail obtusely truncate; head tapering; mouth horny, with two lips, and two recurved black claws on each side of the mouth. Found convoluted in the mucus and fæces of man, but far more frequently of other animals, and especially of the horse.

3. *Helminthia erratica*; worms introduced by accident, and without finding a proper habitation in the stomach, or intestines: producing spasmodic colic with severe gripings; and occasionally vomiting or dejection of blood. Of this species also we have three varieties.

α. *H. Gordii*, from the hair-worm. Found in soft stagnant waters: from four to six inches long, twisted into various knots and contortions: colour pale-brown, with dark extremities. This disease is most frequent among the peasants of Lapland; and was suspected by Linnæus, and has been since proved, or thought to be proved, by Dr. Montin, one of his most celebrated disciples, to be occasioned by their drinking the half-putrid water of stagnant marshes or ditches inhabited by the *gordius*. It is not known on the Lapland mountains. The gripings are often so violent, that the patient rolls and writhes on the ground in feverish agony than a woman in labour, and discharges bloody urine. After many hours, sometimes an entire day, the disorder terminates in a profuse ptyalism that continues for a quarter of an hour. The Laplanders call the disease *ullen*, or *hotme*.

β. *H. Hirudinis*, occasioned by various species of the leech. Swallowed along with the muddy and stagnant water they inhabit. Apparently both the medicinal and the horse leech have been thus found; but the exact species has not been sufficiently indicated. Sauvages, in his genus *Hæmatemesis*, quotes Galen, Schenck, and Wedel; but does not describe the species. Upon turning to Galen. iv. 411. D. the reader will find that he briefly adverts to the disease, and quotes from *Aclepiades* and *Apollonius* the remedies that were employed in their respective days: but he does not characterise the

U u worm;

worm; and Dr. Lister, apparently without knowing that the subject had been touched on before, describes the case of a patient, who, after having "had about his stomach and right side a most exquisite and tormenting pain for at least four months, which many times threw him into horrors and chillness, ague-like, and was the sickest man," continues he, "I ever saw not to die," vomited up a worm of a dark-green colour, like a horse-leech, and spotted. From the puncture of the animal, or the violence of the retching, he brought up at the same time two pounds of coagulated blood; and had occasionally discharged blood downwards. The man imagined he drank it in pond-water during the preceding summer. The worm was dead when rejected, or at least when Dr. Lister saw it: four inches long, and three in its largest circumference; and is still farther described and drawn as having three small fins on each side near the head, with a forky, finny, transparent, and extensible, tail. *Phil. Trans.* 1681-2. No. 6.

One of the most extraordinary cases, among those entitled to attention, is related by Mr. Paisley in the Edinburgh Medical Essays, ii. art. 26. In this case there were two worms, whose heads he compares to that of the horse-leech, and which appear to have been tolerably quiescent in their growth, till the general system was disturbed by a wound on the breast, received by the patient in consequence of a duel, with the small sword. The general symptoms of this species of Helminthia appeared about the third day afterwards, and continued with many variations for several weeks, when the patient discharged inferiorly one of these worms, measuring a foot and a half in length, and an inch and a half in diameter, dead, but full of blood, and accompanied by a large defecation of grumous blood, "to appearance some pounds;" and not many weeks afterwards the other, still larger.—A worm, apparently similar, is stated by Dr. Bond of Philadelphia, 1754, to have been discharged downwards by a female patient of his, who had been long subject to an hepatic disease, which gradually changed to violent helminthic symptoms in the stomach. These, at length, suddenly vanished; and within twenty-four hours the worm was rejected, dead, and in two parts, the whole making twenty inches in length. The patient died soon after; and, on opening her, this worm appears to have worked its way, when small, into the liver by the course of the common duct, to have committed great depredation here, and afterwards, with considerable difficulty and dilation of the duct, to have travelled back again. Dr. Bond ventures to call it an *hepatic leech*; though he calculates its course as now stated. *London Med. Observ. and Inq.* i. 68.—Maroja, physician to Philip IV. of Spain, in his treatise *De Morbis Internis*, lib. iv. cap. 16, mentions the case of a patient who discharged a still larger dead round worm of the same monstrous kind, and died in the act of discharging it: its length was twenty fingers breadth; its rotundity equal to the size of a stout man's hand; full of blood, and had more than a pound and a half of blood taken from its inside.

γ. *H. Musca cibariæ*; larvæ of the pantry-fly. These seem chiefly to produce mischief while in the stomach, into which they may be taken with decayed cheese, as the eggs are sometimes deposited in it. See Dr. White's case, *Mem. Med. Soc. Lond.* vol. ii. The patient, aged thirty, was emaciated, of a fallow complexion; had gripings and tenderness of the abdomen; costiveness, rigors, and cold extremities. Took columbo-root, and occasionally calomel and other purgatives. In a month was better, and the appetite good. The next purgative brought away an immense number of pupes, or chrysalid worms; some of which, being preserved, were transformed into four-winged insects, the *Musca cibaria*. Mr. Church, to whose entomological skill these worms were confided, asserts that he once knew a child discharge

a larva of the caddy insect (*Phryganea grandis*); and that the *Phalæna pinguinalis* lives and is nourished in the stomach; and, after sustaining several metamorphoses, is thrown out, and proves its proper genus. See also Mr. Calderwood's case; *Edin. Med. Com.* ix. 223.

The symptoms of worms are as various and complicated as we should naturally expect to find them, when we take into consideration the multiform effect of nervous irritation on all parts of the body. When speaking of the functional disturbances of the alimentary canal, we have endeavoured to show how the irritated extremities of the nervous expansion of the stomach and bowels will convey nervous irritation to every other organ, and after a time induce more important changes. The same reasoning will apply to the effect of worms, which are to the nerves irritants of extreme power. To describe, therefore, all the symptoms of worms, would be endless; and it would moreover be useless, since they may be simulated by every other nervous disorder. The only certain sign of their existence is their being seen in the stools; but in many this is not observed till their presence has produced much gastric and intestinal disturbance. According to professor Brera, in persons attacked by worms, the colour of the countenance is changed; it is sometimes red, then pale, or leaden-coloured. A half circle of azure appears under the eyes; they lose their vivacity, and are fixed and motionless with regard to surrounding objects; they are sad and dejected; the lower eye-lids swell, and the pupils are evidently dilated. At other times the eyelids are yellowish, and the same tint extends over the white of the eye. There are also insupportable itchings in the nostrils, with occasional hæmorrhage from the same parts; headache is frequent, especially after taking food; this is sometimes so violent as to produce delirium and phrenitis. The mouth is full of saliva, and exhales a fetid and verminous odour; there is grinding of the teeth; uneasy and agitated sleep, and great thirst. Sometimes somnambulism renders the patient timid. Fainting, vertigo, and tingling of the ears, augment the morbid state of the sufferer. The cough is dry and convulsive, sometimes stertorous, and even suffocating; respiration is difficult, and sometimes attended with hiccough; speech is interrupted, and in some instances entirely suppressed. The mouth is frothy, and there is palpitation of the heart; the pulse is hard, frequent, rapid, and intermittent. The belly is tumid, and troubled with borborygmi; there are eructations, nausea, retching to vomit, and vomiting. At one time there is no appetite; at another it is so great, that the patient is compelled to take more food than ordinary. The belly swells, and is the seat of severe pains; there is a sense of pricking and tearing, which is not fixed, but wanders over the whole abdominal cavity; these sufferings are aggravated when the stomach is empty, and immediately cease on taking food. The bowels are sometimes relaxed, sometimes costive. The urine is crude and turbid; the excrements fetid; cardialgia afflicts the patient, and sometimes destroys him; the body is emaciated, though the patient eats much; and violent itching of the anus sometimes occasions fainting. At other times tenesmus aggravates the pains of these parts. Languor, anxiety, listlessness, and extravagance in conduct, discourse, and the intellectual functions, are observed in persons harassed with worms.

The professor has also seen pains of the joints, resembling arthritic rheumatism, resulting from worms. Weikard relates the case of a woman who was long harassed with headache, spasmodic affection of the eyes, vertigo, sub-apoplectic attacks, and occasionally temporary blindness. One day, feeling something in her nose, she extracted, with a hook, a living lumbricoides, and then three more. Some anthelmintic remedies now prescribed brought away seven worms per anum, when the woman was perfectly cured of her distressing complaints. Worms have

have been known to excite apoplexy in the brain, and nephritis, when situated in the bladder; in which case, *Producunt aliquando erectionem molestant penis.*

Itching of the nose, and dilatation of the pupil, are said to be the least equivocal sign of worms.

Upon the whole, we may suspect the presence of worms where irregular appetite and great disturbance of the nervous system are present, without any other marked cause of irritation, and unattended with alteration in the circulating powers. The irregularity and the complete remission of certain pains, and the deranged secretion of the bowels, will further assist the diagnosis. It is a good rule, however, in all anomalous and rare diseases, to enquire whether the patient has, or has had, any symptoms of worms, since even intermissions of the pulse, palpitations of the heart, syncope, vertigo, loss of speech, blindness, buzzing in the ears, mental dejection, restless sleep, hiccup, convulsions, epilepsy, and many other diseases, may be produced by these animals.

The treatment of worms comprises their expulsion in the first place, and secondly the prevention of their regeneration. For the former purpose, a numerous host of drugs have been recommended by various authors. We shall insert, from Prof. Brera, a catalogue raisonné of the most approved anthelmintics.

Allium sativum, or garlic, has been proved by Rosenstein and Tissot to be capable of expelling worms, especially the tænia.

Artemisia fantonica, or worm-seed, is well known to have considerable power over the lumbricoides particularly. The dose is from two grains to a drachm.

Aclepias Curassavica, or Curaçoa swallow-wort, (the Apocynum erectum, folio oblongo, &c. of Sloane, from its emetic quality called bastard or wild ipecacuanha, and by the negroes *red-head*, is a powerful vermifuge. See vol. ii. p. 256.

The bark of the bastard cabbage-tree (*Geoffrea inermis*) stands, according to Mr. Chamberlaine, among the first in the list of powerful vermifuges; (see vol. viii. p. 339, 40.) but even this, after an extensive trial, was given up by that gentleman on account of its uncertainty.

Jalap, probably from its disagreeable smell and nauseous taste, is a useful auxiliary, at least, to other anthelmintics.

Asiaticum has been often usefully employed in several diseases resulting from worms, particularly in the spasmodic class. It is sometimes combined with other medicines, as myrrh, the black oxyde of iron, calomel, &c. Asiaticum enmata are useful in the ascarides.

Oil, as closing all the spiracula of worms, is very inimical to these animals. The oil of walnuts has been particularly extolled; but Mr. Chamberlaine asserts that tænia will live for many hours in oil.

Camphor. Pringle long ago demonstrated the anthelmintic powers of camphor. The celebrated Moschati generally prefers it to other vermifuges. Half a drachm is dissolved in a pint of water, to which a drachm of gum arabic is added, and this mixture is given in spoonfuls; or injections of stronger solutions than the above are thrown up. The employment of camphor is also attended with this advantage, that it counteracts the predisposition to the further development of verminous seeds.

Tanacetum vulgare, the common tansy, has been long celebrated. Aloes, rhubarb, the gratiola officinalis, gamboge, chamomile, sulphuretted scammony, and other similar articles, are also remedies commonly used for the expulsion of worms. They are not spoken of singly, because these drastics are usually combined with other vermifuge remedies, vegetable or mineral.

Murias ammoniac, combined with rhubarb or jalap, is considered by Block as a very efficacious vermifuge.

Iron, in consequence perhaps of its tonic powers, is a well-ascertained anthelmintic, tending both to destroy

worms, and prevent their subsequent generation. The sulphate of iron is considered to be the best preparation, as possessing the greatest astringent force, and being powerful in moderating excessive secretion of mucus in the bowels. To children, professor Brera gives it in doses of from two to ten grains; and to adults, in doses of half a drachm to a drachm. These are large doses. Its virtues are much enhanced by conjunction with cinchona, valerian, jalap, asiaticum, &c.

Mercury can have no specific effect against worms, since the labourers in the quicksilver-mines of Almada, in Spain, are peculiarly subject to worms, though these people absorb such enormous quantities of that mineral, that globules of mercury are evacuated with the stools. The same thing happens in the mines of Lydria, and in the laboratories of Chemnitz in Hungary. Besides this, Rosenstein has administered mercury in several cases, even to salivation, without being able to expel a single worm. Brera says, however, that mercury, given in the state of oxyde, acts on the solids as a powerful stimulant, since by its use the pulse acquires great force, and the secretions and excretions are augmented. In this way several of the oxydes of mercury have been very efficient in expelling worms, and in curing verminous affections. Among these, the submuriate of mercury is to be preferred. Ptyalism should never be produced in these cases.

Petroleum is famous at Montpellier against worms. Rosenstein, many years ago, related the case of a man who was delivered of a tænia by a dose of petroleum and oil of turpentine.

Tin has been considered vermifuge ever since the days of Paracelsus. But, as professor Brera properly observes, this method is objectionable on account of the danger of lead or arsenic being mixed with the tin. He himself saw the Colica pictorum, and paralysis of the lower extremities, produced by taking the filings of tin.

Towards the middle of the last century, Madame Nouffer's remedy against tænia excited considerable attention. The medicine was three drachms of the root of the male fern (*Polypodium felix mas*) in powder, mixed with four or six ounces of the distilled water of male fern, or lime-tree flowers, taken in the morning. The dose, of course, was graduated for children. Two hours after taking the powder, the patient is to swallow the following bolus: Take of calomel, and dry resin of Aleppo scammony, of each twelve grains; of gamboge five grains; form into a bolus with hyacinth confection. This, by the way, was a tolerably good vermifuge of itself, and doubtless contributed as much towards Madame Nouffer's success as the fern-powder.

Dr. Bourdies, of Paris, has administered the following remedy with great success in both species of tænia: Pour a drachm of sulphuric ether into a glass of the decoction of male fern, which the patient is to take fasting; four or five minutes after, an injection of the same decoction, with two drachms of ether, is to be thrown up. One hour after, give two ounces of oleum ricini, and one ounce of the syrup of peach-blossoms. This treatment is to be continued for three days. The worm is commonly discharged but half organized. When the worm is in the stomach, success is certain; when in the intestines, the treatment, after some time, is repeated; then Dr. Bourdies prescribes an enema of decoction of fern and two drachms of sulphuric ether, immediately after the patient has swallowed the etherated potion.

The remedy of the celebrated Odier was no other than castor-oil. It both kills the worms and expels them. Adults should take three ounces of the oil, and children a tea-spoonful, several times a-day. Lelle advises that the oil be taken at bed-time, and ten grains of gamboge the next morning.

Dr. Coffin has known Fowler's solution destroy the tænia in several cases. Dr. Fisher, of Massachusetts, also observes, that the tænia may be destroyed by Fowler's solution.

solution. For this purpose the patient should take it two or three times a-day, in as large doses as the stomach will bear; and continue the use of it till the worms are destroyed.

Dr. Girdlestone, of Yarmouth, states in the 15th volume of the Medical and Physical Journal, that he has, for some time, prescribed the solutio mineralis in cases of tape-worm. "This medicine," he says, "with the use of purgatives, brings away larger portions than any purgative medicine without it. And I have found the solutio mineralis a most powerful destroyer of the ascaris lumbricoides."

Dr. Pollock, of Bengal, has stated that a number of cases of tænia were cured by decoction of pomegranate. "In some of these the tænia had acquired an enormous length; and in some of them it was received in tepid water, and lived for several hours after it was passed."

A remedy, however, of superior power to all these, and one which seems to act very generally on all kinds of worms, is the oil of turpentine in doses of from ʒvi to two ounces. It was first recommended by Chaubert, and since tried on an extended scale in this country, where it has met with a very favourable reception. Many objections are in force against this medicine. The first, an intolerable thirst that follows its use, and which it is improper to indulge by drinking: the second is, that its efficacy is destroyed by mixture, and hence it is next to impossible to administer a large dose of turpentine to children, who, in fact, form the majority of worm-patients. In conclusion, therefore, though we have thought proper to enumerate most anthelmintics which have obtained great repute, we must give a decided preference to the *Dolichos pruriens*, or cowhage, over all others. This plant was first introduced into this country by Mr. Chamberlaine. The parts used are the setæ, or hairy contents of the pod, (see *DOLICHOS*, vol. vi. p. 11.) which are, according to the above-mentioned author, to be mixed with honey or treacle, and thus formed into an electuary; or it may be compounded in the form of lozenges, in which state it becomes a very palatable remedy for refractory children. The action of this medicine is shown by Mr. Chamberlaine's experiments to be entirely mechanical, and exerted only on the body of the worms, the sharp spiculæ sticking into the animals in question and killing them, while the coats of the bowels are defended from the accident by their constant secretion, or firmer structure.

Of the electuary, made with cowhage and treacle, a tea-spoonful is in general found to be a sufficient dose for children, from infancy to the age of six or eight: from thence to fourteen, a desert-spoonful is found to answer well: and, for all above that age, a table-spoonful. Formerly Mr. C. thought it might be sufficient if taken once a-day, but experience has shown that it answers better when taken twice; viz. at night going to bed, and in the morning an hour before breakfast; and, though little or no previous medicine is necessary, yet it is generally found to operate more effectually where a gentle emetic (provided nothing forbids it) has been premised. The cowhage, after being begun upon, is to be continued for three or four days; after which, some brisk purgative, such as jalap, or infusion of senna, or in short whatever purging medicine is known to agree best with the patient, is to be taken; which will in general bring away the worms, if there be any. Afterwards the cowhage is to be continued as long as there may seem occasion; repeating the purgative at intervals of three or four days.

This medicine, excellent as it is, seems of late to have fallen into disuse in this country, where indeed the difficulty of procuring it genuine must have subjected its employers to frequent failures in its application. It is remarkable, however, that Mr. Chamberlaine, after thirty-five years very extensive trial of it, never had one case of failure sent to him, though he publicly courted their transmission, and though it was as extensively used as

highly extolled by the first physicians of the day. For our own parts, when the use of gentle purgatives fails to expel the worms, we strongly recommend the immediate exhibition of this medicine; a measure we may adopt without fear, since we are assured it acts mechanically, and cannot therefore do mischief even if its employment be ill-timed. Dr. Coffin, the American translator of Prof. Brera's work on verminous diseases, speaks highly in praise of this remedy.

After all that has been said respecting the safety of cowhage, and however inoffensive in general it may be, reason will dictate to us, that where the mucus of the stomach and intestines is abraded, or lessened, from any cause whatsoever; or where there is a tendency towards inflammation in any part of the intestinal canal; the exhibition of this medicine cannot be unattended with danger.

The first edition of Mr. Chamberlaine's "Practical Treatise on *Dolichos pruriens*" was published in 1784. A tenth edition appeared in 1812, in which he observes, "I shall not go so far as to say, in praise of this my favourite medicine, that I never knew it to fail; but I will say, that I have experienced more certain good effects, and fewer ill consequences, than from any other medicine given with the same intention; inasmuch, that I have, since I first began to exhibit the cowhage, had no occasion to look for any other vermifuge. My primary object continues to be, the introduction into common practice of an article which I have long experienced to be a safe and efficacious anthelmintic; nor have my endeavours been unattended with success, as the *Dolichos pruriens* is now for the first time introduced into the *Materia Medica* of the London Pharmacopœia, at the last reform of that book by the college, in the year 1809. It has been also received into the Pharmacopœia of the Dublin College of Physicians. In that of Edinburgh, it has stood as an officinal for several years."

When the worms have been expelled, the correction of the tone which has given rise to or has been produced by them, will require the application of those remedies and rules which are explicitly detailed under *Dyspepsia*, in this article.

Genus XIII. *Proctica*; [from *πρωκτος*, the fundament.] Pain or derangement about the anus and rectum, without primary inflammation. There are five species.

1. *Proctica simplex*, simple pain at the anus. The pain which arises occasionally in the anus is of a severe and spasmodic kind; is liable to remit, and is produced by the passage of large and indurated fæces; or is caused by sympathy with disorder of other parts, generally of the superior parts of the alimentary canal, less frequently of the urethra. Mild purgatives, warm fomentations; and, in severe cases, anal leeching, are the most appropriate remedies.

2. *Proctica callosa*, pain produced by, or accompanied with, a callous contraction of the rectum. The cause is usually, but not always, scirrhus, which is liable moreover to degenerate, as in other cases, into carcinoma. *Colica callosa* is also an occasional result. When this complaint does not arise from scirrhus, it may be considered of the same nature as *Colica callosa*, under which title we have detailed the treatment. When it arises from scirrhus, in which case it forms what is called the scirrho-contracted rectum, therapeutical endeavours are of little avail. The origin of this complaint, as indeed of scirrhus altogether, is quite obscure. Mr. White considered at first that it was a consequence of simple stricture; but subsequent experience has induced him to alter his opinion. Mr. Copeland, in his excellent Treatise, thinks it may be caused by whatever produces inflammation or irritation of the inner membrane of the intestine; but neither is that opinion by any means well supported. The seat of this disease (different from what we usually observe in *Colica callosa*) is generally two or three inches above the outer sphincter; and there is often

a sound capacious portion of the bowel between the stricture and this sphincter, though in the advanced stages of the disease even this often becomes indurated. Indeed the scirrhus sometimes occupies nearly the whole cavity of the rectum; implicates in thickening and induration all its coats, particularly the muscular; and, after a time, abrasion or ulceration of its internal membrane takes place, attended by a serous, or thin and sanious, discharge. The severe sufferings of the patient during the progress of this dreadful malady, and its more rapid advance to a fatal termination, will help to distinguish it from other species of contraction, when it would be difficult sometimes to decide from mere local investigation.

In addition to these remarks, and the diagnostic signs, we have drawn between this disease and simple stricture, when speaking of the latter disease, we copy, from Mr. White and Dr. Sherwin the following remarks. Along with the great and permanent pain about the sacrum, shooting down the thighs as before noticed, the burning heat and pain of the rectum, "the patient gradually experiences a difficulty in evacuating fæces of a thick consistence. As the passage becomes obstructed, the fæces acquire a thinner consistence, and the first complaint which he makes is of a looseness." On this paragraph of Dr. Sherwin, Mr. White remarks, that, "although it may be very true, that the disorder sometimes arrives at the above-mentioned stage before any application is made for relief, yet it does not follow from thence, that a diarrhœa is a primary symptom; because the history of cases clearly demonstrates that the complaint in general does exist for a considerable length of time before a diarrhœa comes on; and I believe it will be commonly found in a very advanced stage, whenever spontaneous diarrhœa takes place."

Dr. Sherwin further remarks, "He (the patient) continues in other respects apparently in good health; his appetite is but little impaired; reiterated scanty evacuations, amounting in the whole to a sufficient quantity to keep the stomach easy, preserve a sort of balance in the intestinal canal: but, by degrees, the cavity of the gut becomes less permeable; opiates and testaceous powders have perhaps been had recourse to, and the frequent needling to stool abates. The patient and his friends flatter themselves he is getting well; but he soon falls off in his appetite for food. The absence of stools is sometimes attributed to this cause, till the lower part of the abdomen by degrees acquires a remarkable prominence, attended with uncommon rumbling of wind in the belly, like gurgling of water in a bottle. By degrees a total suppression of stools takes place; the tumour of the abdomen increases; the uncommon rumbling of wind becomes more audible, so as to engage the attention of the friends and visitants of the patient. The distention gradually increases, till the stomach is oppressed, and a vomiting comes on. The vomiting is not very frequent at first; but, by degrees, every thing swallowed is vomited up. Severe pains are felt from distention in various parts of the abdomen; and a true iliac passion of the chronic kind comes on, and continues as long as the patient lives, unless he is accidentally relieved by a free discharge of thin fæces, which will sometimes unsuspectedly give a respite to his sufferings. In consequence of which, the appetite for food will again return; the patient will again appear to be getting well: but the anxious solicitude of his friends at this period will urge him to get down a considerable quantity of generous nourishment, till a repetition of the same scene takes place, and the unhappy man is alternately tantalized and worn out, either with a stoppage or a purging.

"If assistance is not called in till the patient arrives at this deplorable state of the disease, the want of stools, the great pain, vomiting, and tenseness of the abdomen, may be pronounced an inflammation of the bowels, or an iliac passion of the acute kind. If powerful means are

employed under such idea, it is easy to conceive that the last moments of the patient must be rendered doubly distressing."

The constant inclination to stool which attends this disorder may be distinguished from a common tenesmus by attending to the following circumstances. A common tenesmus is generally sudden in its attack, or else it follows from purging or dysentery; it is often the consequence of drastic cathartics, and is always attended with considerable pain, and most frequently with a mucous discharge tinged with blood, instead of fæces; whereas, that which accompanies the scirrhus rectum is attended with little or no pain, but with powerful ineffectual straining; during which, there will be often a discharge of wind; and the mucus squeezed out is slimy, but always more or less black, and the excrementitious matter is very seldom tinged with blood. In the common tenesmus, the impetus seems entirely spent on the sphincter ani, and there is more or less of a protrusion of the gut: but in the straining from a scirrhus rectum, the patient is not sensible of that distress at the fundament which is experienced in the other; and, as soon as the small portion of excrementitious mucus is voided, he is able to rise immediately from the stool; but in the common tenesmus he is under the necessity of straining long, even after the expulsion of all that he knows, from his feelings, will at that effort be evacuated; and, after he is able to rise from the stool, there still continues a burning sensation, urging in a continual expulsion: whereas in the scirrhus rectum, after the patient has strained hard, whenever a small quantity arrives at the anus, it is squirted out with slight efforts, and little or no uneasiness follows; nor does the countenance show that extreme distress which generally attends a spasmodic stricture of a common tenesmus. It may also be observed, that there is very little emaciation of the body or loss of strength until the disorder is far advanced; the countenance then becomes fallow, and in some instances the pulse is quick, and is accompanied by hectic symptoms.

The following description of the appearances on dissection are detailed by Dr. Baillie: "It (the scirrhus) sometimes extends over a considerable length of the gut, viz. several inches; but generally it is more circumscribed. The peritoneal, muscular, and internal, coats, are much thicker and harder than in a natural state. The muscular too is subdivided by membranous septa, and the internal coat is sometimes formed into hard irregular folds. It often happens that the surface of the inner membrane is ulcerated, producing cancer. Every vestige of the natural structure is occasionally lost, and the gut appears changed into a gristly substance."

In the advanced stage of contracted rectum, an abscess often forms near the anus, and common fistula is produced on the abscess bursting, which renders it liable to be mistaken for the original complaint. If operation for fistula be performed under these unfavourable circumstances, it aggravates the sufferings of the patient. Sometimes it happens in the female subject, that, in consequence of an abscess forming, or the intestine becoming ulcerated, a communication is formed between the rectum and the vagina, and the liquid part of the fæces pass through the aperture, and are discharged by the vagina.

The prognosis of this dreadful disease, which Dr. Sherwin wrote 30 years ago, still remains too true: he says, "The disease comes on in the most gradual and imperceptible manner: slow in its progress, but terrible in its consequences; it yields not to medical assistance, but must under the best management become ultimately fatal. It however admits of palliation; and, if early discovered, will also admit of the last moments of the patient being rescued from unavailing, mistaken, and distressing, attempts to cure. It is therefore an object of the most serious attention of the humane practitioner."

Attempts at cure have not, however, been wanting. M. Delpech, in his *Précis Élémentaire*, tom. iii. has proposed

proposed to divide the strictured gut, in order to secure the escape of the contents of the bowels, the confinement of which must, as he observes, produce extreme distress and danger. He adds, that the carrying up a cutting instrument into the midst of a cancerous disease must be expected to produce ulceration, and, in this way, hasten the destruction of the patient; but that, in cases of this kind, every thing that can be proposed is subject to objection. His words are; "On a proposé de faire alors la section de l'un de ces points intermédiaires, afin d'assurer le passage des matières. Ce parti a de grande inconvéniens sans doute. Porter l'instrument tranchant au milieu ou tout près d'une affection cancéreuse, c'est hâter l'ulcération, qui doit consommer la ruine du malade; mais, dans des cas de cette nature, on ne peut rien entreprendre que de très défectueux." Upon this point it has been very properly observed, that operative surgery should rarely, if ever, be recommended, unless where the chances are decidedly in favour of its success: and, if this opinion is right, it must unquestionably be wrong to advise an operation in a disease of inevitably fatal event. It can only tend to bring discredit upon that branch of surgical practice, which, from the positive good that, under proper direction, it is capable of conferring, lays the fairest claim to the regard and confidence of mankind.

Some practitioners have tried mercury in this malady, but with little success. Should we be successful at any future period in the treatment of scirrhus, we may perhaps entertain better hopes of the complaint in question, though the constant irritation to which it must be subjected in this part will render its cure a matter of great difficulty. Déault, in his *Oeuvres Chirurgicales*, mentions cases which were cured by tents; but it is now generally understood, that these were merely simple strictures.

3. *Proctica tenesmus*. A tenesmus is a frequent and insatiable propensity to stool, without being able to pass any thing, notwithstanding the most violent efforts. It may be occasioned by any kind of irritation, either of the rectum itself or of the neighbouring parts; by acrid substances taken into the body; by some of the stronger purges, as aloes, scammony, elaterium, &c. or by sympathetic irritations. It is often very pernicious, both from the excessive uneasiness it occasions to the patient, and from exhausting his strength; and by the frequent and vain efforts bringing on a prolapsus ani, and communicating the violent irritation to the neighbouring parts, as the bladder, &c. When arising from local acrimony or from the use of cathartics, it may be deemed an idiopathic affection; but more generally it is found as a symptom of other complaints, as dysentery, hæmorrhoids, helminthia, costiveness, calculus of the bladder, and pregnancy.

The treatment, when simply directed to the relief of the uneasy sensation, consists in injecting anodyne and mucilaginous enemata, and in exhibiting oleaginous cathartics. A clyster of starch, or of starch and opium, forms the best remedy with which we are acquainted for the relief of tenesmus. In most cases, however, we have to direct our attention to the distant irritation of which this complaint is symptomatic.

4. *Proctica marisca*, (*Hæmorrhoids*, *Cullen*.) Piles. Specific character, livid and painful tubercles or excrescences, usually with a discharge of mucus or blood. Of piles we have the four following varieties.

α. *P. cœca*, (*H. cœca*, *Cull.*) The blind piles: pain and tubercles without discharge.

β. *P. mucosa*, (*H. mucosa*, *Cull.*) Tubercles pale and mucous; they are moreover transparent, compressible, highly elastic, and often produced in the course of a few hours. This variety is supposed to arise from a deposition of serum only beneath the skin.

γ. *P. cruenta*, (*H. cruenta*, *Cull.*) The bleeding piles. Tubercles florid and bleeding: they consist sometimes in distention or a varicose state of the hæmorrhoidal veins; more frequently of blood effused into the cellular tissue. They are opaque, of a dark colour, the blood shining evi-

dently through the skin; and are of a firmer consistence, and more slowly formed, than the preceding variety.

δ. *P. polyposa*. Polype-like excrescences shooting from a slender root; bulbous; soft and compressible; red or reddish; chiefly internal.

Piles in general occasion only a slight degree of inconvenience; but sometimes they give rise to serious grievances, either by bursting and pouring out such quantities of blood as reduce the patient to the lowest state of debility, and dangerously impair his health; or by exciting inflammation around them, and causing abscesses and fistulæ; or by becoming constricted by the sphincter ani muscle, so as to produce exceedingly acute pain; or, lastly, by assuming a malignant character.

P. marisca arises most commonly from some obstruction in the circulation through the hæmorrhoidal veins. Habitual neglect of the bowels favouring the accumulation of hardened feces in the rectum; straining to void a confined stool; the pressure of the gravid uterus, or of any preternatural tumours; a sedentary life; sudden and violent exertion; lifting heavy weights; have, in their turn, been the means of bringing on this disease, and may be considered as some of its most frequent causes.

The first appearance of all the varieties of *marisca* is generally connected with pain and inflammation. The patient usually complains of an uneasy sense of weight and fullness, as well as of heat about the parts, particularly severe in passing a motion. If the inflammation remain unsubdued, the fundament becomes very painful; the patient can then neither walk, ride, nor sit, the only tolerable state being that of absolute rest in the reclined position; and, during the continuance of this state, passage of a motion is followed by extreme distress. With these symptoms there is generally more or less feverish heat and restlessness, and perhaps even delirium.

The *mariscæ* may be numerous, or otherwise. Sometimes a single swelling only exists; more frequently there are several surrounding the anus. Occasional hæmorrhage is in most cases connected with *marisca*. Perhaps in the effort to pass a motion, bleeding comes on while the parts are inflamed; in this case, the blood generally flows from within the anus, though it may occasionally spring from some part of the external swelling. Sometimes the bleeding will first occur, and frequently in the absence of every other symptom; or at least without pain, inflammation, or external tumour.

Many respectable writers affirm, that hæmorrhoids which are not very troublesome, and discharge only moderate quantities of blood, are rather salutary than hurtful to the constitution, and require no particular treatment. Among these, it may be sufficient to mention, Stahl, Sabatier, and Petit. This opinion has, however, met with some opposition. In Dr. Rees's *Cyclopædia*, article *Hæmorrhoids*, it is strongly argued against. The writer of that article admits the general salutary effect of leeching in hæmorrhoids, but affirms that the relief thus obtained arises from its curing other diseases in the constitution which might be as well or better relieved by taking blood from the arm. The writer of that article proceeds as follows: "Entertaining, as we do, a total disbelief of the doctrine, that the bleeding from piles is ever really serviceable to the system, we shall never attempt to re-produce a discharge of blood from them, when such is suppressed; but, at the same time, since a person with piles may also have complaints which require bleeding, we perceive no reason why, in such cases, any change should be made in the common mode of taking away blood, or that venesection in the arm should be abandoned for the employment of the leeches or the lancet in another part. We know, that it is approved as a general maxim, to take away blood as near as possible to the seat of a disease: and to this method we also give our decided approbation. It is for this reason, that we often prescribe the application of leeches to the anus, in cases of inflamed protruded hæmorrhoids. But, as we do not credit

credit that the stoppage of bleeding from piles is likely ever to prove a cause of any diseases, but rather of an improvement of the health, we are far from being anxious to see the hemorrhage renewed in any form whatever. But, supposing some illness were actually to be the effect of a suppression of bleeding from the tumours, such illness could only be imputed to a constitutional plethora, induced by the usual evacuation of blood not taking place. Here the redundant and hurtful quantity of the circulating fluid might be much more conveniently and certainly drawn from the arm, in the common way, than by applying leeches to the tumour, or puncturing them with a lancet. The blood, in this circumstance, is not taken away for the relief of the piles, but of some other affection; and, consequently, the principle of bleeding as near as possible to the seat of the disease is not at all observed, as some may suppose it is, in drawing blood from the swellings themselves."

With regard to this subject, we may observe, that there can be little doubt but that, in cases manifestly dependent on pressure of the hemorrhoidal veins, the loss of blood may be useless, perhaps hurtful; but it cannot be questioned, that piles in many instances arise from a disordered state of the abdominal viscera; and that they serve materially to relieve the local plethora of those organs. Hence we see them arise often in dyspeptic and bilious complaints, which they then relieve in a very effectual manner. To say that general bleeding would afford equal relief to these complaints, is to assert what is contrary to experience; and it is equally absurd to say, that in this case the blood is not taken from the part affected, since a glance at the connexions of the hemorrhoidal veins, shows that they are literally continued from the portal system. The frequency of the above-mentioned causes of hæmorrhoids compel us therefore to say, that in dismissing so unceremoniously the observation of the old practitioners, that the bleeding from piles is often salutary, we should act very hastily. We cannot help quoting the appropriate sentiments of Dr. Parr, who (though he deemed the danger of stopping hemorrhoidal discharges inexplicable) says, however, that "it appears rash and presumptuous to deny, at once, what has been established in the opinion of able and experienced practitioners; opinions not hastily taken up, and as quickly resigned, but apparently resting on facts, the result of the observation of many years, in different and distant countries."

Dr. Parr is of opinion, that this complaint in old age is often indicative of disease in the venous system in general. "If in early age we perceive active hæmorrhages in the brain, in the more advanced periods we perceive similar effects from venous plethora. We then find those apoplexies and palsies from a languid circulation; in other words, from weakened resistance of the venous system. In the lungs we find, from the same cause, humoral asthma and hydrothorax; in the epigastric region, infarcted liver, and the morbus niger; in the hypogastric, hemorrhoids. If we judge right, hemorrhoids are of two kinds. It is a disease of youth, as well as of maturer age; and, in the former, is often acutely painful without evacuations; in the latter less commonly painful, but usually attended with bloody discharges. In each it seems a salutary determination from parts otherwise overcharged; and this we think is proved by many facts. In the very painful hemorrhoids of young persons, saturnine and cold applications, which relieve pain, often induce sickness and faintness. In speaking of fistula, we have shown that checking the discharge is often injurious, and that consumptive symptoms frequently follow the operation and the healing of the wound. We will admit that such consumptions are connected with the state of the liver; but so far as we have seen, and the cases are not few, the age is not that of biliary congestions, but of accumulations in the lungs, viz. the consumptive period, from fifteen to thirty-five, generally from eighteen to thirty.

It appears then highly probable that congestions on the thoracic viscera are relieved by others on these parts; and we thus see the connexion of hemorrhoids with the general health, independent of any venous connexion with the liver. In these cases, the parts inflamed are carunculae already mentioned, and the inflammation is active. Yet in the hemorrhoids of advanced life, such congestions evidently take place. The disease is the venous, and the tumours, in the greater number of instances, varices: they bleed, and the patient is relieved. Congestion and inconvenience follow, to be again obviated by a recurrence of the hemorrhage."

The inflamed and irritable state of the sphincter which these complaints have a tendency to produce, often makes it contract spasmodically on the hemorrhoid, and occasion great pain and distress. Mr. Howship mentions two cases in which the contraction was so powerful and continued, that the strangulated hemorrhoid sloughed off.

In speaking of the treatment of this complaint, we shall of course pass over all cases arising from permanent pressure on the hemorrhoidal veins, as from pregnancy, &c. These can only be relieved by the removal of the cause. For the treatment of all the varieties, the same measures are indicated, except that, as the mariscæ are only visible just after the patient has been at stool, in such cases the practitioner is obliged to take this opportunity of performing operations, or of applying remedies.

The relief of the second variety is easily accomplished. Absolute rest for a few days, attention to the bowels, and warm bathing of the parts, will comprise all that is required.

As the P. M. cruenta, or bleeding piles, often produce much surrounding inflammation, they will require, in addition to absolute rest, an active treatment. If the patient is of a full habit, and the parts are very turgid and painful, an important step will be the application of cupping-glasses near the parts. Leeches will occasionally answer the purpose; but, if it be required to take away five or six ounces of blood speedily, the operation of cupping is much more certain and manageable. If necessary, the bleeding may afterwards be encouraged by fomenting with warm water, or a poppy-head decoction. Should the bowels be confined, it may be prudent to delay, for a little while, the additional disturbance incurred by the passage of a stool, perhaps containing hardened fæces, until the symptoms are somewhat relieved; although the procuring a cool and gently-relaxed state of the bowels is always important; and indeed, till this point is gained, little real progress in improvement can be made. Should feverish symptoms demand attention, saline or antimonial diaphoretics may, if necessary, be added to aperients; and, when they have operated satisfactorily, we may direct an opiate at night. A salve, made of elder-ointment and the powder of oak-galls, in equal parts, may be applied to the tumours, together with linen wet with the lotio aquæ lithargyri acetati. This latter is more particularly necessary in conjunction with leeches, when the case is accompanied with considerable pain and inflammation.

Painful spasm of the sphincter is to be relieved by the continued use of warm fomentations, or occasionally by gentle steady pressure upon the tumid parts, by which means part of the blood will be made to pass inward by the hemorrhoidal veins, relieving the sense of outward fullness. When the pain and inflammatory state of piles is owing to their being constricted by the sphincter-ani muscle, it is evident that the mode of relief consists in pushing the tumours with the finger a little within the rectum, where they are not liable to suffer from pressure. When mariscæ materially obstruct the passage of the fæces, or are very painful, and subject to profuse bleedings, and the means above mentioned are ineffectual, the removal of the tumours should be recommended.

Piles are removed with a knife or scissors, the tumours being

being simply cut through at their bases. In performing this operation we are directed to save some portion of skin, on which account the scalpel is preferable to the scissors. Another mode of removing piles is by a ligature passed round their base. This is an eligible plan when the swellings are situated high up the rectum, where the danger of bleeding is somewhat alarming; but it is tedious, several days often passing before the tumours drop off; and it is also less cleanly, and attended with much more pain than is occasioned by the knife. There are very good surgeons however, who employ the ligature in preference to the knife, and of course where bleeding has produced much debility it is the best method. When the mariscæ are numerous, we shall often succeed, as Mr. Ware first observed, in relieving the patient, by cutting off only one of them; for, if an accurate enquiry be made, he believes it will be found that the patient will point to one, or at most to two, of the tumours, from which all the pain proceeds.

If the hemorrhage which sometimes follows the operation of cutting off piles brings on alarming symptoms of exhaustion, we must distend the rectum with a piece of sponge of such size as will make the requisite degree of pressure upon the opening of the bleeding vessel. Some dip the sponge in a styptic lotion; but the best way is to introduce that substance quite dry into the intestine, and let it expand there with the blood which would be imbibed by it.

When we meet with cases of long standing which we have reason to believe connected with disordered function of the stomach and bowels, a very strict attention to diet is called for. This is at all times indeed of the first importance, since it is quite obvious that, the irritation of the passing of stools being the chief source of irritation, every mean which diminishes their volume and acrimony must be a powerful agent in expediting the cure. If, after stopping the bleeding from piles, biliary disturbance occurs, we shall do well to reproduce the discharge by anal leeching after the manner described when speaking of Coprostitis. Oleaginous cathartics will also be found useful.

5. *Proctica exania*, (*H. procedens*, *Cullen*.) Falling down of the fundament. Inversion and prolapse of the villous tunic of the rectum, from relaxation of the sphincter, with more or less tumour. This species consists of two varieties.

α. P. simplex, consists in a protrusion of a part of the internal membrane of the rectum, which, becoming inverted, and passing out at the anus, forms a red soft flattish circular tumour. It is frequently observed in children, affected with tenesmus or dysentery, in those who are suffering a fit of the stone, or undergoing the operation of lithotomy. Women, having internal hemorrhoids, and in the violent efforts of labour, are also subject to the same accident. Its common cause is too violent and repeated exertions of the rectum itself, excited by some source of irritation about the extremity of this intestine. Thus, the too-frequent employment of aloetic medicines, the action of which particularly affects the large intestines, often occasions the above complaint. The same thing results from ascarides, which, lodging about the lower part of the rectum, occasionally cause excessive irritation. Habitual costiveness, hemorrhoids; in a word, every thing which, by stimulating the rectum, excites too violent an action of this intestine, may induce this complaint. In the early and most simple stage of this disease, the swelling may be easily reduced by compressing it with the fingers, and the reduction may be maintained by the application of a bandage, which will keep up moderate pressure; and, even in severe and more advanced cases, the reduction may be readily effected by the following process. The patient being in bed, lying upon his side, or, what is better, on the abdomen, while his buttocks are raised rather higher than the rest of the body, the surgeon is to make strong but equal pressure,

with the palm of his hand, on the lower portion of the prolapsed intestine. By continuing such pressure, the intestine may, in general, be easily reduced. But, if this plan should not suffice, the upper part of the protruded intestine must be compressed with the fingers of one hand, (previously oiled,) while the lower part is pressed upward by the palm of the other. In this way we are almost sure to succeed, unless, from having too long delayed the reduction, the gut has become swollen and inflamed, when it will be impossible to reduce the part before such symptoms have been subdued. For this purpose it may be proper to take blood from the patient, in such quantity as his strength will allow. The intestine may also be fomented; and, when the swelling has been diminished by these means, there will be no difficulty in replacing the parts in the manner just mentioned.

After the bowel has frequently descended, the sphincter sometimes becomes so weakened, that it can no longer keep the part supported. Hence different bandages have been devised for supporting the anus after its reduction. A compress, doubled several times, is usually applied to the anus, and supported in this position by means of a T bandage; and, in many cases, this answers very well. A machine was invented by Mr. Gooch, which has the double advantage of supporting the intestine more securely than any other with which we are acquainted, and of allowing the patient to take a great deal more exercise than he could do without its assistance. M. Bernard has invented an instrument which consists of an oblong oval body, rounded at one end, and terminating at the other in a narrow, rather long, neck, with a flat border at its extremity. The body of this instrument, which is made of elastic gum, when introduced into the intestine beyond the sphincter, dilates and supports the gut, while the sphincter embraces its neck, and the border of this part of the instrument hinders it from ascending too far up the rectum. A string is also attached to the edge, which tends to prevent the occurrence. This pessary is very smooth, and consequently cannot do any injury to the parts. It is also very light, being only composed of a very thin, though tolerably solid, substance. As it is pierced at its termination, it does not impede the discharge of air, which might otherwise incommode the patient.

When the intestine is protruded at the time the patient is at stool, the part is to be immediately replaced. This the patient should accustom himself to do without assistance; and then the bandage, or pessary, is to be applied. In order to strengthen the sphincter and adjacent parts; the weakness of which must, in the majority of cases, be regarded as the entire cause of the disease, the patient should take preparations of bark and steel, and make use of the cold bath. Astringent injections, particularly such as are composed of an infusion of gall-nuts, or oak-bark, are also serviceable.

With respect to the ulcerated, inveterate, and irreducible, cases of exania, we may attempt the extirpation of such diseases with the knife.

β. P. spasmodica. The tumour large and irritated; and the intestine contracted by a spasm of the sphincter. This serious disorder has been confounded with the previous variety, in which a considerable portion of the colon, cæcum, and even sometimes of the ilium, becomes everted and pushed out at the anus. (*Morgagni de Sed. et Caus. Morb. Ex. xxxiii.*) The tumour has been also mistaken for a mariscæ; and Dr. Cullen has, perhaps, given some countenance to the error, by describing one of his species of hemorrhoids as produced by a prolapse of the anus. The hemorrhoidal tumour is dull and livid; that from a prolapse of the anus is flesh-coloured, sometimes wrinkled, at others smooth and shining. Former practitioners considered this occurrence in the same point of view as *P. exaniæ simplex*: they believed that the whole of the rectum became everted, in consequence of the relaxation of the sphincter and levatores

tores ani, and that it then drew after it other portions of the intestinal canal. But they ought to have been undeceived by the strangulation which generally occurs under such circumstances, and which not only throws a great obstacle in the way of the reduction of the displaced part, but even sometimes brings on mortification. Besides, the connexions of the rectum with the neighbouring parts, by means of the cellular substance which surrounds it, and the attachment of this intestine to the posterior surface of the urinary bladder, render the above origin of the complaint impossible. Such an explanation could only be admitted with regard to those protrusions of the rectum which come on in a very slow manner. This account could not afford a satisfactory explanation of certain cases, in which the everted intestine presents a very enormous tumour. Fabricius ab Aquapendente mentions his having seen tumours occasioned by a prolapsus of the rectum, which were as long as the fore-arm, and as large as the fist. In the *Mélanges des Curieux de la Nature*, we find an account of a tumour of this sort, which was two feet long, and occurred in a woman from parturition. Nor is a more satisfactory reason assigned for these cases, by supposing that they originate from a relaxation of the villous coat of the rectum, and its separation from the muscular one. We are not authorised to imagine that such a separation can take place to a considerable extent, nor so suddenly as to give rise to the phenomena sometimes remarked in this disease. But more accurate observations have removed all doubt upon this subject. In the fourth volume of the *Mémoires de l'Académie de Chirurgie*, we read an account of a pretended prolapsus of the rectum, which, after death, was discovered to be an eversion of the cœcum, the greater part of the colon being found at the lower end of this intestine, and most of the rectum at its upper part. This eversion began at the distance of more than eleven inches from the anus, and terminated about five or six from this opening, the tumour, formed by the disease, having been reduced some time before the child's death. It was impossible to draw back the everted part, in consequence of the adhesions which it had contracted. Another distinction has evinced the same fact. A child, after suffering very acute pain in the abdomen from receiving a blow, had a prolapsus of the intestine through the anus, about six or seven inches long. This was taken for a prolapsus of the rectum. After death, the termination of the bowel out of the anus was found to be nothing less than the cœcum, which had passed through the colon and rectum, to make a protrusion at the anus.

This disease occurs also, as an effect, in obstinate costiveness, stone in the bladder, labour, and helminthia podicis.

In this place we have to detail the measures to be adopted for the removal of concretions and extraneous bodies from the rectum. These concretions may be formed in the larger intestines, and especially in the rectum, by the mere accumulation and protracted lodgment of the feces. Sometimes, however, these masses of indurated matter include no extraneous substance; in other instances, their nucleus is a biliary calculus; but in most cases they are merely composed of the feces in a dry hardened state.

Whatever may be the nature of these substances, their existence may be known by the constipation, complete or partial, which they produce; by the sense of weight which the patient feels about the fundament; or touching the indurated obstructing body, by a finger introduced in ano. Oily emollient clysters, and carminative draughts, will serve for expelling such concretions as are not of too firm a consistence; but the extraction of them is absolutely necessary when they are particularly hard. The operation is to be done with a spoon, or suitable forceps, properly oiled; and, after the concretion has been removed, an emollient clyster is to be administered, in order to allay any irritation which may have been

caused by the introduction of the requisite instruments. When the sphincter ani contracts so forcibly, that the operation is attended with extreme pain and difficulty, we are advised by surgical writers to make a dilatation of the anus, by practising an incision at its *posterior* angle: a wound made in this direction cannot injure any part of consequence, whilst there would be a risk of wounding the urethra in the male, or the vagina in the female subject, if the cut were made at the *anterior* angle; and an incision carried *laterally* would be apt to injure the pudic vessels. A division of the fibres of the sphincter ani does not produce any material permanent weakness of its action; and a paralysis of this muscle, according to Riche-raud, can never proceed from such a cause.

The hard concretions which lodge in the rectum cannot be reached with the finger when they are situated high; and, in this circumstance, the surgeon must use a probe, or sound, in order to assure himself positively of their presence.

The extraction of substances which madness or folly have caused to be introduced into this situation is often attended with a great deal of difficulty, and has even demanded, on the part of the operator, more than ordinary sagacity, in consequence of the various shapes, the hardness, and the fragility, of these different bodies. Glass phials, instrument-cases, shuttles, &c. have been introduced into the rectum by maniacs. One person of this description put into his rectum a flint-stone, which did not admit either of being extracted or broken, owing to its hardness and slippery surface, and which in the end caused the patient to die in the greatest agony, with swelling and gangrene in the abdomen. Marchetti has recorded an instance, in which a pig's tail, hardened by cold, was forcibly thrust up the rectum of a girl of the town. This extraneous body could not be withdrawn, as the short bristles, which all inclined outward, immediately came in contact with and pierced the inner part of the bowel. It remained in the part six days, and occasioned a train of alarming symptoms; such as fever, vomiting, swelling of the abdomen, and obstinate constipation. Marchetti fastened a ligature to the end of the foreign body, which protruded at the anus, and then passed the ligature through a long piece of reed, which he introduced up the rectum, and drew the pig's tail through this tube without lacerating the intestine. In another case, a piece of wood, three inches long and two in width, was lodged in the rectum. Colic, tension of the abdomen, fever, constipation, and difficulty of making water, came on, and lasted six days. The impossibility of removing the extraneous substance with a pair of forceps, led to the idea of using a borer, which, having been passed up the rectum under the guidance of the finger, was inserted deeply enough into the piece of wood to draw it out.

Order II. SPLANCHNICA, [Gr. appertaining to the viscera.] Disorders affecting the collatitious Viscera. This Order contains four Genera.

Genus I. *Icterus*, [Gr. from the yellow or golden colour.] Yellow Jaundice. Generic characters—Yellowness of the skin; white feces; urine saffron-coloured, and communicating a saffron dye. The course of the bile obstructed. This genus has the following five species.

1. *Icterus cholæus*. Specific character; the course of the bile obstructed from its own viscosity, or from loss of contractility in the bile-ducts; general languor; nausea; dyspepsia; and occasional pain or uneasiness at the stomach.

2. *Icterus chololithicus*. (I. calculosus, Cullen.) The course of the bile obstructed by bilious concretions in the ducts; frequent retching occurs in this complaint, with acute pain in the hypogastric region, increased upon eating.

3. *Icterus spasmodicus*. The course of the bile obstructed by spasmodic contraction of the bile-ducts; the

Y y disease

disease preceded by acrimonious ingesta; hysteria, or some violent passion of the mind; and generally subsiding within a few days after these are removed.

4. *Icterus hepaticus*. The course of the bile obstructed by the derangement of the liver from schirrhous or infarction: occasional retching and dyspepsia.

5. *Icterus infantum*. The course of the bile obstructed by vitid meconium; without pain or dyspepsia. See PARTURITION, p. 715.

Jaundice is found symptomatically in pregnancy, colic, coproptasis, and fevers of various kinds; especially in the yellow fever.

The causes of jaundice are sufficiently explained by the above classification, which is indeed founded almost entirely on their variety. The inspissation of bile which occurs in the first species is said by Dr. Saunders to have been found in the gall-bladder, and presenting there a viscid and pitchy consistence. Dr. Powell, on the other hand, states, that it does not seem to block up the large ducts, nor their entrance into the duodenum, but rather accumulates in the liver itself, the deviation from a state of fluidity rendering its passage through the smaller canals difficult. He conceives that this state of the secretion is connected with the use of spirits.

Inactivity of the ducts is another cause of the retention of bile. Some authors have indeed estimated the contractile powers of these parts at a very low rate; but we trust that we shall be able to show, in the proper place, that their contraction, though slow, is powerful and well marked. It cannot however be doubted, but that other powers assist the passage of the bile; as for instance, the occasional distention or relaxation of the stomach, the motions of the diaphragm, bowels, and abdominal muscles. Hence a life of indolence and inactivity seems to be a frequent source of the malady in question. Hence too literary men, and those who are engaged in sedentary occupations, in which for the most part the body is inclined forwards, and the gall-ducts obviously liable to suffer constant compression between the liver and adjoining parts, are frequently jaundiced. But, independently of the deficiency of these aids to the propulsion of bile, a want of contractile power in the gall-bladder will produce jaundice. Dr. Powell mentions a case in which the powers of contraction were lost from over-distention; the accumulation of bile having become so great, as to produce a tumour externally, and an evident fluctuation.

Want of exercise operates powerfully in the production of the second species likewise. Biliary concretions are comparatively more frequent in women than in men; those men who are engaged in literary pursuits are very liable to them; and in either sex they are most common after the active period of life is past. Haller noticed the frequency of their occurrence in criminals whose death had been preceded by long confinement. They are often found in the gall-bladders of oxen which have been stalled during the winter-months; and Dr. Powell believes that they occur in a larger than common proportion of maniacs who have been long confined.

Of the existence of the third species some doubts have been entertained: Dr. Cullen particularly mentions it, and Dr. Powell deems it well established. It is said by Sydenham to come on occasionally during hysterics; and it has been observed to follow violent fits of anger, and other emotions of the mind. But the accurate Dr. Heberden denies the correctness of Sydenham's observation, in respect to hysteria, both from his own experience and the authority of many other practitioners. With respect to the influence of the passions, Dr. Saunders remarks, that anger not only augments the quantity of bile secreted very considerably, but likewise vitiates it: hence it is, that, being carried into the duodenum in large quantities, and regurgitated into the stomach, it produces the same effects as an emetic; and hence probably the term *choleric*, as applied to passionate people. If the ductus communis do not transmit it as fast as it is se-

creted, and the gall-bladder is so full that it cannot receive the excess; then it will be forcibly returned upon the hepatic system, and, by entering the blood-vessels, produce jaundice. Some have supposed that, during the general commotion of the passions, a gall-stone may have been pushed from the bladder into the duct, and thus produced jaundice; but the whole attack has often been too transitory, and too free from the general symptoms of the passage of a gall-stone, to allow of such a supposition. The symptoms of spasm, affecting the parts in question, are, however, generally considered as being similar to those of the passage of a concretion. So that, on the whole, the explanation which Dr. Saunders has given, of the influence of the passions in producing a temporary jaundice, appears to be the most probable.

The fourth species is generally traceable to drinking, as is likewise a thickening of the coats of the biliary ducts, by which their calibre must be diminished, as mentioned by Morgagni (*De Causis et Sedibus Morborum*, Epist. xxxvii. art. 10.) who gives an instance of the total obliteration of the common duct. Dr. Saunders remarks, that this contraction of the canal of the duct is produced by the extension of diseased structure, originally produced in the stomach by the abuse of spirituous liquors, to the biliary ducts. "In the dissection of those who have been intemperate dram-drinkers, the diseased structure may be traced," he says, "from the stomach along the course of the ductus communis; and I have frequently seen these ducts so contracted and thickened, that they could not transmit bile." A similar effect, from inflammation of the liver extending to the gall-bladder and ducts, which often lays the foundation of an incurable jaundice, has been observed by Dr. Pemberton: the inflammation of the duct may be removed, he observes, but the thickening remains, a permanent evil.

In addition to the series of causes already detailed, arising from obstruction to the passage of the bile into the duodenum, it has farther been a question, whether any obstruction to its discharge from the bowels, after it has cleared its appropriate ducts, may not likewise occasion its absorption into the system, and therefore produce jaundice. It would appear, from an experiment of M. Portal, that this may happen. He passed a ligature round the intestine of dogs, a little below the opening of the ductus communis choledochus; and observed that, in five or six hours afterwards, their eyes acquired a yellow tinge; and, upon examining the lacteals, he found them filled with bile. (*Mem. de l'Acad. des Sciences*, 1777.) In some of the cases of obstinate costiveness, accompanied by jaundice, that are on record, it is probable, therefore, that the jaundice was a symptom, rather than a cause, of the costiveness. This seems to be the case, in the slight jaundice of infants, which speedily vanishes when the bowels are unloaded.

It is of consequence that the schirrhous state of the liver should not be mistaken for a mere congestion of blood or turgescence of the vessels throughout the liver, which may press upon and block up the biliary ducts, and thus occasion the absorption of that bile to the secretion of which it ministers. Hepatitis, or inflammation of the liver, is sometimes accompanied by jaundice; and this would probably happen more frequently were it not in general confined to a small part of the viscus, or to its investing membrane. Moreover, after the intermittent fevers of this country, and the analogous remittents of warmer climates, a jaundice often comes on towards the conclusion, which has been considered as forming no very unfavourable prognostic; for there does not generally appear to be any other disease of the liver, in such cases, than an increase of its size, with great accumulation of blood through its substance. Dr. Powell mentions the case of a woman who died of consumption, and whose lungs were found to be almost one mass of ulcerated tubercle; within the last three days of her life, jaundice had come on to a very intense degree. Yet, on dissec-

tion,

tion, the ducts were found free, and the gall-bladder empty, and no external tumour was discovered; but in the liver there seemed to be a great accumulation of blood; it was much increased in size, had a loose texture, and was in every part deeply tinged with bile.

Schirrhous tumours of the contiguous parts, as of the head of the pancreas, of the pylorus, scrofulous enlargements of the lymphatic glands in the capsule of Glisson, and steatomatous swellings of the omentum, are often so situated as to obstruct mechanically the passage of the bile into the intestines; tubercles of the liver have sometimes also operated as extraneous causes, and from their local situation, stopped the natural course of the bile. But the liver is often much enlarged by collections of large tubercles, which yet leave, in their interstices, a perfect freedom for the action of the vessels and the passage of the biliary ducts; and scirrhus of the liver is not usually a general disease, but is confined to particular spots, which are often out of the way of the biliary passages; so that it has been found, on dissection, to have made considerable progress without inducing jaundice.

Tympanites is often accompanied by jaundice, a circumstance which is to be deemed very unfavourable. In a case mentioned by Dr. Powell, the accumulation of air was so great, that, very speedily after the appearance of jaundice, the *cæcum* was burst by it, and the patient destroyed.

From whatever cause the obstruction of bile may arise, the absorbents carry back that secretion into the blood with the serum; and with which it becomes so intimately mixed, that it is received into the minutest of the white vessels, as in the eye and white of the nails. All the solid parts of the body, except the medullary substance of the brain, as some have affirmed, even the bones themselves, the fat, and the cartilages, have been observed to be deeply tinged of a yellow colour. The secreted fluids are generally also deeply tinged. In cases of some duration, the perspirable matter is coloured; so likewise is the saliva, which has a very bitter and bilious taste: but the urine is much more highly impregnated with bile, and more speedily, than any other of the secretions. Indeed the milk is the only exception which is made by authors; for the affection is supposed to extend even to the semen.

The affirmation that the bilious tinge extends to the humours of the eye, has not been detected by modern inquirers, and is probably without any foundation. But Galen, Hoffinan, Boerhaave, and Sydenham, all assert that they have occasionally witnessed the circumstance; and Lucretius says;

Lurida præterea spectant quæcunque tuentur
Arquati. Lib. iv. ver. 333.

On the other hand, Dr. Heberden, and other physicians of much observation and experience, have never found such a change of vision in any patient; nor have we ever met with any living practitioner by whom it had been detected. It is not, indeed, an impossible case, particularly where the disease has been of very long continuance and great intensity, when, should the cornea or humours of the eye become impregnated with bile, the light would pass through a yellow medium, and objects thus be tinged of that colour. But these parts are not usually found impregnated with bile.

To sum up more closely the symptoms of jaundice, we may observe, that it is marked by a yellow colour of the whole surface of the body, which is first seen, and is most conspicuous, in the *tunica conjunctiva*, or white part of the eyes, and at the roots of the nails. The urine is thick, of a deep yellowish-brown colour; and tinges linen and other white substances, immersed in it, of a yellow hue; and this indeed is considered by many a pathognomonic sign. The bowels are often costive, but sometimes loose; and the stools are commonly of a very

pale and clay-like appearance both in consistence and colour, from the absence of bile, and have not the usual feculent smell. This disease is accompanied with a sense of much lassitude and languor, and a great inaptitude to exertion; with lowness of spirits, and a feeling of pain and tension, or weight and oppression, about the præcordia; there is also frequently much anxiety, and some degree of difficulty of breathing, as well as a troublesome sense of itching over the skin, unattended by any eruption. Many symptoms of indigestion are generally present; such as nausea, vomiting, flatulency and eructations, and loss of appetite: solid food tastes bitter in the mouth of some patients; and in some states of the disease hiccup occurs, and occasional paroxysms of rigour or chilliness. The state of the pulse varies much; in general it is somewhat quicker than natural; but in some cases, and particularly under the circumstances just mentioned, it is slower. The pain is sometimes extremely acute in the epigastrium, or pit of the stomach, or in the right hypochondrium, especially during the passage of a gall-stone. Moreover the latter circumstance much increases the symptoms.

A pain, which is often most acute and severe, so as to be hardly supportable, but sometimes moderate, is produced, and is often accompanied by shiverings, which afterwards occasionally recur. The pain is seated at the pit of the stomach, and seems generally to be confined to that point of the epigastric region which corresponds to the situation of the opening of the common duct into the duodenum, and from this part it appears to dart through to the back; the pulse at the same time continues nearly as slow as is natural, and has none of the hardness attendant on inflammation. By an attention to the seat of the pain and this natural state of pulse, Dr. Heberden observes, that it is not difficult to foretel the outward yellowness in many cases, some days before it appears. The breath, during the continuance of the pain, becomes short and hurried; there is great general anxiety and restlessness, sometimes amounting to delirium, and at last great depression and fainting; the stomach is affected by nausea and retching; and there are often irregular spasmodic twitches in various parts of the body. There are often profuse sweats, which are, however, sometimes absent; and they do not depend at all upon the shiverings, for they are sometimes present when no shivering has occurred. These symptoms do not continue long in all their violence; for although the patient, during the passage of a gall-stone, is never free from some pain, yet it increases, by paroxysms, to a state of acute suffering, and subsides again into one of comparative ease, during which there is a sense of deep-seated soreness and fulness of the epigastric and right hypochondriac regions. The greatest relief from pain is experienced by bending the body forward upon the knees, in which position the relaxation of the abdominal muscles leaves the affected parts subjected to the least pressure. Another fit, perhaps of equal or greater violence than the first, then comes on, and alternates with another remission; this may occur several times in an hour; but sometimes the duration of the paroxysm is much longer.

At some early period of these attacks, the jaundice makes its appearance; and it continues for a considerable time after the violent symptoms have disappeared. When the concretion has passed, however, and the more urgent symptoms have ceased, the yellowness may soon be perceived to diminish in its intensity; but, before it can entirely disappear, it requires that the whole quantity of the tinged serum be removed by a gradual operation of the excretory glands, and a fresh supply in a natural state be introduced.

The duration of the attack, including the whole time of the passage of the concretion, is as various as its intensity; sometimes a few hours, sometimes several days, or even weeks, elapse, before it is expelled. In the former case, the passage is often so rapid as not to allow time for the

the jaundice to take place. The number and size of the concretions also vary much: sometimes the gall-bladder is filled with them; at other times there are not more than one or two: sometimes they are small and angular; at others large, and have a more regular surface. They have been sometimes seen nearly of the size and figure of the gall-bladder itself, so as almost to fill the whole cavity. These large concretions are less frequently the cause of jaundice than smaller ones; for, from their bulk, there is but little probability of their entering the *ductus cysticus*, and afterwards of obstructing the *ductus communis*: it is from calculi of smaller dimensions that such obstructions generally arise. Cases are recorded, however, in which calculi of immense bulk have passed; but those have no doubt obtained their passage by contracting adhesion, and producing ulceration into the bowels. It is remarkable, that while stones remain in the gall-bladder they are perfectly harmless; and when they are very small they readily pass with the cystic bile. The principal inconvenience, then, arises upon the accident of their being carried from the cyst into the narrow ducts. Biliary concretions are very frequently found in the gall-bladder, in the dissections of dead bodies, when no symptom has appeared during the life of the person to excite a suspicion of their existence.

It is commonly supposed that the biliary concretions are protruded from the ducts by the contractile power of the ducts alone. The truth of this opinion, however, Dr. Pemberton has questioned; and he maintains, that the gall-stone is propelled by the accumulating bile behind it, which at the same time pushes it forward and distends the duct. For, in the first place, the duct, he affirms, is always found contracted *before* the gall-stone; whereas, if the concretion were protruded by the contractile power of the duct, it ought to be contracted *behind* it. In the second place, opium and blood-letting are employed as relaxants and antispasmodics, and successfully: but this relaxation would rather retard than expedite the passage of the calculus, if its protrusion were the result of the contractile power. This opinion has unquestionably much probability in its favour.

The state of the pulse and the remission of pain, the occurrence of shivering after and not anterior to the pain, distinguish Icterus from the Phlogotica and their consequences.

The icteroid hue which occurs in Chlorosis is distinguished from the colour of jaundice by the unaltered whiteness of the eye, and the absence of bile in the secretions in the former complaint.

The treatment of this complaint must be varied according to the exciting cause of the obstruction. In Icterus cholæus our object will of course be to promote the action of the liver; for which purpose, brisk doses of calomel given at night, and worked off in the morning with salts, will be necessary; and, in addition to this, the regulation of diet and exercise, as noticed under Dyspepsia, must be attended to; and the muscular system put into moderate and regular action.

In the second species, of course, no permanent cure can take place till the biliary concretions are removed from the bile-ducts; and we know of no agent capable of accelerating their passage. If the notion of Dr. Pemberton be true, such medicines as relax the ducts may indeed be useful; and there can be little doubt but that, seeing how materially the muscular action affects these tubes, its presence may indirectly assist the passage of the stones; but, as to dissolving them by chemical agents, it appears to be a vagary long since given up by all enlightened pathologists; and we believe that we allow to our knowledge of the treatment of these complaints all the praise it deserves, when we state, that it embraces nothing more than the removal of impediment to the spontaneous operations of the affected structure, and the correcting of sympathetic derangements. With this first view, large doses of opium may be given, and such measures

may be used as produce general relaxation, as the warm-bath. The second will vary of course according to the nature of the sympathetic disease. If the passage of the stone excite motions in the vascular system even in a slight degree, we should subtract blood freely and suddenly, and endeavour to calm nervous excitement by digitalis, &c. If, on the contrary, these motions are not induced, opium is unquestionably the most powerful remedy for abating pain with which we are acquainted: it should be given first in a large dose, (for instance two grs.) and then smaller proportions at such intervals that a regular effect be procured; always preserving that the bowels are kept open and the vascular system undisturbed.

The same general rules are applicable to the third species. We may remark, however, that in this a free course of purgatives will in most instances be required: these should be of a warm and stimulating nature. The extreme pain often felt in this species requires, as in the former, the exhibition of opium.

In all cases, we think some good will be derived from the use of medicines which promote free discharges of the hepatic secretion. Mercury is of course usually prescribed; but, when this fails or is inadmissible, the acids internally and externally may be used with advantage. Indeed the nitric acid had obtained much reputation in jaundice, even so long ago as the time of Baglivi. The use of alkaline medicines has also obtained some countenance, which can only depend on their correcting in some degree the morbid state of the bile; a state which probably often occasions biliary concretions.

In that state of the liver which produces jaundice towards the end of intermittent fevers, mercury is the best and only remedy; and calomel, in small doses, is the form under which, in this and some other hepatic diseases, it seems to act most powerfully. Where scirrhus of the substance of the liver, or of the neighbouring organs, operates mechanically by its pressure upon the ducts, and occasions jaundice, it is more likely to prove the source of permanent mischief than any other cause, and our means of relieving it are less effectual. In the true tubercle of the liver, which begins with induration, and afterwards passes on to ulceration, the efficacy of any medicine is very doubtful; even mercurials, when given in large quantities, and under any form, have not seemed to produce any decided advantage.

When jaundice arises from a general congestion of the vessels of the liver, general blood-letting, or, if the circumstances of the constitution and strength of the patient forbid that, local bleeding by leeches, or cupping-glasses after scarification, or the application of blisters to the hypochondrium, will be useful, together with the exhibition of purgatives; and if it be admitted, that torpor of the intestinal canal, and a retention of bile or an accumulation of mucus in the duodenum, can sufficiently obstruct the departure of the bile, and thus occasion jaundice, as it seems to do in young children, the employment of any active purgative will be adequate to its removal. Calomel and jalap are particularly well suited to this indication.

Dr. Caleb Miller, of Bristol, (U. S.) has employed with considerable success the phosphoric acid, internally, for the cure of jaundice. He directs a large table-spoonful of the acid, prepared according to the directions contained in Murray's *Materia Medica*, to be added to a pint of balm-tea, and the mixture to be taken as fast as the stomach will bear it, till it operates as a diuretic. In a very obstinate case of jaundice, which was ultimately cured by this remedy, Dr. Miller states, that the patient took eight pints of the mixture in four-and-twenty hours.

Genus II. *Melæna*, [from *μαλας*, black.] Black Jaundice. Generic characters—The colour of the eyes and skin fuliginous, leaden, or livid; black viscid dejections, with occasional vomitings of the same; anxiety; depression of spirits.

The nature of this complaint was supposed by the ancients, among whom we may mention Hippocrates, Boerhaave, and Van Swieten, to be occasioned by *atra bilis*. But Dr. Home, in his *Clinical Experiments*, traces it to an effusion of blood from the meseraic vessels, which, by its stagnation and corruption, assumes that strange appearance. The disease, he says, frequently follows hæmorrhage; and those of a scorbutic habit are most subject to it. It is an acute disease, and terminates soon; yet it is not attended with any great degree of fever. Dr. Good considers that either of these causes may produce it, and accordingly he makes two species.

1. *Melæna cholæa*: the black discharge bilious; the vomiting occasionally green and acid; great languor; vertigo. It seems to depend upon an organic deprivation of the liver, chiefly perhaps in the case of habitual gluttons and drunkards, who have paralyzed or worn it out by perpetual stimulation: in consequence of which, a pitchy and stinky bile is secreted instead of the genuine and healthy fluid.

2. *Melæna cruenta*: the discharge consisting of grumous blood intermixed with bile: pungent tenfive pain in both hypochondria; compressive pain at the pit of the stomach and fainting. This is probably the result of active or passive hæmorrhage (most likely the latter) from the liver, the spleen, the bowels, &c.

This disease has sometimes proved salutary, and it has on other occasions appeared periodically. For the cure of this complaint, gentle purgatives and clysters have been recommended from the time of Hippocrates downwards; and they are as beneficial in this affection as in the hæmatemesis, to which it bears much affinity. Dr. Home employed the diluted sulphuric acid, in addition to laxatives; and, as he believed, with considerable advantage. Emetics he justly deems useless, if not injurious; and shunned the use of opium, as tending to shut up the matter that nature was carrying off. Opiates, however, combined with gentle cathartics, tend rather to aid the operation of the latter, by removing the spasmodic constriction which takes place in the bowels, and thus also afford material relief to the pains. It has been sometimes cured very rapidly by spirit of turpentine in large purging doses.

Genus III. *Chololithus*, [from *χολη*, bile, and *λιθος*, a stone.] Gall-stones. Generic characters—Pain about the region of the liver, catenating with pain at the pit of the stomach: the pulse unchanged; sickness; dyspepsy; inactivity: bilious concretion in the gall-bladder or bile-ducts.

As this disease differs from *Icterus* only in being unattended with yellow colour of the skin, it has been confounded with it by most of the nosologists. Dr. Good has, however, separated them; for he says the yellow dye of the skin and urine, which is the pathognomic symptom of jaundice, occurs often without *Chololithus*; and *Chololithus*, even in its passing species or acute state, without the yellow dye. The different degree in which its symptoms are manifested, according as the gall-stone is stationary or the reverse, has appeared to our nosologists a sufficient reason for separating this genus into the two following species.

1. *Chololithus quiescens*: pain about the liver and at the pit of the stomach obtuse and occasional; the bile less bitter than usual; the dejections irregular.

2. *Chololithus* means: pain about the liver acute; frequent vomitings; dejections white, and at length loaded with one or more bilious concretions.

The reader will find the treatment, &c. detailed under *Icterus*; and the composition of the gall-stones will be mentioned when speaking of the calculous diathesis as connected with calculi in the bladder.

Genus IV. *Parabysma*, [from *παράβω*, *malè coucervo*, to heap up, or obstruct.] Knotty or unequal intumescence of the abdomen from an indurated enlargement of

one or more of the viscera contributory to the digestive function; accompanied with derangement of the general health. This is the *Physconia* of Cullen, Sauvages, and others.

The whole of this genus, with the small exception of cases arising from inaction, may be considered beyond the reach of medicine. Indeed, when we consider that, in attempting to remove tumours of long standing, we are endeavouring to alter the actions of parts which have no analogous structures in the natural state, and with the laws of which we are consequently unacquainted, we can have little hope of accomplishing our task. To this we may add, that, while most maladies which depend on exalted or diminished actions of the natural parts have been found at times amenable to medical agency, experience furnishes no unequivocal records of the like happy termination of the distempers in question. Yet do these distant diseases claim our most unremitting, most intense, study and attention; since what we cannot cure we may perhaps prevent. To trace therefore, by dissection of morbid parts, the various appearances which different grades of disorganization present, and to combine this information with close and faithful delineations of accompanying external symptoms, are pursuits which, though we must confess hitherto almost useless in regard to the complaints in question, must ultimately meet their reward. Attempts of this nature have been made, and are still prosecuted with much ardour, particularly on the continent. The knowledge at present obtained is however small and unsatisfactory; so much so indeed, that many of the varieties arising out of the seven species of our author we shall pass over without comment, merely referring our readers to some of the numerous histories which the learned Dr. Good has noticed; and to the article *TUMOURS* for an account of the probable origin and mode of growth observable in disorganization in general.

1. *Parabysma hepaticum*: hard tumour in the right hypochondrium, verging towards, and sometimes appearing at, the pit of the stomach; general languor; pale or yellow countenance; dyspepsy; dejections irregular, often whitish. There are four varieties of this species.

a. *P. coactum*; from infarction. Found in feeble children, who secrete less bile, and have the cells of the liver clogged with mucus from atony of the absorbents. Found also in intemperate livers; and in foreigners who reside in hot climates: an unequal atony, and at times paralysis, being produced in the organ from the excessive stimulus antecedently excited by the rays of the sun or the use of spirituous potations. (See *Hepatitis* in this article.) In this case, gentle doses of calomel, or blue pill, strict regulation of the bowels, abstemious regimen, &c. are generally followed, after due perseverance, by restoration to health. The same remarks are applicable to the treatment of the infarcted spleen; for by these means a spleen so enlarged as to occupy the major part of the abdomen has been effectually removed in a few months.

β. *P. scirrhusum*; the tumour assuming a scirrhus character.

γ. *P. cololithicum*; accompanied with bilious concretions.

δ. *P. helminthicum*; accompanied with flukes, hydatids, or other worms. See *Winker's Disp. de Hydat. apud Bonet, Med. Septentr. ii. Darwin, vol. iii.*

Other morbid structures of various sorts and sizes are occasionally built up in the liver; but, as there is little evidence of their separate origin, it is needless to multiply the varieties. They are so thickly interspersed in our periodical journals, that all reference seems unnecessary. Some varieties of them will be found in the superb work of Dr. Farr, (*Morbid Anat. Liver, 1812.*)

2. *Parabysma splenicum*; ague-cake: an indurated tumour below the false ribs on the left side, and towards

the spine on the same side; pale countenance; general debility. Three varieties are noted.

α. *P. coactum*; from infarction. Chiefly after obstinate remittents or intermittents in organs weakened by previous intemperance; the absorbents being hence doubly debilitated.

β. *P. scirrhomum*; assuming a scirrhus character. On the death of a woman it was found to weigh thirty-three pounds, and to fill nearly the whole of the abdomen. The complaint lasted seventeen years before the patient died, during nearly the whole of which she pursued her usual avocations. *Sauvages*.—Three times its natural size. *Baillie*, *Morb. Anat. Fasc. vi. pl. 3.*—Contained fifteen pints of pus. *Hist. de l'Acad. des Sciences, 1753.*—The entire viscus has often been extirpated without injury.

γ. *P. cartilaginofum*: the coats of the spleen converted into a cartilaginous substance. *Baillie*, *Morb. Anat. Fasc. vi. pl. 1.*

3. *Parabysma pancreaticum*: hard elongated tumour, running transversely in the epigastric region; dyspepsy; general languor. Here are two varieties.

α. *P. coactum*; from infarction. *Baillie*, *Morb. Anat. pl. vii. fig. 1.*—Torpidity produced by the stimulus of tobacco, almost incessantly chewed or smoked for many years; fatal. *Darwin.*

β. *P. calculosum*; accompanied with white calculous concretions. *Baillie* ut sup. fig. 2, 3, 4.

The pancreas occasionally assumes a scirrhus structure. It is described as remarkable for the little general disturbance of the system; the fixed and burning pain at the pit of the stomach, excessively increased by the pressure of the distended stomach; so much so indeed, that, though the appetite is often good, the patient is compelled to induce vomiting after eating, to lull the pain. The bent posture, as taking off compression, is likewise preferred. Coitive state of the bowels much increases the pain, by producing the like pressure on the diseased viscera. The palliative treatment is therefore obvious.

4. *Parabysma mesentericum*: indurated and irregular masses of tumours below the stomach, yielding to the pressure of the hand; pale bloated countenance; atrophy; the appetite at the same time seldom diminished, often voracious. There are six varieties.

α. *P. helminthicum*; accompanied with hydatids or worms.

β. *P. strumosum*; accompanied with scrophula. See *Marasmus*, in this article.

γ. *P. scirrhomum*; accompanied with scirrhus.

δ. *P. sarcomaticum*; accompanied with sarcomatous excrescences.

ε. *P. steatomatosum*; accompanied with steatomatous excrescences. In one instance, the tumour weighed 40 lbs. *Nov. Act. Nat. Cur. vol. i.*

ξ. *P. fungosum*; accompanied with fungous excrescences.

The above varieties are from *Sauvages*, who has been copied by *Cullen*. The tumours are often very large, and conglobated: and at times accompanied with cysts filled with a limpid fluid. In one instance these amounted to twenty of various sizes, one as large as a child's head, six as large as the fist, and the rest resembling hens' and pigeons' eggs. Hence the whole abdomen is in some cases so generally tumefied as to give a semblance of pregnancy. This is particularly the case with the last variety; and as the appetite, state of the bowels and bladder, are often unaffected, there is not unfrequently some difficulty in determining the nature of the disease. See *Sauv.* in loco; as also the writings of *Welsch*, *Trincavelli*, *Morgagni*, and *Riolani*, who have made collections of extraordinary cases; and compare *Cruikshank* on the Anatomy of the absorbing Vessels, p. 115. 2d edit. 4to.

5. *Parabysma intestinale*: the tumour hard and circumscribed; round or elongated; moveable upon the pres-

sure of both hands; irregular dejections; obstinate vomiting; pyrexia; and for the most part emaciation. Two varieties.

α. *P. conglomeratum*; cohesive, and conglomerated. *Morgagni*, de Sed. et Caus. Morb. tom. ii. In this case the tumour lay sensible to sight, of a circular shape between the ensiform appendix and navel. On dissection, the ileum and adjoining portion of the jejunum were retracted upwards, coarctated, and firmly adhesive.

β. *P. farcomatosum*. *Fantoni*. *Obs. Med. select. ii.* In this case the tumour, of an oblong shape, lay below the left hypochondrium inclining to the epigastrium, prominent, with unequal hardness. On dissection, every other part being found healthy, the colon, under the stomach, and towards the left side, for the length of the palm of the hand, appeared closely indurated, distended, and loaded with a fleshy fibrous peculiarly-thickened tumour, which contracted its diameter.

6. *Parabysma omentale*; the tumour indurated and diffused; frequently spreading over the whole of the abdominal region; dyspnoea; emaciation. This species is usually of a mixed kind: infarcted; scirrhus; glandular; and cartilaginous. It has been found of various extent and magnitude; from a weight of five pounds to twenty, twenty-five, thirty, and in one instance (*Greg. Horstii*. *Prob. 10. dec. vi.*) fifty-six pounds, occupying the whole capacity of the belly. In one case, the hardness was almost stony: *Panarol*. *Pentec. iii. obs. 10.* In another, osseous, the weight thirteen pounds: *Mongin*, *Hist. de l'Acad. des Sciences, 1732.* In a third, loaded with many thousand glandules; in a fourth, accompanied with excruciating pains, the weight sixteen pounds: *Huxh.* *Phil. Trans. vol. vii.*

7. *Parabysma complicatum*: the belly hard, elevated, and distended as though pregnant, and often supposed to be so; yet more or less knotty and unequal; the breathing seldom impeded; for the most part, acute pain, nausea, obstinate vomiting, and thirst. (*Physconia polyplanchna*. *Sauv. Cull.* *Physconia visceralis*. *Auc. Var.*)

The symptoms of this species, *Dr. Good* observes, must vary according to the organs affected, and the nature and extent of the disease. The enlargement is generally found to be sarcomatous, scirrhus, hydatidous, or adipose. The liver is in most cases more or less concerned; sometimes in connexion with the spleen, sometimes with the mesentery, sometimes with the stomach or intestines, and sometimes with all together. *Hildanus* found the liver so enlarged as to pass beyond the false ribs of the left side, with the spleen equally enlarged, and fixed to the hepatic lobe. *Cent. ii. Obs. 45.*—*Huldenreich*, in a woman of forty-five years of age, found the liver scirrhus, weighing fourteen pounds, with a fleshy excrescence in the mesentery of the size of a child's head: *Mijchel. Nat. Cur. ann. vi. and vii.* Jaundice accompanied this case.—*Bartholine* mentions a woman of elegant form, in the flower of her age, attacked with another variety of this disease, which at length destroyed her: when all the intestines, liver, spleen, and every adjoining viscus, were found intermixed, and buried in fat; the liver being at the same time enlarged and scirrhus, and filling both hypochondria; the stomach thickened, and cartilaginous: *Cent. ii.*—*Coiter* found the whole of these organs adhering together, and filled with cysts of different sizes distended with a limpid fluid; he reckoned more than fourscore: the organs themselves were exhausted and dry. *Obs. Anat. p. 117.* See also the works of *De Haen* and *Boerhaave* for remarkable dissections of the same kind.

Recent researches seem to prove in a very convincing manner, that, however different the matter contained in abdominal tumours, they have a common origin in tubercles, or, as some say, in hydatids. We shall not enter into this speculation now; but, as it is of importance to distinguish the earliest approaches of a disorder which gradually involves the whole of the liver, peritoneum, intestines,

testines, and occasionally the stomach, in one dreadful and incurable disease, we shall transcribe from Dr. Baron a clear, and we believe, from our own observation, faithful, portrait of its primary symptoms.

The complaint comes on in general with tenderness and distention of the abdomen, accompanied with nausea and vomiting. The bowels, for the most part, are costive, both before and after the attack; but they are frequently in an opposite state. At this period, the symptoms not being so violent as to force the patient to seek for proper relief, they are very apt to be neglected: but, unless the true nature of the disorder be discovered, and its course arrested at an early stage, all subsequent efforts will probably be useless. The progress of the affection is as follows: the bowels become more and more irregular in their action; the tenderness and swelling increase; the appetite fails; the pulse acquires greater velocity; the features look sharp and contracted; the countenance becomes pale or sallow, the lips parched and skinny; the tongue sometimes of a bright colour, resembling what is seen in diabetes, at other times it is covered with a thick whitish mucus. The flesh and strength decay rapidly: great emaciation takes place: the skin, except towards the last stage, is for the most part dry and scaly: the urine small in quantity; occasionally clear, more frequently otherwise. If a cough has not existed from the beginning, it is very apt to occur about this time; but this is by no means to be considered as a diagnostic symptom; its existence depending upon the spreading of the disease to the pleura, and thoracic viscera.

The feet sometimes swell towards the conclusion of the disease, or the swelling is confined to one leg or thigh. At this period, if the examination of the abdomen be made with due care, it will be found to communicate to the touch the feeling occasioned by a solid tumour; the integuments and muscles not rolling upon the contained parts as in a state of health. But in some cases, where the effusion is conjoined with the original and more important disease, a sense of fluctuation may be discovered. Very frequently the patient complains of a distressing feeling of a "broiling heat" at the stomach; the discharge of a tough ropy phlegm from the mouth, constant nausea, with violent retching and vomiting; and, in two cases, the matter brought up during several days before death was stercoraceous. In the course of the complaint, the appetite is for the most part very bad; but the desire for liquids is insatiable, even though a consciousness exists that a large quantity cannot be swallowed without occasioning very great distress. When a feeling of sinking and emptiness prevails, the patient eagerly thinks of many articles that might allay his uneasiness, but the sight of them seldom fails to excite loathing and disgust. Should any sustenance be taken, it is either speedily returned by vomiting, or it causes indescribable uneasiness. The patient rolls about in all directions, in vain seeking for some point where he may repose. Every action of the stomach or intestines comes to be performed with great pain. The passage of flatus upwards or downwards, the movements which take place before the evacuation of the bowels, all give rise to suffering. At times the pain is sharp and transient; at others it is heavy and obtuse; but a sense of weight is seldom absent; and it is more felt after vomiting or purging than before. One patient, (an infant,) in allusion to this symptom, used to put his hand on the abdomen, and exclaim piteously, "Oh! so heavy!" Another said, that his bowels felt as if they were "tied up in a napkin." At another time he said, "they seemed to be in a mass;" and at a third, he declared that, if he had "a shot attached to every convulsion of his intestines, he could not suffer more than he did."

The above-mentioned author has not found medical treatment of much avail even in the earliest stages of the above complaint. The production of a continued state of nausea has seemed to him to be attended with some

advantage; and Dr. Jenner has communicated some cases which were cured by a long continuance of that uneasy sensation. It is necessary, moreover, to palliate the symptoms by bleeding occasionally; to keep the bowels lax, and to relieve pain by narcotics. Mercury, which might be supposed an agent of some use in promoting absorption, appears to aggravate rather than to ameliorate the complaint. It is to be observed, that a somewhat different practice will be resorted to by those who regard this disease in a different light from Dr. Baron; this gentleman considering it a disease of the absorbents, while others consider the tubercles (the most common and earliest appearances on dissection) to be produced by effused coagulating lymph, the consequence of inflammation. Dr. B. opposes this view of the case with much ingenuity; but, upon summing up all the facts known on this interesting subject, and after tracing the different gradations of diseased structure with much labour, we are forced to acknowledge our information very insufficient, and our minds far from being made up on this head.

CLASS II. PNEUMATICA, [from πνευμα, breath.]

DISEASES OF THE RESPIRATORY FUNCTION.

Order I. PHONICA, [from φωνη, the voice.] Disorders affecting the Vocal Avenues. This Order contains six Genera.

Genus I. *Coryza*, [Gr. nasal mucus.] Running at the nose. Galen confines the term κορυζα to defluxion from the nostrils alone; but Hippocrates, as we learn from Celsus, applied it equally to defluxions from the head, nostrils, fauces, and chest. The latter Greek physicians restrained it to the first, and distinguished the two latter by the name of catarrhismus (κατασταγμας), which equally imports *disillatio* or defluxion. Among modern writers *coryza* is used synonymously with *catarrh*, and is consequently regarded as a febrile affection. It may indeed occur, and often does so, in various fevers as a symptom; but the older nosologists are more correct in giving it a place distinct from fever, when strictly genuine. Defluxion from the nostrils may proceed from two very different sets of causes: increased action of the secretants, and diminished action of the absorbents. The first or stimulating set may consist of sternutatories; of the irritation of sympathy, as in crying; of infectious effluvia in the atmosphere (sometimes, though seldom, limiting their action to the mucous membrane of the nostrils, and hence approaching the nature of catarrh); and of the local stimulus of an *ozæna*, or nasal ulcer. The action of the absorbents may be diminished by exposure to severe cold; by the debility of old age; and by a long habit of sternutatories, which have a tendency, in proportion to their use, to render all the vessels of the nostrils torpid; although the absorbents, as in the cases of age and cold, and indeed in all instances of debility, are sooner operated upon than the secretants. Here, therefore, the defluxion is produced, not from increased secretion, for the secretion may even be less than in a state of health; but from the secretion, whatever its quantity, not being carried off by its usual channel; and hence again that frequent and unsightly dripping from the nostrils of persons who addict themselves to large quantities of snuff. Of this genus we have two species, with their varieties.

1. *Coryza entonica*: the defluxion pellucid, mucous, or ropy, with a sense of irritation or infarction. This species is divided into four varieties.

α. *Sternutatoria*; from sternutatories.

β. *Lachrymosa*; from weeping or crying; the lachrymal secretion being increased by mental emotion.

γ. *Catarrhalis*, cold in the head; from sudden cold or change in the temperature of the atmosphere; accompanied with a nasal voice and loss of smell; and excoriation of the mucous membrane of the nostrils. The *catarrhalis*

tarrhal variety of Coryza is most frequently met with in damp weather; and, as might be supposed, oftenest attacks persons of the most delicate habits. In general the increased secretion induced gradually unloads the mucous membrane, and the complaint goes off. It is frequently connected with irritation of the bronchial lining of the lungs, and is then cured by the same measures as the latter affection.

C. catarrhalis in infants is often however of a violent nature; so much so indeed, that we shall give a more full account of it than of the preceding varieties. This coryza generally attacks infants at the breast; it is characterized by sneezing, tumefaction of the nose and eye-lids, and a shining appearance of the skin covering those parts; constant open state of the mouth; a rather dry state of the lips and tongue; the respiration is accompanied by a nasal wheezing. Sucking is impeded, though liquids put into the mouth are swallowed with facility; the infant takes the nipple in his mouth, but he has hardly made three or four suckings when his respiration appears to be obstructed; his face becomes of a violet colour; he precipitately abandons the nipple, utters some cries, and is seized with a fit of severe coughing, which leaves him in a state of partial stupor. These accidents disappear in a short time, but are renewed whenever he again attempts to suck. This first stage of the disease lasts for four or five days, or thereabouts; it is followed by a secretion from the nasal cavities, the existence and quantity of which, at least in new-born children, it is not always easy to ascertain, because it either dries or falls into the pharynx when the infant lies horizontally on its back. The absence of any appearance of malformation of the tongue or of the mouth, the facility of deglutition, the occurrence of fits of coughing every time the infant attempts to suck, joined with the particular symptoms before mentioned, such as a shining appearance of the skin of the nose, with a tumefaction of this part and of the lower eye-lids, a nasal sniffing, the manner of respiration by the mouth, clearly show inflammation of the mucous membrane of the nasal cavities. The infant should be kept warm; and we should direct the attendants to foment its nostrils with a warm decoction, and carefully remove the mucus collected in them. The infant will generally be able to suck as soon as the state of the nasal cavities permit it to breathe with the mouth closed.

δ. C. ozænoza, [from *ὄζον*, stench.] An ulcer situated in the nose, discharging a fetid purulent matter, and sometimes accompanied with caries of the bones. Some authors have signified by the term, an ill-conditioned ulcer of the antrum. The first meaning is the original one. The disease is described as coming on with a trifling tumefaction and redness about the ala nasi, accompanied with a discharge of mucus, with which the nostril becomes obstructed. The matter gradually assumes the appearance of pus, is most copious in the morning, and is sometimes attended with sneezing and a little bleeding. The ulceration occasionally extends round the ala nasi to the cheek, but seldom far from the nose, the ala of which also it rarely destroys. The ozæna is often connected with scrophulous and venereal complaints. In the latter cases, portions of the ossa spongiosa often come away. After the complete cure of all venereal complaints, an exfoliating dead piece of bone will often keep up symptoms similar to those of the ozæna, until it is detached. Mr. Pearson remarks, that the ozæna frequently occurs as a symptom of the Cachexia siphiloidæ. It may perforate the septum nasi, destroy the ossa spongiosa, and even the ossa nasi. Such mischief is now more frequently the effect of the Cachexia siphiloidæ than of Lues venerea. The ozæna must not be confounded with abscesses in the upper jaw-bone.

The variety we are treating of has its origin, in common cases, from a violent degree of catarrhalis; and therefore, when the former complaint is present, it is necessary to repress it as fast as possible, by local bleeding

and counter-irritants, before this unpleasant and intractable stage of the complaint be induced. When struma or siphilis is the cause of the discharge, the general treatment of those affections must be had recourse to. Causes which arise from the former of these complaints are the most tractable.

2. Coryza atonica; defluxion limpid, and without acrimony, or sense of irritation. Three varieties.

α. Algida; from exposure to a keen, frosty, air.

β. Senilis; from old age.

γ. Superacta; from long and immoderate use of strong aromatics, volatile alkali, or snuff.

Genus II. *Polypus*, [from its resemblance to the worm of that name.] A fleshy elongated excrescence, shooting from one or more slender roots in the cavity of the nostrils, running in different directions, and affecting the speech.

It has lately been the custom to apply the term *polypus* to a variety of concretions and excrescences arising in different parts of the body, of very different origins and textures, as polypi of the heart, which are perhaps always grumous blood, or concrete gluten; polypi of the uterus and bladder, which are caruncles with a slender base or peduncle; and polypi of the trachea, which are also concrete gluten, occasionally coughed up, sometimes solid and branching, sometimes tubular. Dr. Good, however, has followed Celsus, and most writers from his time to that of Heister, in restoring and limiting it to the fleshy and ramifying excrescence of the nostrils; and he divides it into two species.

1. *Polypus plasticus*, the soft polypus: soft, compressible, chiefly pale-red; apparently originating from distention or relaxation of the Schneiderian membrane.

2. *Polypus coriaceus*, the hard cartilaginous polypus: firm, cartilaginous, chiefly deep-red; apparently originating from, or connected with, a caries of the ethmoid bone.

This complaint, being mostly the subject of manual operation, will be treated of under the article SURGERY.

Genus III. *Rhonus*, [Greek.] Hoarse sonorous breathing from stagnation of mucus in the vocal canal. There are two species.

1. *Rhonus stertor*, snoring or snorting: the sound deep and loud; produced in the larynx and fauces.

2. *Rhonus cerchnus*, wheezing: the sound dense, and impeded; produced below the larynx.

We cannot help considering both these species as symptomatic; though Dr. Good says, "it requires only a slight knowledge of the habits and morbid actions of the animal system to discover instances in which both sorts are idiopathic." But his mode of proving this assertion seems rather to favour our opinion than his own; for he states, that "many persons have a thick or wheezy respiration, produced by corpulency, or by changes of the atmosphere from hot to cold, or from dry to moist, without any other diseased affection."

Of the remaining three genera of this order we shall merely give our author's divisions, the subject being amply treated of under the articles DEAF and DUMB, STAMMERING, STUTTERING, &c.

Genus IV. *Aphonia*, [from *α*, priv. and *φωνη*, voice.] Dumbness; total inability of speech. (*Mutitas*, *Cull.* and *Sauv.*) This, we think, should have been the last genus of the order. It contains three species.

1. *Aphonia elingium*, dumbness from the want of a tongue. This species is naturally divided into two varieties: α, congenita, where the deficit is coeval with the birth; and β, where the same is produced by accident, punishment, or disease. In either case we may naturally suppose this to be a radical and irremediable defect. Privation of the tongue, however, is not always accompanied with dumbness; since we have numerous,

and

and apparently well-authenticated instances of the speech remaining perfect after a total loss of tongue and of uvula. We shall cite two of the most remarkable.

The first is of a woman who was a native of Monfaray, in the territory of Elvas, in Portugal. The case was attested by Wilcox bishop of Rochester, then chaplain to the English factory at Lisbon, in a letter dated from that city, Sept. 3, 1707; and was laid before the Royal Society in London. The following is an extract from the letter: "The Conde d'Ericeyra, a nobleman of letters, and curious in natural knowledge, brought from the frontiers of this country a woman without a tongue, who yet speaks very well; she is seventeen years of age, but in stature exceeds not one of seven or eight. I was with her at the conde's house, and made her pronounce every letter of the alphabet, which she can do distinctly. She hath not the least bit of a tongue, nor any thing like it; but the teeth on both sides of her under-jaw turn very much inward, and almost meet. She finds the greatest want of a tongue in eating; for, as others when they eat move their meat about with their tongue, she is forced to use her finger. She pretends to distinguish tastes very well, but I believe doth it imperfectly. Her voice, though very distinct, is a little hollow, and like that of old people who have lost half their teeth."

The other case was that of a girl born in Portugal also, (in 1718,) without a tongue. M. de Jussieu, of the French Academy, saw her at Lisbon when she was about fifteen years of age. He examined her very attentively. In the place of the tongue was a small fleshy substance, which he found was able to contract and dilate itself, of course it had all the muscles of the tongue. The places where the tongue should be, remained plump and full, as if the tongue had been in being. He examined afterwards how she performed the several functions of the tongue. First as to speech: she pronounced several words so distinctly, that, had he not known she wanted the tongue, he could not discover by her speech that she wanted it. She, however, pronounced the letters C, F, G, L, N, K, S, T, X, Z, with more difficulty than the other consonants. When she pronounces them, she inclines her head forward, drawing back the chin as it were to the larynx, in order to raise it in a line with her teeth. The second function of the tongue, the taste, she had as exquisite as any body. She told M. de Jussieu, that she found an agreeable taste in those dry sweetmeats he had given her. Mastication she performed with difficulty: the above fleshy substance was not long enough to gather and keep the food under the teeth: she was here obliged to use the maxilla inferior, which through habit she could either approach or remove from under the superior, as she wanted to bring the morsel she would grind under the upper jaw. She sometimes used her finger for the same purpose. Deglutition must needs be difficult to her. The tongue naturally forms itself into a kind of a hollow, somewhat like a spoon, by which means it gathers every atom in the mouth, and protrudes them into the pharynx; but here nature and use from her infancy have in some measure supplied this want of a tongue. The muscles attached to the above fleshy substance raise themselves up, forming at the same time a kind of rima, which, in some sort acting the part of a tongue, protrudes the aliments into the pharynx, she observing to incline her head forward, which facilitates their descent. Those, together with the labial muscles, help her by their contraction to spit out what is in her mouth.

M. Roland, surgeon at Saumur, has a case pretty nearly the same. A boy, nine years old, lost his tongue by a mortification that ensued an ulcer he had after the small pox. There was this difference, the root of the boy's tongue was bifurcated, and pretty apparent, whereas the root of the above girl's was round and small. This boy also could speak, and perform the other functions of the tongue, like the girl.

VOL. XIX. No. 1296.

2. Aponia atonica: speechlessness from atony of the vocal organs. Here also we have two varieties.

α. Oblæsa; from lesion of the nerves of the tongue; as in paralysis.

β. Pathematica; from sudden and overwhelming terror or other violent passion. Commonly temporary, sometimes permanent.

3. Aponia surdorum. Dumbness from deafness, congenital or produced during infancy.

Genus V. *Dysphonia*, [from *δυσ*, bad, and *φωνη*, voice.] Sound of the voice imperfect or depraved. This is the Aponia of Cullen and Sauvages. There are three species and many varieties.

1. *Dysphonia susurrans*: the voice weak, whispering, and scarcely audible. The varieties are—

α. Oblæsa; from lesion of the nerves of the larynx.

β. Pathematica; from sudden and overwhelming terror, or other violent emotion of the mind: occasionally permanent.

γ. Compressorica; from permanent compression of the trachea.

δ. Catarrhalis; from neglected catarrh.

ε. Enervis; from simple debility of the larynx without any obvious cause. Dr. Good "has at this time a case under his care produced in this manner, in which the patient, about forty years old, and otherwise in good health, has never spoken, except in a whisper, for the last six years."

2. *Dysphonia puberum*, change of voice. The voice dissonant and untrue to itself, irregularly alternating from harsh to shrill; confined to the age of puberty. This, we think, can hardly be considered as a disease. Sauvages and Cullen call it *Paraphonia puberum*.

3. *Dysphonia immodulata*: the voice permanently depraved or inharmonious. The varieties are—

α. Rauca; naturally or habitually hoarse, harsh, or rough.

β. Nasalis; sent with a cracked and grating sound through the nostrils. Produced by habit, affectation, or nasal obstruction.

γ. Clangens; shrill and squalling.

δ. Sibilans; with a whizzing or hissing sound.

ε. Stertens; with a snorting, snoring, guttural, or stertorous, sound. Usually from relaxation of the glottis or velum palati.

ζ. Palatina; hoarse, obscure, indistinct; with a fissure or other defect in the palate. This defect is mostly congenital; but occasionally a sequel of lues and some other disorders.

Genus VI. *Pfellsismus*, [Gr. to stammer.] Articulation imperfect or depraved. There are two species.

1. *Pfellsismus bambalia*, stammering. The flow of the articulation disturbed by irregular intermissions or snatches. Dr. Good makes two varieties.

α. Hæsitans, or hesitation: involuntary and tremulous retardation in articulating particular syllables.

β. Titubans, or stuttering; involuntary and tremulous reduplication of some syllables, alternating with a tremulous hurry of those that follow.

These two varieties of stammering are thus well described by Shakespeare: "I would thou couldst stammer, that thou mightest pour out of thy mouth, as wine comes out of a narrow-mouthed bottle, either too much at once or none at all."

2. *Pfellsismus blæsitans*. The enunciation vitious. Here we have no fewer than seven varieties.

α. Ringens; with a vibration or redoubling of the letter R.

β. Lallans; the letter L unduly liquid, or substituted for R. As when delusive is pronounced deliusive, as though the *l* possessed the power of the spanish *ll*, or the Italian *gl*; or as when parable is pronounced pafable.

Alcibiades is supposed to have laboured under this defect. It is also said to be common to the Jews of China, who have dwelt among the Chinese so long as to have lost the sound of R, in consequence of its not existing in the Chinese tongue.

γ. Emolliens; the harsh letters exchanged for soft, as in the substitution of *anzel* for *angel*; *capitol* for *capitol*; *dat* for *that*.

δ. Balbutiens; labials, as B, M, P, too frequently introduced, or used instead of other letters. So *Veda* is pronounced *Beda*, *Venares* *Benares*, in Bengal, the Bengalee having no V. So *inpringe* is often used for *infringe*; *ibory* for *ivory*; though *b* and not *v* is here the radical letter, the Latin term being *ebur*.

ε. Mogilalia; labials omitted or exchanged for other letters. Most commonly P for F, and F for V, as *filser* for *pilser*; *vish* for *fish*. So the Latin *sibilo* is transformed by the French into *siffler*.

ζ. Dentiloquens, lisping: dentals, as C, S, T, Z, too frequently employed; producing the effect of what is called, in common language, speaking through the teeth.

η. Gutturalis; imperfect utterance of the guttural letters; as G, J, H, X. This, and indeed all the varieties of the present species, as well as many others that are connected with it, are most usually the result of vicious habit, produced by want of attention to the articulation of sounds in infancy, or to affectation. They are also sometimes dependant upon a misconstruction of the vocal organs: of which the present variety furnishes us with an example; for a defective utterance of the guttural letters must be a necessary consequence of a fissure in the palate.

Order II. PNEUMONICA, [Gr. from *πνευμα*, breath.] Disorders affecting the Lungs, their membranes, or motive power; and producing irregular, impeded, or painful, respiration.

The respiratory system performs the task of presenting to the blood a certain aerial matter necessary to that fluid ere it can perform many of the most important functions of the animal economy. The powers in use are, 1. Large sponge-like masses called *lungs*, which passively receive and emit, and which in the remotest termination of their cells allow contact (or nearly so) between the blood and the atmosphere. 2. Moving powers, or muscles of respiration, which, alternately pressing or removing pressure from the lungs, allow the weight of the atmosphere to inflate the sponge, or on the other hand expel the air evidently changed in its properties. Between these two parts, viz. the mucous lining of the lungs and the respiratory muscles, a strong and perpetual sympathy exists. No sooner have the lungs become filled with air to a certain extent, than the stimulus applied is conveyed to the muscles, which contract and empty those organs, while the contraction of other muscles occurs to dilate the chest again as soon as the uncharged blood, flowing into the lungs, produces an uneasy sensation. This sympathy brings to our consideration the 3d agent concerned in respiration; viz. the nervous system.

These are the agents which apply the air to the blood. The power which applies the blood to the air, namely the *heart*, is likewise to be taken into consideration, as this organ and the lungs are generally connected in disease and in health. Leaving out of the question for the present the remote injury to the brain by deficiency of blood, and to the heart by depravation of the same fluid, and premising that no impediment exists to breathing in the mouth, nostrils, or fauces; we remark, that the aerial change of the blood may be imperfectly or difficultly performed in consequence of a want of the due expansion of the lungs; from an altered action of the respiratory muscles; or from an altered state of the respired air.

The due expansion of the lungs may be prevented by an alteration of structure, whether of the tubes and cells, or of the substance, of the lungs; as by ossification, by abscesses, by hydatids, by tumours, by condensation of the lungs; by earthy concretions; by plethora of the blood-vessels of the lungs generally, whether pulmonary or bronchial. The due expansion of the lungs may also be prevented by anasarca or by emphysema of the cellular membrane which connects the bronchia; perhaps by adhesions of the pleuræ; by collections of fluid in the cavities of the pleuræ; by enlargement of the heart, or by enlargement of any of the parts so situated as to offer mechanical impediment to the enlargement of the thorax. Ossification of the cartilages of the ribs; gibbosity; ankylosis of the joints between the ribs and the spine; irregular action of the diaphragm; or obstacles to its descent, as distention of the stomach or of the intestines, or paralysis, or hydrops, may likewise be enumerated as capable of hindering the expansion of the lungs.

The action of the respiratory muscles may be diminished by contractility in their fibres, or by want of nervous power. It will be increased by every circumstance capable of irritating the mucous membrane of the lungs, and thus exciting sympathy, in common with other muscles, by the action of the brain, or by general increase of contractility.

The air which is respired, may be deficient as to quantity, or it may be too much rarified, or it may contain noxious particles, or it may consist of some noxious gas; or, in short, its composition may be altered in various ways from the natural constitution of the atmosphere.

The first and most remarkable mode in which the respiratory system is deranged is in what is called *coughing*. In this action a large quantity of air, furnished by a considerable inspiration, is violently and suddenly expelled, with a considerable noise, by a very strong and almost convulsive expiration, and in its passage clears away mucus, or any thing else which may happen to be in the air-passages. The air may be driven out at once or at several expirations: in the latter case the expirations are continued often as long as any air can be expelled, and the emptied chest is again supplied by an inspiration accompanied with noise. It is obviously nothing but a sudden and exalted display of that sympathy which produces respiration, and is generally produced by nervous excitement of the bronchial membrane. We must not forget however, that, as a sympathy exists between the respiratory muscles and other parts as well as the lungs, so coughing may be induced by other causes than the irritation of the latter organs. Thus disorders of the viscera of the abdomen, especially of those which lie in contact with the diaphragm, frequently bring on a cough. A short dry cough is an invariable symptom of inflammation of the liver, whether acute or chronic, and accompanies the various tubercular and other obstructions in that organ. Disorders of the stomach are, also, often accompanied with a cough of the same dry and teasing nature, especially when that organ is over-distended with food, or is in the opposite condition of emptiness. In short, there is scarcely a viscus in the cavity of the abdomen, the irritation of which, in a state of disease, has not excited cough. Disorders of the spleen, pancreas, and even the kidneys, have all given rise to this symptom; and external tumours, attached to them, have had the same effect. (See Morgagni *Epist.* xix. art. 57, 58, &c.) Thus, in the ascites, or dropsy of the belly, the water; in tympanites, the air; in corpulency, the fat in the omentum; and, in pregnancy, the gravid uterus; have all, in some cases, the effect of exciting cough.

Our readers should bear in mind, however, that each of the causes here enumerated may injure the expansion of the lungs permanently, and excite convulsive action of the respiratory muscles only as a secondary result. But at present we are to confine ourselves to the discussion of those

those causes of cough which have their seat in the lungs. Accordingly, in the order Pneumonica we have six genera.

Genus I. *Bex*, [Greek.] Cough. Catarrhus, *Cullen*.
Generic character—Sudden and violent expulsion of air from the lungs. There are three species.

1. *Bex humida*, or common cough, is too well known to require a particular description. There are four varieties.

α. B. mucofa, usually comes on with slight stuffing of the nose, and sense of fulness in the palate and contiguous parts; a flow of mucus follows, which unloads the secreting vessels, and a spontaneous cure occurs. Its nature is so generally allowed to be the same as CATARRHUS, that to that genus we must refer the reader for a full account of the fever forms.

β. B. anhelans. (*Dyspnoea catarrhalis*, *Cull.*) The chronic cough of old age. This also can be considered in no other light than a consequence of previous inflammation of the mucous membrane, and hence it were perhaps better to treat of it under CATARRHUS; but, as its very prolonged stage may be merely the result of increased exhalation, we shall not disturb our nosologist's arrangement. We take a description of it from the excellent work of Dr. Hastings on Bronchitis. He says, "The cough generally attacks the patient in the commencement of the cold weather, and sometimes continues throughout the whole of the winter months. The mucous membrane is so irritable, that the slightest change of temperature is sensibly felt. The respiration is always uneasy, and a peculiar wheezing of the breath is often present. The cough is most violent in the morning, the patient never failing to cough for a considerable time after he awakes; and the fit seldom goes off till the air-cells are unloaded of the secretions which have collected there during the night. Throughout the day the cough is often quiet for several hours together, and only comes on in consequence of increased exertion, or when the stomach is loaded with a hearty meal. The expectoration is copious, and usually consists of tenacious mucus mixed with a pus-like fluid. Sometimes, however, it is much less consistent, and it is white and frothy. The patient has seldom any pain in the chest, and if he have, it is slight and transient. Some symptoms indicative of disorder in the digestive organs are generally present. There is a sense of weight in the epigastric region, and the patient is frequently affected with pain in that part. The tongue is white and loaded, and the appetite fails. The pulse is quicker than natural, though rarely hard. The urine is often high-coloured, and not seldom scanty. The bowels are irregular. Such a combination of symptoms as that above stated is common; but we sometimes meet with chronic bronchitis which has existed for some time without producing much constitutional ailment. The patient is affected with cough, copious expectoration, and uneasy respiration; but there is no fever, and the pulse is not at all accelerated. These symptoms occasionally become the foundation of hydrothorax; but more commonly, as the warm weather comes on, the cough subsides, and the patient's health is restored."

The chronic cough is however much modified, according to the degree of bronchial inflammation which preceded it. When this has happened in an intense degree, we do not observe, says Dr. Hastings, the slow and gradual progress of the first stage, which is so remarkable when this disease supervenes under the forms of catarrh; for the acute inflammation has previously reduced the patient to the lowest state of debility, and the powers of life are sunk. The respiration is oppressed and laborious, the cough is frequent and harassing, the pulse rapid, and death is hourly expected. It however sometimes happens, that the violence of these apparently-fatal symptoms is in some measure subdued, and the patient gains some strength, so as to be enabled to sit up for a short

time. The cough is mitigated, the respiration is less laborious, and the wheezing is not so perceptible. The expectoration, however, is increased, though the matter expectorated is not of the same nature throughout: some part of it is tenacious, translucent, and cannot be diffused in water; other parts are opaque and purulent. Small quantities of blood are now also often intermixed with the sputa: the pulse loses its hardness, but becomes weaker and much quicker. We have generally combined with these unpromising symptoms increased emaciation, and inability to make any muscular exertion. Irregular sweats break out, and a flushing of the cheeks occurs.

In some cases, the untoward symptoms do not proceed further; they gradually amend. The expectoration diminishes, the cough is less harassing, and the respiration not so uneasy. The patient begins to gather a little strength, and the appetite returns. A change of air and favourable seasons are particularly advantageous at this period, and by these means the patient frequently recovers his health, although months sometimes elapse before such progress is made as enables us to speak with any confidence as to ultimate recovery. But, if no such alteration in the character of the disorder take place, a greater degree of general debility occurs, with a further loss of flesh. The cough becomes extremely harassing, the respiration more quick and laborious. The expectoration increases, and is more purulent in its appearance. The pulse is rapid. During the night general perspiration breaks out, and the face in the day is often flushed. The patient can still, for the most part, take a deep inspiration without pain, and lying down does not produce much increase of dyspnoea. He seldom complains of any shooting pain in the breast. Even from this almost hopeless state patients occasionally recover; but, when the disease has existed so long as to cause extreme emaciation and very copious pus-like expectoration, there is little or no hope. It sometimes happens that dropsical symptoms come on before death.

In the *treatment* of this complaint, our first endeavour should be directed to moderating the force of the circulation, which is sometimes, though rarely, extraordinary; more frequently it will be merely necessary to diminish local plethora by leeches; after this, the irritable state of the mucous membrane may be checked by blisters and rubefacients, or issues, which may be steadily persevered in. It is a remarkable fact, noticed by Dr. Hastings, that, during the use of these counter-irritants, purulent expectoration is occasionally converted into the secretion of natural mucus.

Emetics have often been recommended in that variety of chronic bronchitis which appears in old people, and is denominated *tussis senilis*. The cough and dyspnoea are in such cases much aggravated by the accumulation of redundant secretion in the trachea, bronchia, and air-cells, which, by the action of vomiting, is frequently thrown up. Whenever, therefore, the lungs appear loaded with phlegm to any great degree, they may be relieved by an emetic: but this practice does not appear to have much effect in forwarding a radical cure. The tincture of meadow-saffron (*Colchicum*) possesses very remarkable powers in chronic cough. It allays the cough, promotes the flow of urine, and keeps up a regular alvine discharge. Moreover, from the power it possesses over the secretions, this medicine tends to relieve fever. The dose generally prescribed is twenty drops three times a-day. In some cases this must be diminished on account of its action on the bowels, severe diarrhoea being occasionally brought on by its use. Sometimes the patient is not affected by twenty drops: if this should happen, the dose may be gradually increased, until the bowels, the skin, or the kidneys, are acted upon. Patients rarely bear more than thirty drops three times a-day without being a good deal purged, which is not to be desired in prolonged cases of this disease. If there be much

much quickness of the pulse, eight or ten drops of the tincture of *Digitalis*, or foxglove, may be combined with this medicine; a combination by which the cough is more relieved, and the quickness of the pulse more permanently diminished, than by the separate exhibition of either.

While we have reason to suspect a congested state of the capillaries of the mucous membrane, we must persist in low regimen, the use of *Digitalis*, *Colchicum*, &c. as we shall mention when speaking of catarrh; but, when the complaint presents much irritation or relaxation of the secretory vessels, more stimulating medicines are useful. In having recourse to these, however, we must be careful not to stimulate too suddenly or too much, as we have to deal with a state of parts much disposed to resume inflammatory action. It is therefore advisable to begin with the mildest of this class. The powder of the bulbs of the *Scilla maritima* is often serviceable in chronic cough. Dr. Hastings exhibited this powder in conjunction with ammoniacum, as directed in the compound squill-pill of the London Pharmacopœia; and in old people of phlegmatic habits, when there is not much fever, he found it very useful.

With the same view Dr. Hastings has exhibited *Cinchona* chiefly in those instances that succeed to acute bronchitis, where the debility brought on by the acute attack is very considerable. In such cases, if the dyspnoea be not increased, the benefits arising from its exhibition are sometimes very apparent. The profuse perspirations and other discharges are not only restrained by this remedy, but it occasionally appears to alter the secretion from the mucous membrane of the lungs, and thus brings about a more healthy condition of that membrane, by invigorating its blood-vessels and restoring their natural tone. In these cases it may be combined with diluted sulphuric acid, which also tends to restrain the colliquative sweats that so often accompany this disease.

The use of mercury in some varieties of chronic bronchitis greatly assists the operation of other remedies; but it must be given in such a way as to produce the least possible debility of the system. We have before noticed the efficacy of this medicine in bronchitis arising from gastric and fibrous disturbance. But there are cases in which it is advantageous in chronic bronchitis uncombined with any disease in the abdomen. These sometimes occur after measles, when the shrillness of the voice indicates considerable affection of the mucous membrane lining the trachea. Indeed the great advantage we derive from calomel in croup would lead us to adopt it very constantly in simple inflammation of the bronchial membrane. But the debility produced by this disease, when of a chronic nature, forbids the use of a remedy so debilitating.

In the latter stages of chronic bronchitis, where the quantity of matter expectorated is very large, and the cough very troublesome, there is no remedy so powerful in allaying the uncomfortable irritation about the glottis as opium. But, valuable as this remedy is, it is not always free from inconvenience or danger, and consequently other remedies of this class have been proposed as substitutes for it. Dr. Duncan has strongly recommended *lactucarium* when opium cannot be given. He says, "Of all the medicines which I have employed for alleviating cough in phthisis, and indeed as a sedative in many other diseases, next to opium, I have found no article so beneficial as that substance which some have lately denominated lettuce-opium, and which I term *lactucarium*."

When inflammation is not apparent, inhalation of tar-water may be a gentle stimulus of some avail in altering the morbid action of the vessels. The strictest attention should be paid to the due performance of the digestive and excretory functions. The clothing must of course vary according to the season and situation. The patient

should endeavour to obtain moderate but not oppressive warmth. In this climate, flannel next the skin during the spring and winter months, by slightly stimulating its vessels, sustains the circulation on the surface, and thus tends to relieve chronic inflammatory diseases of the pulmonary system. When the disease has several times returned, and is easily brought on by vicissitudes of temperature, a removal to a warmer and more steady climate is proper. Under these circumstances a pure and dry air should be selected, as a hot situation conjoined with moisture is always to be avoided. The sea-air during the summer-months, in those who live in an inland situation in this country, sometimes invigorates the constitution, and restores the tone of the vessels on the bronchial surface, so as to prevent a return of the disease, where former attacks have left a susceptibility to inflammatory action.

The two following varieties are given on the authority of Dr. Good; but their separate existence, assumed on the different appearance of the fluid discharged, does not seem supported by practical writers. They are,

γ. *B. acrida*; the discharge thin, frothy, and saline; for the most part excreted with difficulty. It is in most instances an atonic affection of the lungs or of other organs that associate in their action. Sometimes an attendant upon the gouty; more frequently upon inebriates labouring under a diseased liver, to whom it is peculiarly troublesome in the morning.

δ. *B. periodica*; recurring at stated periods; partly restrainable; discharge thin, but not acrid. Mostly common to persons of a nervous or hypochondriacal temperament.

z. *B. sicca*, or dry cough; i. e. unaccompanied with expectoration. Three varieties.

α. *B. ingenerata*; from irritation produced locally, as a scirrhus or calculous affection of the lungs. See Borelli, obs. 6. and Zacut, obs. 95.

β. *B. extranea*; from irritating materials inhaled from without, as minute particles of glass, lime-stone, and similar bodies; and common to glass-cutters, hewers of free-stone or sand-stone, workers of metals, and other mechanics.

In manufacturing towns, the preparers of yellow leather, and those employed in some parts of the china manufactory, are often subject to severe attacks of this kind. They are exposed during some parts of the process to inhale an air loaded with dust, which produces inflammation of the bronchial membrane of a chronic and peculiar nature. Dyspnoea is generally the primary symptom, which is often neglected for many months. If the occupation, under these circumstances, be continued, the disease is aggravated. The patient is not unfrequently seized with hæmoptysis, which is occasionally very profuse, and is accompanied with a great increase of dyspnoea, and severe cough. The pulse too becomes accelerated, and is generally hard and strong. The surface is hot, the tongue white, and there is considerable thirst: occasionally blueness of the lips and general lividity of the countenance also appear. It often happens that we can arrest the hæmorrhage by blood-letting and astringents; but in most cases of this description, the hæmoptysis is followed by very untoward symptoms. Whether hæmoptysis have come on or not, if the bronchia be still subjected to irritation, the cough increases, and is attended (for it is by no means true that extraneous substances always produce a dry cough,) with a copious expectoration of thick mucus, which is mixed with pus-like matter, and sometimes streaked with blood. "The patient complains of an uncomfortable tightness across the chest, and the dyspnoea does not abate. He loses flesh, the pulse becomes quicker, the tongue continues loaded, and there is considerable thirst. In by far the greater proportion of these cases, if the occupation be relinquished, these symptoms, by an appropriate treatment, disappear, and the patient is restored to health. In others the termination

termination of the disease is not so happy. The patient emaciates; he has profuse night-sweats, and the cough harasses him to such a degree as to prevent his resting by night. The expectoration is prodigious, and becomes much more purulent. The dyspnoea is greatly increased, the pulse is very quick, and there are regular evening exacerbations. The patient at length dies exhausted." *Hastings*, 275.

2. *B. verminosa*; from worms in the intestines, liver, or other abdominal organs. Common to children with large bellies, and pale emaciated countenances; and still more so to sheep labouring under the disease called rot, and whose livers are usually loaded with the *Fasciola hepatica*, or fluke.

3. *Bex convulsiva*, (*Pertussis*, *Cull.*) Whooping-cough; chin-cough, or more correctly kin-cough or kind-cough; literally "child's cough," from the German *kind*, a child. The cough convulsive, and suffocative, accompanied with a shrill reiterated whoop, and frequently with vomiting; contagious.

This malady commences as an ordinary catarrh. In the space however of a fortnight or three weeks, the symptoms undergo a change, and the disease exhibits a convulsive cough, in which the expirations are made with so much rapidity and violence, and are so long and frequently repeated, that the whole air seems to be expelled from the lungs, and the patient appears to be in danger of suffocation. At length a full and violent inspiration is necessarily made for his relief, which, from the unusual velocity with which the air rushes in, or from the spasmodic contraction of the glottis, produces a peculiar sound or whoop: these actions alternate until mucus is expectorated, or the contents of the stomach partially ejected. These evacuations commonly put an end to the coughing, and the patient remains free from it for some time after. But the duration of the paroxysm and the relief obtained are very different in different instances. Frequently the expectoration or vomiting takes place after the first or second coughing; but sometimes this happens only after several alternate coughings and whoopings; and, in very severe cases, the paroxysm ends in the complete exhaustion of the patient, without any discharge whatever.

The fits of coughing return at various intervals, rarely observing any exact period. They happen several times in the course of the day, and more frequently in the night. In general they come on without any obvious cause; but they are also brought on sooner and more violently by various sources of irritation, as by considerable bodily exertion, such as running, or even laughing, turning from side to side in bed, distending the stomach by food, or irritating it by such as is indigestible or acrimonious. Fretting and crying commonly bring on the fit. Though the paroxysms come on suddenly, the patient has commonly some warning, which excites his alarm; and, to avoid the violent and painful concussion which the coughing occasions to the whole body, he sometimes throws himself on the ground, or clings fast to any thing that is near him, or demands to be held fast by any person that he can come at, and will even run across the room for that purpose, with terror and supplication expressed in his countenance. In almost every case of the disease, dyspnoea is present. Frequently there is a difficulty of breathing, not only immediately before and after the fits of coughing, but, in the more severe cases, the patient pants on the least exertion, as if he had run a race, or performed some feat of bodily strength.

When there is little expectoration, and that of a thin mucus only, the fits of coughing are violent, and continue long: but, as the expectorated matter soon becomes considerable and very thick, as it is more readily expectorated, the fits of coughing are of shorter duration. If the fits are violent and long continued, they necessarily interrupt the free transmission of the blood through the lungs, and consequently the return of blood from the

head. This gives rise to turgescence and suffusion of the face, and sometimes occasions hæmorrhage from the nose.

Sydenham speaks of the whooping-cough as unconnected with fever; Dr. Cullen remarks, that "It is constantly in some degree present; but with evident exacerbation towards evening, continuing till next morning." (*First Lines*, mccccx.) Dr. Watt also observes upon this point, "as far as my experience goes, I am disposed to believe, that, even in the mildest cases, as long as the kinks (paroxysms) continue, there is always some part of the day when the presence of fever can be detected. It may be so slight as hardly to deserve notice; but still, to an attentive observer, who has opportunities of seeing the patient day and night, it is abundantly obvious. I have remarked it even in those favourable cases, where the appetite continued good, and where the patients seemed to suffer little or nothing in their general health."

Indeed the phenomena of increased heat and active pulsation have been so generally noted, that it seems surprising that they should have escaped Sydenham's (usually) close observation.

With regard to the nature of whooping-cough, it seems evidently a species of bronchitis, or inflammation of the mucous membrane of the lungs, which has these circumstances peculiar to it, that it elicits a secretion possessing contagious properties, and that it is connected with spasmodic action of the muscles of the glottis and of the chest. The low degree of febrile irritation it sometimes produces will prevent many from according the term inflammation to the malady. This is however of no consequence; the presence of diseased secretion no one will deny; and that the irritation thus arises from is very prone to bring on unequivocal symptoms of inflammation, is equally indisputable. Dissection of fatal cases has invariably shown redness and distention of capillaries on the nervous membrane, or effusion of pus or flakes or coagulated lymph. In some cases disorganization has been propagated to the substance of the lungs. In some very young subjects, indeed, suffocation has occurred from the long irritation of the mucus having kept up coughing till the chest was emptied of air, and the glottis has been closed, first by the spasm of its muscles, and afterwards by the pressure of the atmosphere; and here dissection has furnished little evidence of inflammation. The course and event of this disease are very uncertain. In the mildest form in which it appears, it commonly continues from one to three months; and, in the more severe, considerably longer. Even after it has nearly or wholly ceased, an accidental exposure to cold occasions a relapse.

The *treatment* of *Bex convulsiva* follows clearly out of the views before taken of its nature. In the first place, we have to guard against inflammation spreading to any alarming extent. In proportion, therefore, as the dyspnoea and fever are severe, and as the patient is strong and plethoric, it becomes necessary to employ *blood-letting*, and even to repeat it according to the urgency of the circumstances. Even in more delicate and younger children, some evacuation may be necessary by means of the lancet, in the commencement of the disease; and local bleeding, by leeches applied to the chest, may be resorted to, where general blood-letting is deemed inadmissible. The difficulty of the transmission of blood through the lungs should be watched, and early attacked by this efficient remedy, or the disease will often baffle all the subsequent efforts that can be made. Moreover the treatment of dyspepsia should be kept closely in view. The inflammation of the membrane, and the convulsive action of the respiratory muscles, are of course connected with nervous irritation; and hence we must be careful that all excitement of the nervous system be withheld. Abstemiousness and the use of purgatives have the two-fold effect of inducing a right action of the chylopoietic viscera, and of diminishing inflammation.

Every practitioner must have observed the almost constant derangement of the excretions of the bowels, under any acute disease in children, but more especially under those affecting the lungs; and the relief obtained, even in respect to the original disorder, by regulating the alvine discharges. It is important, therefore, when the disease assumes an inflammatory type, to keep up a constant free state of the bowels from the first, by the repeated use of laxatives, especially of those which contain a portion of calomel. According to the state of actual constipation, or of mere derangement of the excretions, the purgatives will be used more actively at intervals, or more constantly in smaller doses.

Of all other remedies, *emetics* appear to be among the most useful in this disease; for they not only determine the fluids to the surface, and still more effectually relieve the lungs by promoting its secretions, but they also tend to interrupt the recurrence of the spasmodic affections.

As a secondary expedient, with a view to obviate or remove inflammatory determination to the lungs, when it occurs in this disease, the application of blisters is often beneficially resorted to. They do not, however, appear to act so beneficially in the relief of the pain and dyspnoea attending this disease, as in ordinary cases of catarrh; and ought not to be relied on, where the inflammatory congestion in the lungs is considerable. They are most beneficial, when this inflammatory condition has been already partly subdued by the more active evacuations.

The medicines generally in use in these complaints are the same as in the common forms of bronchitis; viz. digitalis, colchicum, &c. The alkalies, soda and potash, have also great influence on this complaint. To allay the nervous excitation, conium and hyosciamus may be advantageously prescribed; the warm bath should be used occasionally, and rest absolutely enjoined; for, whether we view the mere symptom of dyspnoea, or extend our researches to the probable cause of its occurrence, we shall find ample reason to induce us to keep the lungs in as tranquil a state of action as possible. It is in this way indeed that bleeding in all pulmonary diseases must be principally useful; viz. that the diminished quantity of blood in the system calls for less activity in the respiring powers.

These rules apply, however, only to severe cases. In the usual mild forms, a regulated diet, pure air, and medicines of an aperient nature, with an occasional emetic, will accomplish all that is required in the first stage of the disorder.

In the after stages, when the operation of the contagion may be supposed to have ceased, and the convulsive cough to be continued through the influence of habit, a different indication arises, and different remedies are to be employed. That the power of habit contributes to keep up the disease, after the influence of contagion has declined, is to be inferred from the circumstance that the symptoms have disappeared, like other nervous symptoms, in consequence of the impression of terror, or other strong emotions of the mind; which agents cannot be supposed to have the power either of correcting or expelling a morbid matter from the constitution, but which are evidently suited to change the state and habits of the nervous system; or, at all events, of inducing a change in the merely habitual disorder of the secretions. With this view, the inhalation of tar vapour may be resorted to with advantage. Some authors have advised a variety of tonics; but their mode of action is obscure, and general experience has not confirmed the original accounts of their efficacy. A stimulant more congenial to the bronchial membrane is country air. Indeed *change of air* has been very generally deemed the most effectual remedy in the advanced stages of the disease. And so strong has this impression been made upon the public; that it has been generally believed, that any change of air, even from a better to a worse, is beneficial.

This, however, seems improbable; and the fact perhaps is as Dr. Watt has stated it: "It no doubt frequently happens," says that writer, "that a child is better on being taken from one place to another, even when the air in the latter place is supposed to be worse than the former. Here, however, I should be disposed to attribute the good effects, not to coming into a more impure atmosphere, but to the child's *being abroad*, any atmosphere being better than confinement to the house." This advice is not of course meant to apply to any but cases in which the inflammatory tendency of the cough is perfectly subdued.

But we must not forget to mention, that a respectable author has opposed the notion that change of air is always beneficial to patients of whooping-cough. Dr. Robertson has seen some lamentable instances to the contrary. He thinks the removal should be but a short distance from home, "and the new abode should be chosen in every thing resembling the former one," avoiding elevated and exposed situations, as well as those that are too low and damp, or within the range of exhalations from stagnant waters or flooded meadows. Inland situations are preferable to the coasts. The advantages of change of air, he thinks, may sometimes be obtained by change of rooms and habits, at home. Upon the whole we are of opinion, that, as a general measure, change of air, or, at any rate, being much in the air, is advisable; but, like other good rules, it is liable to some exceptions.

Dr. Archer, an American physician, advises to relieve the whooping-cough by vaccination. This, of course, can be resorted to only under particular circumstances. Dr. A. says, "I have vaccinated six or eight patients that had the whooping-cough, and in every case it has succeeded in curing this most distressing disease. The whooping-cough does not come to its height in less than six weeks from its commencement; and then, when a favourable termination is expected, the declension of the disease is gradual, and it does not terminate in less than six weeks more. To arrest this afflicting disorder in its progress, I would recommend vaccination in the second or third week of the whooping-cough, i. e. when the symptoms of the whooping-cough are fully ascertained, then to vaccinate. Should the convulsive cough be violent, I should immediately vaccinate; being well assured that the distressing symptoms of the whooping cough are checked by vaccine disease. The termination of the vaccine disease will be the termination of the whooping-cough."

Genus II. *Dyspnoea*, [from *δυσ*, bad, and *πνέω*, to breathe.] Anhelation. Permanent difficulty of breathing, with a sense of weight on the chest.

Dyspnoea is produced by so great a variety of causes, and from its very nature is so evidently symptomatic, as in fact Parr and the best systematic writers have always considered it, that we shall refer our readers to the original maladies which give rise to its varieties for the necessary details concerning it.

It may be practically useful, however, to remark, that an unremitting difficulty of breathing is common to some old persons, in whom its long continuance, and the absence of other symptoms, forbid us to suppose any organic change in the structure of the lungs or contiguous viscera, or indeed any merely mechanical obstruction, to have occurred. It differs but in a slight degree (as far as our own opportunities of seeing it have extended) from asthma: the point of difference between the two complaints is merely the regular and continuous disorder of respiration in the former disease, as antagonized to the paroxysms or exacerbations of the latter. There are two species.

1. *Dyspnoea chronica*, or short breath: breathing uniformly short and heavy, mostly accompanied with a cough. There are five varieties.

α. *D. extranea*, (*D. terrea*, *Cull.*) From calculous or other earthy secretions in the substance of the lungs thrown up by coughing. See *Catarrhus*, in this article.

β. *D. phlegmatica*, (*D. aquosa*, *Cull.*) The habit phlegmatic or cachectic, with scanty secretion of urine, and mostly œdematous extremities. See *Hydrops*, in this article.

γ. *D. pinguedinosa*, or purfiness; accompanied with oppressive fatness. See *Corpulence*, in this article.

δ. *D. organica*, (*D. thoracica*, *Cull.*) From deformity or organic defect, or injury.

ε. *D. vaporosa*; from the mischievous action of metals or other poisons.

2. *Dyspnœa exacerbans*: subject to sudden and irregular exacerbations: the breathing deep, stertorous, acute, and suffocative; relieved by an erect position. This, when not symptomatic, is the same as the following genus, varying from it only in its acuteness and violence; it requires a similar treatment. Found, also, under the one or the other species, as a symptom in aneurisins, polypos concretions, and other affections of the heart and larger vessels; in enlargements and other affections of the abdominal viscera; in empyema, hydrothorax, worms, peripneumony, bastard peripneumony, small-pox, and occasionally in severe attacks of intermitting fevers.

Some authors have explained the term *Catarrhus suffocativus* (the name by which this species is called by Baglivi and others) as synonymous with croup.

Genus III. *Asthma*, [probably from *αω*, I breathe.] Difficulty of breathing, temporary, recurrent; accompanied with a wheezing sound, and sense of constriction in the chest; with cough and expectoration. These generic characters are subject to great variations. *Asthma* has of late years been traced in a very large proportion of cases to organic changes in the thoracic viscera. As there seems good reason, however, to believe, that the majority of asthmatic patients (perhaps nearly all where the complaint is not of long standing or of peculiar violence) suffer from functional impediment only, we confine ourselves to the consideration of *asthma* of this latter kind.

The exact nature of *asthma* is not settled. Among the old writers, Floyer paid much attention to this disease, with which he was severely afflicted; but his opinions as to its cause are so much tainted with the humoral doctrines, that it is useless to discuss them. He has left, however, a very good description of the symptoms of one kind of *asthma*. Cullen supposed it to consist in a spasmodic constriction of the muscular fibres of the bronchia, preventing the free ingress and egress of the air, and consequently the due expansion of the lungs. This opinion, however, is not reconcilable with the known structure of the bronchia, and has accordingly been laid aside. The same author mentions several varieties of it, as *exanthematicum*, *simplex*, *phlegmaticum*, *plethoricum*, &c. arising from remote and distinct causes. These Dr. Good has adopted in his *Nosology*; but the simplified arrangements of practical writers seem to warrant the dismissal of such divisions. Dr. Bree, in the best treatise on this subject which we know of, considers *asthma*, properly speaking, and as distinguished from mechanical pressure of all kinds, whether tumors, concretions, or other consequences of inflammation, to be a material irritant applied to the air-cells of the lungs, and exciting the contraction of the respiratory muscles for its removal. To take in his just and more extended view of the disease, we quote his own words. He says, "If it be necessary to define the disease, I would say, agreeably to the principles of the following inquiry, *Asthma* is an excessive contraction of the muscles of respiration, without acute fever, excited by an irritation in some of the viscera whose functions these muscles are intended to serve. Under this generic definition are comprehended all affec-

tions not febrile, attended by an uncommon action of the muscles used in respiration; the influence on these muscles being the same in kind, though distinct by situation and quantity of force, as it may exist in some of the lower viscera, or in the lungs."

Now, as far as regards the lungs, the material irritant productive of *asthma* is supposed to be a mucous secretion. Dr. Bree deduces, from a vast store of ancient and modern authors, observations tending to show, that the paroxysm of *asthma* is almost invariably connected with, and terminated by, the expectoration of mucus or serum: and he infers, that the impediment to respiration arises from the gradual collection of this fluid in the air-cells. There it may exist for a certain time without producing disturbance; but at length the filling up of the remote terminations of the bronchiæ impedes the changes of the blood, and calls into forcible action the respiratory muscles; whereas the lymph accumulated in the air-cells is rather oppressive than acrimonious, and the sensibility of their membrane is less than that of any part of the bronchia and trachea. Moreover the vesicle cannot collapse in the attempt at expiration, because its cavity is filled with lymph. Hence Dr. Bree thinks arises the true cause of a paroxysm, "beginning with little or no cough, and that seemingly impeded;" but, after the fluid has been lessened by absorption, still more may be discharged in the vapour of expiration, and, the elasticity of the bronchia being thus restored, the much-desired spitting of mucus may take place.

We copy from this author the following lucid account of his opinions as to the production and nature of this secretion. "It is obvious, that mucus could not have been expectorated without a previous secretion of serum. But, as this mucus is copiously discharged, the effusion of serum must have been considerable: it may be therefore proper to inquire in what state of the lungs such an effusion can take place. It is known that the glandules of the trachea and bronchia are subject to inflammation, and that in *catarrh* an excretion of mucus is considerable from this condition of their vessels; but practitioners have generally testified, that pyrexia and symptoms of inflammation are not present in spasmodic *asthma*. We must then look farther for the source of this copious secretion, and we shall find it in the vessels with exhalent orifices at the extremities of the air-pipes; the construction of which is not complex like that of the mucous glandules; and they have not follicles in which they may deposit their lymph till it be excreted. There are many reasons for believing this to be the principal, if not the only, source of the copious expectoration in *asthma*."

In consequence of the condition of the habit in *asthma*, the matter of heat is not given out in this as in other instances of glandular secretion. The capillary vessels are passive in this disease; and, not contracting so narrowly as to detain the gross part of the current, they permit lymph to pass instead of exhaling only a thin vapour.

It seems that, in the early periods of *asthma*, and while serum is not very abundantly effused, a quickness of respiration commonly precedes the paroxysm, and the expirations carry off, in vapour, that fluid from the cavities: the action of the absorbents is probably also quickened, so that, by the united powers of these instruments, the balance may be restored between absorption and exhalation.

There can be little difficulty in according to Dr. Bree, that this explanation is very plausible and satisfactory, and that irritation of mucus on the nerves of the bronchia is no doubt in many cases the proximate cause of *asthma*. Every one must allow, however, that any circumstance inducing an irritable state of the nerves will as surely produce the disease as the secretion does; and it is of little consequence what irritant is applied to these nerves, since we find cough and difficulty of breathing produced by a variety of ailments, as in the liver, womb, kidneys, &c. We therefore consider *asthma* the result of irritation

irritation of all those parts which hold a sympathy with the respiratory muscles. Indeed Dr. Bree's opinion does not differ widely from this, as he has allowed that asthma frequently has its origin in bilious and gastric disturbance. A further evidence in favour of this notion is, that some asthmatic patients do not, notwithstanding violent efforts, expectorate serum or lymph.

The wheezing noise, and the straitness and anxiety, gave Cullen reason to suppose that a constriction of the bronchiæ took place in asthma. Dr. Bree thinks their symptoms may be more satisfactorily traced to distention of the stomach and œsophagus; when in the former part, preventing free inspiration by hindering the descent of the diaphragm; when in the latter, narrowing the bronchiæ by pressure. But the most dyspeptic patients of asthma do not invariably suffer the above symptoms in the highest degree. It seems clear therefore, that, though contraction of the bronchia is almost impossible, a partial closure of the glottis may occur from spasm of its muscles, and produce the phenomena in question. Indeed these muscles are as intimately involved in sympathy with the bronchial membrane as the external muscles of respiration, and consequently are liable like them to have this sympathy when kept up for too long a period by irregularity or disturbance in the *times* of their contraction and relaxation. We now come to speak more particularly of the two species into which Asthma is divided.

1. Asthma siccum, dry, nervous, or convulsive, asthma; paroxysm sudden, violent, and of short duration; constriction hard, dry, spasmodic; cough slight; expectoration scanty, and only appearing towards the close of the fit.

We have before stated that the convulsive efforts of the muscles of respiration in this complaint may be called into play by irritation of any part of the body the nerves of which have influence over those muscles in a state of health; so that dyspepsia, or disturbance in the liver or in the bowels, or even in the uterus, may give rise to difficulty of breathing by impeding the descent of the diaphragm, or by increasing or diminishing the sympathetic motion of any of the other respiratory muscles; and, as the actions of the former viscera are periodical in health and in disease, the periodic occurrence of nervous irritation will influence in the same irregular mode the dyspnoea, and cause asthma.

It is in asthma arising from these abdominal irritations that many anomalous symptoms occur. General nervousness, itching of the skin, flushes of heat, diabetes, hysteria, &c. are of no uncommon occurrence; but the complaint is too strongly distinguished from any of those complaints to render us liable to mistake in our diagnosis.

From what has been before stated, it seems that the causes of asthma are, nervous irritation of the bronchiæ, affecting by sympathy the muscles of the chest and glottis; or the same irritation of other nerves similarly connected. The second causes are embraced in the extensive views we have taken of dyspepsia: the former can arise only from the peculiar state of the bronchial exhalants already mentioned, or the bad state of the air inhaled.

It remains therefore only to speak of aerial irritation. In the first place, it must be remarked, that the state of the bronchial membrane will much alter the nature and force of the impressions it receives from the air. Dr. Bree says, the sensible membrane of the trachea is naturally defended by its lymph from the attack of aerial acrimony, as far as the condition of bodies varying in sensibility to external impressions will admit of this defence. Other things being equal, this guard is sufficient, and answers the purpose for which it was designed. But, if the secretion of lymph from this membrane be deficient, and the absorbing power be active, the surface of the membrane may be irritated by a thousand imperceptible points which the air conveys in the act of inspiration.

The state of air most congenial to the asthmatic patient

appears to be that of density, a state which more than counterbalances the ill effects of foreign particles with which it is often loaded; and hence, in the majority of cases, the air in low situations is more favourable to the lungs of asthmatic patients than that of the high lands. It seems moreover, that, even if impurities of the air ought to be considered as the aerial cause of asthma, these are more strongly applied to the lungs in rare than in dense states of the atmosphere, since in the latter they are suspended at an altitude superior to that of the human frame.

Dr. Bree accounts for the good influence of dense air on asthma by stating, that a certain weight of air is necessary to inflate the lungs fully; and that, the greater the force of pressure thus applied, the more perfectly will the aerial particles required for the blood be forced through the bronchial membrane, or through the collections of serum which its tubes may contain. He mentions experiments on animals, in which the absorption of oxygen was effected with great speed when artificial pressure was applied. He says, moreover, that, "the usual density of the air being lessened, a certain volume will not only possess less weight, and press less against the membrane, but it will also contain less oxygen to enter into the new affinity."

So much for the state of the air as far as regards its immediate transmission to the bronchial membrane. Its temperature exerts itself with equal power on the skin. Cold and moisture check cutaneous perspiration, when the body is under their influence: there is therefore additional fluid circulating to the pulmonary exhalants, and there is less expiration of vapour in breathing; so that we have, in this state of the atmosphere, an exciting cause of asthma as frequently as in that of moisture with rarity of air. Cold alone will sometimes, but not commonly, excite the paroxysm; for there may be states of the atmosphere inducing great torpor on the pulmonary exhalants, without the presence of aqueous vapour, or moisture. Thus, the east and north-east winds would exert the beneficial influence which coldness, simply united with density of air, has on respiration, were it not that these penetrating winds check cutaneous perspiration, and thereby induce another cause of asthma by this matter being turned upon the lungs. So on the other hand, in summer and autumn the atmosphere is rare, and so far hostile to the asthmatic; but, to lessen this inconvenience, he enjoys the grateful sense of a warm skin, and general perspiration, as the circulation is determined to the surface during these seasons. "If (says Dr. Bree) it were not for this diversion in favour of the lungs, the patient would perceive much more of his complaint than he really does in the warm season; for many circumstances operate against him then which do not in winter." The exhalation from the pulmonary vessels, decidedly increased by exercise or other causes, will oftener be profuse in the hot months; and be more suddenly followed by the coldness, which is known to come upon surfaces in proportion to the evaporation made from them, than happens at cold periods of the year.

This view of the *modus operandi* of the atmosphere is more consonant with legitimate deduction from facts than the old notion that vapours in the air were all the offending agents to be looked to, since it is notorious that many asthmatic people live better in the crowded and smoky precincts of a large city than in the open air of the country. Sometimes, indeed, fumes, dust, &c. are easily proved to lead to, or aggravate, an asthma; but generally we cannot well consider aerial impressions to be the exciting causes of the paroxysms of this malady, since, such impressions being constant, the cough and difficulty of breathing would be equally so. We must therefore conclude, that the particles of matter contained in foul air accumulate in the bronchia, and assimilate with its secretions, until their bulk brings on the dyspnoic paroxysm.

We shall transcribe Dr. Bree's account of the symptoms of this complaint. It bears a close resemblance to the noted description given by Floyer, but is perhaps more amply detailed. "The attack of a paroxysm of periodic or convulsive asthma is preceded very generally by dyspepsia, and the circumstances which occur to a relaxed habit. This condition of the body may have prevailed for months or years before it takes the additional form of asthma; but, when that disease appears, dyspepsia never fails to be aggravated, and to show itself with violence before the fit.

"The first symptoms are flatulence and distention of the stomach and bowels; a heavy pain over the forehead and eyes; eructation of wind, with water which is sometimes insipid, at others sour. When the evening approaches, this weight over the eyes becomes more oppressive, and the patient is very sleepy. Occasionally, if he be particularly animated by company and conversation, the drowsiness does not take place, but a shortness of breathing is perceived, and soon after much anxiety of the præcordia, with great restlessness. The presence of company then becomes irksome, as it seems to increase a certain heat of the body, a want of free respiration, and an irritability which repels the most cautious attentions of friends. Frequently at this period there is a tingling and heat in the ears, neck, and breast, and a motion to expel the contents of the bowels is attempted with some violence, and with great uneasiness of the abdominal muscles. When an asthmatic feels these warnings, he may be convinced that his enemy is at hand. At some uncertain hour before midnight the patient becomes suddenly sensible of the increased violence of the disorder; most frequently after a slumber in bed he awakes with great difficulty of breathing, and he feels the necessity of a more erect posture of his body. Inspiration is performed with great effort of the muscles, but is never perfectly deep, and the diaphragm seems to descend with great difficulty against an opposing force. There is now a desire of free air, speaking becomes distressing, and the irritability of the mind continues, but is not so acute as in the approach of the fit. There is a great straitness of the chest, and a wheezing sound in respiration. An inclination to cough shows itself, but this is small and interrupted. The pulse is increased in quickness a few strokes, but without hardness. There is no preternatural thirst, unless, as often happens, the fit be excited by indigestible matter in the first passages. There is a propensity to make water, which is copious and pale, and frequently discharged. After some hours of distress the patient perceives his anxiety to be less, the breathing is less quick and laborious, the inspirations are longer and more full, the expirations are still attended with wheezing; the pulse is not so quick, but more full; irritation is less acute. The cough probably brings up a portion of phlegm, and a very sensible relief follows that excretion. Then the tranquil state of the feelings introduces sleep, but not unaccompanied by wheezing, which continues almost always through the first night, and until, by the progress of the fit on the second or third day, a more considerable expectoration of mucus takes place.

"The second day is ushered in by a remission of the symptoms, which the patient perceives from the time of awaking in the morning. No change of posture is, however, yet made with impunity; and particular distress affects him, if he engage in the fatigue of dressing whilst the stomach is empty. The pulse will be accelerated more than it was in the acmé of the paroxysm; and motion must frequently be suspended, or a vehement agony for breath will certainly come on. During the day, if no particular hurry occur, the breathing becomes gradually more free till the evening; an inexperienced asthmatic even flatters himself that his disease is leaving him, but he finds at the approach of night that he must sustain a new attack. The paroxysm recommences with the usual symptoms, and the night is passed nearly as the

former; but the sleep is more perfect, and productive of more relief.

"The third day, the remission is more complete; there is some additional expectoration; and bodily motion is performed with less distress, but still with great inconvenience. After the paroxysm has been renewed in this manner for three nights, the expectoration generally becomes free, but there is no certain termination of the fit at a fixed period. However, except in particular cases, it goes off after a few days; and, as the daily remissions become more perfect, the urine is higher coloured, and in smaller quantities; the expectorated mucus is more copious and digested; strength of pulse and vigour of action increase, and good humour again enlivens the mind.

"The expectorated mucus has been said to be streaked with black, or to have a blackish tinge; and this appearance certainly prevails in many instances, but not invariably. The taste of the expectorated mucus is also equally uncertain; it is sometimes sweetish, but more frequently it is saline, and it is occasionally coloured minutely with blood. There is a considerable variation in the periods of the accession of the paroxysm, and in its duration, in the intervals of the fits, the quantity of mucus expectorated, and the freedom of that discharge. These circumstances of the disease will be influenced by the predisposing causes, and by occasional accidents." Dr. Bree's Practical Inquiry into Disordered Respiration.

Asthma may occur at any age; but except where there is a mal-conformation of the chest, it seldom attacks in early life. It usually afflicts persons of mature or advanced age. People who follow certain occupations are more liable to it than others; such as millers, maltsters, stone-cutters, wool-combers, flax-dressers, &c. Many of these instances, however, of short breathing, belong rather to Dyspnoea than to Asthma. Although the attacks are so severe and distressing for the time, yet in the intervals the patient commonly enjoys a tolerable share of health, and is able to engage in the pursuits of business or pleasure, according to his station in life; nor do they seem, in numerous instances, to have much effect in shortening the natural period of human existence, many asthmatics having been known to live to the age of seventy and upwards. The disease, however, terminates at length in peripneumony, consumption, dropsy, lethargy, or apoplexy.

In the *treatment* of asthma, we have two purposes to effect; viz. to relieve the paroxysm on the one hand, and to rectify the morbid condition of the pulmonary organs on the other.

We have seen that the paroxysm is most frequently excited by distention of the stomach and bowels, or by the accumulation of irritating secretion in the bronchial tubes. Hence we must labour to evacuate the offending matter from each cavity; we must further allay, by antispasmodic medicines, the irregular action of the muscular parts. An emetic is the first remedy to be applied. By gentle vomiting we may obtain some knowledge of the state of the first passages; and the paroxysm will go on with milder exacerbations, if irritating matter be removed from the stomach and duodenum. Further than this, nausea and vomiting discharge the subtil and acrid particles which have been received in inspiration, by promoting such a secretion of lymph as may envelope them, and excite expectoration; besides which, this dilution probably defends the membrane from further irritation. Afterwards a draught with one ounce of distilled vinegar, and from one to three grains of pulv. ipecac. in pure water, may be taken every four hours, as a means of determining to the surface of the body, and promoting absorption and exhalation. If costiveness prevail, it will be necessary to remove it, by the use of rhubarb or infusion of senna; but we must avoid full purging. If acid eructations are frequent, then, instead of the acetous draughts with ipecac. chalk or magnesia usta in a draught

of mint-water, with the same nauseating ingredient, will answer better. Dr. Bree states, that "it has happened in several instances, after various means intended to mitigate the distress of the fit had failed, that the Rubigo ferri, or carbonate of iron, in doses of ten grains every four hours, appeared most clearly to remove the paroxysm." This effect can only, he thinks, be accounted for by looking to the inert condition of the stomach and lungs, and to the languid state of the circulation in the thoracic and abdominal viscera. He adds, "Whatever in such circumstances can hasten the passage of the blood through the lungs, and promote a quicker return to the heart from the lower viscera, must be useful in the intention of present relief, as well as of actual cure." It is in aid of this acceleration of blood to the lungs that inhaling oxygen, as recommended by Dr. Beddoes, is an useful measure. See *Therapeutics* in this article.

"In the morning, the patient should take clear coffee as soon as he awakes, which should be repeated at intervals with dry toast; and this drink, which seems to act medicinally on asthma, may be administered, during the remission also, with a few drops of tinct. opii, every three hours, the nauseating draught being suspended between the exacerbations. At the beginning of the second exacerbation the nauseating draught should be repeated, at first with a sufficient proportion of ipecacuanha to excite puking, and afterwards with a less dose that may only occasion nausea. In the second remission, the plan pursued in the former should be refused. The third exacerbation will probably be mild, so that the ipecacuanha draughts may be suspended, or they may be united with æther and tincture of columbo in place of the ipecacuanha. With this plan there will appear on the third day a considerable tendency to expectorate, which should be promoted by ammoniac, and vinegar of squill with tinct. opii, or with volatile salts. Ammoniac is called an expectorant; but the patient, before this period, too frequently takes this nauseous medicine without use." Bree, p. 283. 5th edit.

From this time we have to turn our attention to the cure of the complaint during its remission; and what can be effected for this purpose may be stated in a very few words. It is scarcely necessary to mention the removal of the exciting cause. If bad air, a removal to a better situation; if gastric or intestinal disturbance, (no doubt the primary cause in the major proportion of cases,) a rigid adoption of the treatment of *Dyspepsia* (which see) must be followed. We may remark here, that, having fully entered into the consideration of diet, &c. under that head, we shall feel it unnecessary to resume the subject in our account of every one of those diseases to which similar regulations are applicable.

In asthma these regulations should be fulfilled with much diligence and attention; but they will always require accommodation to individual cases, particularly to patients with nervous ailments. We may remark, that cordial and stimulating bitters are particularly indicated in asthma. These remedies will require a long continuance in their use, and frequent change of the varieties.

With regard to the management of the sanguineous system in this complaint, it is to be borne in mind, that a great number of cases are on record in which it was connected with organic changes in the thoracic viscera. To prevent therefore such occurrences, it is of importance that we by no means neglect to moderate the force of the circulating powers. In effecting this purpose, we must be guided by the pulse, with little reference to the nosological division of disease.

Unless from the above consideration, bleeding should be cautiously resorted to. Dr. Bree states, that, "under considerable evacuations of blood, the sudden depletion of the vessels may leave their coats without the stimulus necessary to produce a contraction equal to the space

which the blood had occupied; the heart will participate in the injury, and will also be deficient in vigour of contraction. If, therefore, blood be taken, it should be drawn from the vessels at intervals, and in small portions, which would allow of a contractile power being exerted, in proportion as the vessel loses its contents; and so much fluid would not finally be taken away as to leave it without the stimulus of distention, so essential to its return of health." He says also, that, "before the pulmonary vessels have relieved themselves by their exhaling orifices, blood may possibly be drawn with some advantage; but, when effusion has taken place, a certain debility follows, and a loss of contractile power in the vessels."

The same purpose is also effected by digitalis, though the good effect of this remedy is attested by some in cases where no extraordinary degree of pulsation was manifest in the arteries. The action of this remedy is by no means well understood. It is of much importance to excite the minute parts of the circulatory system, for the purpose of unloading the great vessels. From what we observe in other complaints, we should be inclined to use the warm bath; but Dr. Bree reports unfavourably of it: it seemed, in this one case especially, to aggravate the malady. Of the cold bath this author, in common with many others, speaks favourably. The first effect of the bath seems to be painful and injurious: but, when re-action follows, (and it should only be used when this does follow,) the cutaneous capillaries are excited, and thus unload the circulation; independently of which, they communicate a sympathetic vigour to the pulmonary exhalants.

The tendency to spitting should be promoted by the exhibition of expectorating medicines; such as ipecacuanha, oxymel of squill, and ammoniacum. Of the first of these, not more than two or three grains should be given for a dose, so as to excite, in this stage of the disorder, merely nausea, but not vomiting; the two others should be joined together in the form of a draught or mixture, with or without the addition of æther.

A dry and pure air, but not that of an elevated situation, is in general best suited to asthmatics; there are, however, as before stated, frequent exceptions to this observation. The bowels should be kept regular, by rhubarb and aloetic aperients. Small doses of calomel may be given with great advantage, in many cases; and especially where the asthmatic affection is connected with a disease of the skin. Whenever the patient's feelings warn him of an approaching attack, he should take an emetic, and after its operation an opiate: and at all times he should encourage expectoration; but oleaginous emulsions and sweet mixtures should be proscribed. Issues have been recommended by some practitioners for lessening the frequency and violence of the paroxysms. It is said that king William continued perfectly free from his asthmatic complaint, during the whole of the time that the wound he received on his shoulder, in the battle of the Boyne, kept open and discharged matter.

The utility of counter-irritants seems here very equivocal, especially in young subjects. Dr. Bree says, "In very old asthmatics, issues are sometimes necessary. In younger subjects, when the disease is not yet in veteran, they may occasionally be useful, by diverting aqueous humour from the lungs, and giving a better opportunity for the operation of tonic remedies."

Diuretics have been very generally resorted to, often perhaps because in this complaint the urinary secretion is disordered; but this is generally traceable to the dyspeptic symptoms to which our attention should be principally directed. There are cases, however, in which diuretics are plainly indicated. When *Dyspnoea* remains after the fit, and the urine is at the same time small in quantity, and high coloured, saline diuretics should be given; and mercurials are also then usefully combined, as the case is probably complicated with visceral obstructions.

obstructions. Diaphoretics are of much use in the earlier stages of asthma; but, when the malady is of long standing, their utility is often doubtful. Whenever they are employed, gentle perspiration, not sweating, should be elicited. Stimulating sudorifics are for the most part improper. The pulv. ipecac. comp. will be found a useful diaphoretic in asthma. It is generally allowed to be a very innocent form of exhibiting opium; and the use of this article is often called for by the deranged state of the nerves, as much as the action of the skin is required to be promoted by its diaphoretic property. The inhalation of steam arising from various herbs, as hemlock, stramonium, &c. appears to be rather hurtful. Indeed from what has been before said of the cause of asthma, it is evident, that heat and moisture conveyed into the lungs is by no means likely to cure an asthma. A regular use of oxygen between the paroxysms, and when inflammatory tendency exists, will be found more useful.

2. Asthma humidum, humoral asthma. Under this term some physicians have comprehended the anasarca of the lungs; but we designate by it that species or variety of shortness of breath or wheezing, which is accompanied with a constant cough, and expectoration of mucus, and which is distinguished from phthisis and catarrh by being unattended with fever. It is distinguished from a dropsy of the chest, by the absence of a numbness of the arms, and (after the cessation of a temporary aggravation of the short-breathing from accidental causes) by the patient being able to bear the horizontal posture. It is the *pituitous asthma* of some writers. It generally begins under the form of the first species, or convulsive asthma; and, like it, is liable to accidental aggravations from changes of the weather, and the other exciting causes before mentioned. In regard to its therapeutical treatment, we should administer emetics and expectorants joined with æther and other antispasmodics. Blisters and issues are more serviceable here than in the convulsive asthma; but the employment of diuretics is more particularly indicated; such as squill, acetated kali, and digitalis. Ten or fifteen drops of the tincture of foxglove, or one grain or a grain and a half of the powdered leaves, joined with a fourth part of opium, should be given at a dose, and repeated twice in twelve or fourteen hours, until the shortness of the breath is relieved by a flow of urine, or until such an effect is produced on the pulse, the head, or the bowels, as shall make it necessary to suspend the use of the medicine. Decoctions of seneka or dulcamara (see Practical Synopsis of the Materia Medica, vol. i. p. 152, 233.) may be prescribed in place of the digitalis, where this last shall be found to disagree. The patient should be directed to wear flannel next his skin, and to keep his feet warm and dry.

It is worthy of remark, that asthma is often prolonged by the habitual ill-action of the respiratory muscles, their nerves, or the bronchial exhalants, when the general health is otherwise tolerably good, and the patient free from the external agents which first caused the malady. When the disease assumes this form, the paroxysm is liable to be brought on by mental emotion, or any extraordinary impulse on the nervous system. As the action of muscles in general, by frequent repetition, produces in them a great mobility, or proneness to contract, so those of the glottis and chest equally obey this law. It is to the muscles therefore that Dr. Bree referred the seat of this asthma from habit. Others deem it a want of energy in the nerves; and this seems a very probable account of it in some cases.

The complaint is to be cured by those measures likely to break the associated chain of morbid actions; as, employment of an interesting kind when the paroxysm is slightly threatened; a complete change of air and occupation, a use of stimulants of higher order than is admissible in the preceding forms of asthma, tolerably good living, and active exercise. But galvanism is a remedy

of the first importance. Dr. W. Philip having used this measure with great success, we quote his account of its administration.

"I have employed galvanism in many cases of habitual asthma, and almost uniformly with relief; and have found the affection of the breathing as readily relieved when it appeared as a primary disease, as when it succeeded to indigestion. The time, during which the galvanism was applied before the patient said that his breathing was easy, has varied from five minutes to a quarter of an hour. I speak of its application in as great a degree as the patient could bear without complaint. For this effect I latterly found from eight to sixteen four-inch plates of zinc and copper, the fluid employed being one part of muriatic acid, and a hundred and twenty of water, sufficient. Some require more than sixteen plates, and a few cannot bear so many as eight; for the sensibility of different individuals to galvanism is very different. It is curious, and not easily accounted for, that a considerable power, that perhaps of twenty-five or thirty plates, is often necessary, on first applying the galvanism, in order to excite any sensation; yet, after the sensation is once excited, the patient shall not, perhaps, particularly at first, be able to bear more than six or eight plates. The stronger the sensation excited, the more speedy in general is the relief. I have known the breathing instantly relieved by a very strong power. It has generally been made a rule to begin with a very weak one, and increase it gradually at the patient's request, by moving one of the wires from one division of the trough to another, and moving it back again when he complained of the sensation being too strong. It is convenient for this purpose to charge with the fluid about thirty plates.

"The galvanism was applied in the following manner. Two thin plates of metal, about two or three inches in diameter, dipped in water, were applied, one to the nape of the neck, the other to the lower part of the epigastric region. The wires, from the different ends of the trough, were brought into contact with these plates, and, as observed above, as great a galvanic power maintained as the patient could bear without complaint. In this way the galvanic influence was sent through the lungs, as much as possible, in the direction of their nerves. It is proper, constantly to move the wires upon the metal plates, particularly the negative wire, otherwise the cuticle is injured in the places on which they rest. The relief seemed much the same, whether the positive wire was applied to the nape of the neck, or the pit of the stomach. The negative wire generally excites the strongest sensation. Some patients thought that the relief was most speedy, when it was applied to the epigastric region. The galvanism was discontinued as soon as the patient said that his breathing was easy. In the first cases in which I used it, I sometimes prolonged its application for a quarter of an hour or twenty minutes after the patient said he was perfectly relieved, in the hope of preventing the early recurrence of the dyspnoea; but I did not find that it had this effect. It is remarkable, that, in several who had laboured under oppressed breathing for from ten to twenty years, it gave relief quite as readily as in more recent cases; which proves, that this habitual difficulty of breathing, even in the most protracted cases, is not (always) ascribable to any change having taken place in the more evident mechanism of the lungs." Philip on Indigestion, p. 372.

Genus IV. *Ephialtes*, [Gr. a leaper, because it was thought a demon "leaped" upon the breast.] Incubus, or Nightmare. Generic characters—Sighing suffocative anhelation, with intercepted utterance, and a sense of some external substance pressing heavily on the chest: transitory. This genus has two species, both of which are somewhat allied to epilepsy.

1. *Ephialtes vigilantium*: produced during wakefulness;

ness; the pressure severe, and extending over the abdomen; respiration frequent, laborious constricted; eyes fixed; sighing deep and violent; intellect undisturbed.

E. vigilantium is entered on the authority of Rhodius and Sauvages. Sauvages gives us three other species; but these are evidently symptomatic of other affections. It is a disease rarely met with, and generally arising from severe irritation of the nerves of the stomach.

2. Ephialtes nocturnus, (Oneirodynia gravans, *Cullen*.) Nightmare, or elf-squatting: produced during sleep, and interrupting it with violent struggle and tremor; the pressure on the chest seeming to be that of some hideous monster or phantom. This latter symptom has given rise to the various popular names, which, however different in different countries, all agree in expressing the presence of some phantom, wizard, or goblin; and which, as Dryden says,

Seeks some love-wilder'd maid with sleep oppress'd,
Alights, and grinning sits upon her breast.

Besides the delusion of supernatural spirits, the imagination at times displays the calamities of life. The patient fancies himself to be struggling with strong men, or to be in a house on fire, or in danger of being drowned; and, in attempting to run away from danger, or climb up a hill, he fancies he falls back as much after every step as he had advanced before. After he awakes, the terror excited by these frightful ideas leaves often a palpitation of the heart, with great anxiety and languor, and sometimes a tingling of the ears, and a general tremor. Many absurd explanations have been given of the phenomenon of incubus, which we shall not stop to detail. It is now generally agreed that the seat of the nightmare is principally in the stomach. It is well ascertained that some forms of epilepsy, and of hysterical fits, originate from disorder in that viscus; and so great a similarity exists between the diseases, that Galen considered the incubus as a nocturnal or slight epilepsy. People troubled with nervous and hypochondriac affections, and who have delicate or flatulent stomachs, are more peculiarly subject to this disorder; and it is observed, that a heavy or flatulent supper greatly aggravates the nightmare in those who are predisposed to it. The sympathy of the stomach with the head, heart, lungs, and diaphragm, is so remarkable, that there can be no difficulty in referring the several symptoms of the incubus to a disagreeable irritation of the nerves of the stomach.

The incubus is most apt to seize persons when lying on their back, because, in this position, on account of the stomach and other abdominal viscera pressing more upon the diaphragm, we cannot inspire with the same ease as when we sit up or lie on one side. Further, in that situation of the body the food seems to lie heavier on the stomach, and wind in it does not separate so readily by the œsophagus and pylorus as in an erect posture, when these orifices are higher than the other parts of the stomach. The nightmare occurs in the time of sleep, because the strange ideas excited in the mind, in consequence of the disordered feelings of the stomach, are not then corrected by the external senses as they are when we are awake; nor do we, by an increased respiration or other motions of the body, endeavour to shake off any beginning uneasy sensation about the stomach or breast. The incubus generally occurs in the first sleep, and seldom towards morning, because at the earlier period the stomach is more loaded with food, and that in a more crude and indigested state than in the morning. A less degree, amounting only to frightful dreams, is almost a constant concomitant of overloaded stomach in some habits; and requires the same treatment as *Dyspepsia*, which see.

Genus V. *Sternalgia*, [from *στερνον*, the breast-bone, and *αλγος*, pain.] Violent pain about the sternum, extending towards the arms; anxiety, difficulty of breathing, and sense of suffocation. (*Angina pectoris*, *Heberden* and

Cullen.) Our nosologists have given us two species; but we are not satisfied with their reasons for the distinction. They are,

1. *Sternalgia ambulantium*, (*Asthma arthriticum*, *Schmidt*. *Diaphragmatic gout*, *Butler*.) Supervening suddenly during exercise; with tendency to syncope; relieved by rest.

2. *Sternalgia chronica*. (*Orthopnoea cardiaca*, *Sauv*. *Syncope anginosa*, *Duncan* and *Parry*.) The paroxysms less violent, but of longer continuance; recurring frequently with great palpitation of the heart, excited by slight, and often unknown, causes; and not relieved by rest.

This dreadful disorder is found to attack men much more frequently than women, particularly those who have short necks, and are plethoric or corpulent. Although it is sometimes met with in persons under the age of twenty, it more frequently occurs in those who are between forty and fifty. In slight cases, and in the first stage of the disorder, the fit comes on by going uphill, up-stairs, or by walking at a quick pace after a hearty meal; but as the disease advances, or becomes more violent, the paroxysms are easily excited by passions of the mind; by exercise even of the moderate kind; by sneezing, coughing, or straining at stool. In some cases, the patient is attacked whilst sitting or standing, without any previous exertion or obvious cause. On a sudden, he is seized with an acute pain or tightness at the extremity of the sternum, inclining to the left side, and extending up into the arm, as far as the insertion of the deltoid muscle, accompanied by a sense of suffocation, great anxiety, and a dreadful conviction of the fatal tendency of this malady. This commonly continues for the space of an hour.

In the first stage of the disease, the uneasy sensation at the end of the sternum, with the other unpleasent symptoms, which seemed to threaten a suspension of life by a perseverance in exertion, usually go off upon the person's standing still, or turning from the wind. Dr. Parry states, that bending the body in some cases increases the pain; and therefore the patient draws himself up straight, with the head somewhat bent backwards.

In a more advanced stage, the paroxysms do not so readily recede, and are much more violent. During the fit, the pulse sinks in a greater or less degree, and becomes irregular; the face and extremities are pale, and bathed in a cold sweat; and, for a while, the patient is perhaps deprived of the powers of sense and voluntary motion. People affected with this complaint often die suddenly, but some continue subject to it for upwards of twenty years.

The cause of this distressing malady is not clearly understood; it was formerly supposed to be either a spasmodic affection, or a caries of the sternum; after this, Dr. Parry stated that it was an ossification of the coronary arteries which supply the muscular substance of the heart with blood. This change of structure must certainly render the heart unequal to the task of circulating the unusual quantity of blood thrown upon it by bodily exertions or passions of the mind; and, as the ossification increases, it must at all times impede the circulation. Dr. Parry supports this notion by dissections; but it is clear that *Angina pectoris* often occurs and amends spontaneously, or is removed by medicines; a consummation not possible if the coronary arteries were ossified.

Dr. Reeder, in his work on the Diseases of the Heart, divides the causes of *Sternalgia* into four classes. 1. An ossified, or otherwise diseased, state of the coronary arteries, whereby their calibre becomes much diminished; or an ossified condition of that portion of the aorta whereat these vessels are given off, so as to lessen the diameter of their aortal orifices. 2. Ossification and enlargement of the valves of the heart, and of those placed at the origin of the aorta and pulmonary artery; also morbid contraction of the different apertures to which they are attached; and

and enlargement of the heart accompanying these morbid states. 3. Aneurism and ossification of the thoracic portion of the aorta. 4. A disordered state of the chylopoietic organs, more especially of the stomach, producing indigestion.

When Sternalgia arises from organic derangement, it admits only of palliation; and, when sympathetic only, the disease producing the sympathetic manifestation should be removed. On this account, to distinguish between the two causes is of the utmost consequence. Dr. Powell, in the Transactions of the College of Physicians, thus details the distinguishing symptoms: "When a patient complains of a slight difficulty in respiration, increased by exercise, and aggravated by a recumbent posture; if the pulse does not beat with intermissions, and the several strokes are not unequal in force, although the pulsations may be preternaturally slow, or, on the contrary, more than usually quick; I know, from actual examination after death under these different circumstances, that there sometimes is not any organic disease in the thorax. If respiration be uneasy, and the patient, at first experiencing some difficulty in lying down, shall in a little while so adjust his position as to sleep comfortably, I believe there cannot be any organic mischief in the thorax, although possibly there may be effusion. If the patient cannot sleep in a recumbent posture, or, when asleep, if, sliding down gradually into his bed, he is suddenly awakened with a sense of spasmodic stricture and strangulation, provided there hath not been previously observed an irregular and an intermittent pulse, I should suspect effusion within the chest, rather than any disease of structure. And if, in addition to the above circumstances, there should be anasarcaous swellings of the legs, and the countenance should be bloated and purple-coloured, the chest is certainly labouring under an effusion of fluid; but even then it is not absolutely clear that hydrothorax is actually produced by mal-organization in the thoracic viscera."

Dr. Hutchinson, the late editor of the London Medical Journal, has remarked the singular and characteristic symptoms of swelling of the throat, painful deglutition, and hoarseness, as attendant diseases of the heart which exhibit the form of Angina pectoris. None of the diagnostics are however infallible; and indeed the distinction between nervous and organic diseases of the thorax is one of the greatest difficulties in the whole list of human maladies.

In the treatment of Angina, we have to consider its palliation during the paroxysm, and its effectual removal. Antispasmodics are the usual agents employed for the former purpose. Dr. Reeder, in his treatise quoted before, objects to the use of internal stimuli, unless the heart appear unable, after the lapse of some time, to regain its usual action, when weak wine and water, a small quantity of æther or spirit of ammonia diluted, may be given. Some patients experience immediate relief by strong brandy and water. Should not these succeed, we should apply a blister over the cardiac region, and immerse the arm, when much affected, in hot water, and afterwards direct it to be rubbed with some stimulant and anodyne liniment. Opium may be given with advantage in a protracted paroxysm; and this medicine, or the extract of hyosciamus, often prevents nocturnal attacks, when given at bed-time. Should the syncope remain an undue length of time, it will be necessary to transmit electric or galvanic shocks through the region of the heart, and to inflate the lungs by proper bellows, so as to establish an artificial pulmonary and aortal circulation.

A few drops of hydrocyanic acid have been said to relieve the paroxysm of Sternalgia very rapidly. In the intervals between the paroxysms, much may be effected to prevent their accession, by the patient observing proper rules with respect to exercise and diet, and by avoiding exciting causes. Exercise, particularly on horseback, should not be had recourse to when the stomach is full,

Dr. R. advises his patients to drink water, and to eat sparingly; to keep the bowels open; to regulate the temperature of the body by clothing, and to avoid heated rooms and an impure atmosphere. Occasional plethora should be removed by bleeding in the recumbent position, or by cupping; and its recurrence prevented as much as possible by the almost exclusive use of farinaceous food. Issues in the thighs or arms may be used, as well as the tartrate of antimony, to excite a pustular eruption; but an occasional blister will generally answer every purpose, with much less inconvenience to the patient.

Genus VI. *Pleuralgia*, [*πλευρα*, the side, and *αλγος*, pain.] Sharp pain, or stitch, in the side; difficulty of breathing, without fever or inflammation; and thus distinguished from Pleuritis, or pleurisy.

A stitch or pain in the side often occurs, independently of any acute inflammation of the lungs, pleura, or contiguous organs, and it is generally increased by the action of breathing. It has been often denominated a false or spurious pleurisy. The pain, however, is seldom seated in the membrane called the pleura, but often in the muscles of the chest, sometimes in the other membranous parts; and it may arise from rheumatism affecting those parts, from spasm or cramp, from a plethoric condition, or from a nervous and hysterical state, in which the circulation is languid and irregular: it may also be connected with a gouty, syphilitic, or scorbutic habit. Sauvages has distributed the Pleurodyne (his name for this genus) into eighteen species, according to its origin from one or other of these causes. But Dr. Good gives us only two species.

1. *Pleuralgia acuta*: sudden and temporary; supervening on muscular exercise; relieved by pressure.

2. *Chronica*: permanent: augmented by pressure; inability of lying on the side affected.

The first species found also frequently as a symptom in flatulence, hysteria, and hypochondriasis. The second in plethora, worms, syphilis, phthisis, rickets, catarrh, and rheumatism. See *Pleuritis*.

CLASS III. HÆMATICA, [from the Gr. *αιμα*, blood.] DISEASES OF THE SANGUINEOUS FUNCTION.

The chief modes in which the sanguineous system is influenced in disease is in regard to the state of the contained fluid on the one hand, or the state of the containing vessels on the other. The consideration of the first occupied, as is well known, for a long time, the medical world; and the most famous hypotheses of the seventeenth and early part of the eighteenth centuries were founded on supposed chemical changes in the blood during diseased states. (See the historical section of this article, p. 13—16.) At present, though it is acknowledged that the contained fluids vary much as to their nature in different persons and diseases, and that the introduction of foreign bodies in an *unassimilated* state is followed by violent symptoms, yet we have also ascertained that the constitution accommodates itself in a great degree to those insensible changes which unusual food or indigestion produces, and that the blood exhibits a variety in the proportion of its constituent parts even in healthy individuals. There can be no doubt that a general bad state of the fluid of the body exists in some diseases; and these are necessarily accompanied with alteration in the contractile power of the blood-vessels. Of the nature, however, of this morbid alteration of the blood, we know scarcely any thing. We shall mention the scanty stock of facts we are furnished with on this subject when treating of the last order of this class, *Dyspeptica*, or Cachexies.

The quantity of the blood in the animal frame varies in most diseases, and often without our being able to trace any very manifest causes of this variation. Some

distinguished authors have adduced the fact of general inordinate habits of eating as an explanation of the frequency of plethora; but as, from the facts we have noticed under *Dyspepsia*, it is clear that gluttony must lead for the most part to indigestion, and that to deficient nutrition we should be tempted to look for the cause of this state. In the general diminution of secretion, and in fact in fevers where this diminution is very apparent, a full state of the blood-vessels is the most formidable symptom, and one which the most copious abstraction of blood in many cases scarcely abates.

The plethoric state may (though it rarely does) exist in the same degree in the sanguineous system generally; or it may be excessive in all parts, but much more so in one or more peculiar structures; or, which is more common, it may be excessive in one part, and deficient in the rest. Under each of these circumstances, the blood-vessels are disturbed in their functions; which brings us to the consideration of these latter parts.

At page 28, we have detailed briefly the agents of the circulation, and have not hesitated to mention the contractility of arteries as one of them. In doing this, however, we were perfectly aware, that we were opposed by the opinions and experiments of some of our best pathologists; yet, on the other hand, men of equal talent, and the authors of experiments apparently conducted with equal precision, strongly corroborate our view of the question. For our own parts, we pay little deference to these experiments which, from their very nature, can never be conclusive. Whoever will take the trouble to read over with attention the numerous histories of experiments detailed by Dr. Hastings, the last author who has performed experiments on this subject, will concur with us in this opinion. They will find, that in some experiments the dilatation and contraction was not manifest at all; in others, not for some time; and in others immediately and unequivocally. Indeed we should naturally expect that these circumstances would occur to parts stimulated by unnatural means; and derived no doubt of much of the fluid of the *vasa vacuosa* by the dissection necessary for their exposure.

We think, however, that this matter may be more satisfactorily settled by analogical reasoning than by the evidence of the senses, when that evidence produces such various appearances. By those who suppose that arteries aid the motion of the blood, it has been asserted, that the heart cannot propel that fluid through the round of the circulation; but this assertion has neither been proved nor disproved. One party says that the heart has this power, for this reason; it is not required to drive the blood through the whole of the arterial and venous systems, since an impression on the aorta by means of the left ventricle (the column of blood being continuous) must immediately, and without the hindrance of friction, be transmitted to that portion which the venous system is pouring into the opposite side of the heart. But it is certain that this continuous column is liable to much variation; and hence it would seem more probable that the arteries lent some assistance to the heart. That the arteries have this power in some animals is demonstrated, because they have no heart; and, though Dr. Parry may say, that "if the circulation is carried on by any central force of whatever description, the apparatus in which that force resides is to all intents and purposes a heart;" he must in this case show how the structure in question differs from arteries in common; and that it does differ, the researches of the accurate Sir Everard Home seem to deny. It might appear, that the dependence some arteries have on the nervous system, and that exclusively of the heart, was a strong argument in favour of the contractility of these vessels; but those who discredit the existence of this property assert, that this independent action of the artery arises from the debility of its parietes, which gives way to the impulse of the heart, and admits a greater flow of blood; this debility expressing,

according to them, a loss of *tonicity*, or that degree of contraction which an artery is at all times exerting on its contents.

We cannot help thinking that the truth of this resolutely-contested point lies between. For, upon examining the probable action of *tonicity*, little difference will be seen between it and the phenomena of contractility. We must remark, that *tonicity* is used by one party to denominate a perpetual tendency to diminish the calibre of the artery: *contractility* is used by the other sect to designate alternate contractions followed by active dilatation. Active dilatation is by no means probable, since it is unlike the phenomena we observe in other contractile structures of the body; so that this must be considered the result of the heart's action. But, with regard to the *tonicity* which Parry and others allow to arteries, they say, that this is not the "*contractilité par défaut d'extension*" of Bichat, but a vital power. If so, is it too much to assert that a vital contractile structure, which is expanded, will recover a smaller calibre than it had originally? To exemplify this, we suppose the size of an artery equal to 3, and that the impulse of blood injected into it stretches it to 4. It may be inferred from the known power of contracting fibres in other parts of the body, that, the pressure being removed, it will reduce its circumference to (say) $2\frac{1}{2}$; and this overcomes another objection that has been made to supposing the contraction and dilatation of arteries; viz. that this dilatation might impede as much as accelerate the progress of the blood, since it might exist over the whole arterial system just at the time the left ventricle contracted. But, if the contraction be brought about in the manner we have stated, it must of course observe the same time in its contraction as the heart itself, and consequently may materially assist the circulation.

We shall assume, therefore, in our speculations on the *Hæmatica*, the contractility of arteries, using this term with the restriction before stated. We have before said, that at the extreme branches of the arteries a motion is derived from a capillary attraction existing between these vessels and the blood. This of course is no explanation, because we do not know any thing about capillary attraction. It may be used, however, to denote that the same law governs the motions of the blood in these living tubes (to a degree) as in inanimate vessels. A motive power is again to be found in the secretory system: and here the data of reasoning become fewer than those on which it is founded, even with regard to the capillary arteries; and we can only conjecture, plausibly, that an attraction exists between certain parts only of the blood and the sides of the vessels; and that the addition of a something from the nerves is necessary to change these parts of elements to the form they exhibit on secreting surfaces, or outlets. The passage of fluids in the larger absorbents, and in veins, we have before noticed. It was necessary to recapitulate these circumstances, that the whole of them might be borne in mind while treating of the diseases of this system.

With regard to diseases from *quantity* of blood, it is to be noticed, that an increase in the mass of blood seldom exists unaccompanied by an increase of the action of the heart; when this does occur, the blood, although its quantity is increased, will have its rate of motion diminished. In such a case, the smaller arteries, in which, as before stated, the contractility is greater, in proportion to the size of the vessel, than it is in the larger arteries, will, from the want of dilatation by means of the heart's contraction, lessen their sphere of contraction, so that an increased proportion of the general mass of blood will be contained in the larger arterial trunks, in the veins, and in the cavities of the heart. The whole round of the circulation will be obstructed. The action of the heart will consist of slow feeble contractions, or of ineffectual flutterings. The pulmonic process will be imperfectly performed: hence respiration will be laborious and hurried,

hurried, the colour of the blood will be changed, and temperature diminished.

From the circulation of this blood of unnatural quality, disorder of the whole of the nervous system, and hence of every function in the body, may ensue. If the mass of blood be increased, and if the action of the heart be also increased, so as to propel the greater mass with freedom; in such a case, the contractility of the smaller arteries being more powerfully opposed, these vessels will yield more readily to the current of the blood; they will therefore receive a greater quantity of that fluid, and consequently an increased quantity must pass by their termination. The quantity of secreted and of exhaled fluids will be increased; the blood will flow with greater force, and in greater quantity, throughout the whole round of the circulation. As an increased quantity of blood will pass, in a given time, through the pulmonic circuit, respiration must be more quickly performed, otherwise that fluid will not duly undergo the pulmonic process. The sensibility of the nervous system may be increased, and the functions of that system may be more freely performed. Hence all the functions dependent on nervous influence will be exalted.

The diminution of quantity in the blood generally manifests itself by the want of action in the nervous system, and hence of all the secretions. But this state is not likely to last long; and indeed generally remedies itself, except when the assimilating organs of the body are diseased.

Passing over these plethoric states, we come to the consideration of an alteration in the contractility of the blood-vessels, or of the common malady called INFLAMMATION.

When a violent blow is given to an external part of the body, the four following circumstances are after a time observable; viz. redness, tumefaction, pain, and heat. Presently a throbbing is felt in the arteries going to the part, and a disturbance takes place in the vascular and nervous system, concisely called *fever*, and a change in the quality of the blood. To account for these simple appearances has puzzled the medical philosophers of every age, and it puzzles them still. In our Introduction we have noticed the wild speculations of the earlier physicians. Passing over Boerhaave's notion, that viscosity of blood was the cause of inflammation, and that of Cullen, which, like this theory of fever, rests on the assumption of a spasm of the extreme arteries, we proceed to notice the celebrated opinions of Mr. John Hunter. According to him, *inflammation* is to be considered only as a disturbed state of parts, which requires a new but salutary mode of action to restore them to that state wherein a natural mode of action alone is necessary. From such a view of the subject, therefore, inflammation in itself is not to be considered as a disease, but as a salutary operation, consequent either to some violence or to some disease. Elsewhere the author remarks, the act of inflammation is to be considered as an increased action of the vessels, which, at first, consists simply in an increase or distention beyond their natural size. This increase seems to depend upon a diminution of the muscular power of the vessels, at the same time that the elastic power of the artery must be dilated in the same proportion. Owing to this dilatation, there is a greater quantity of blood circulating in the part, which is according to the common rules of the animal economy: for, whenever a part has more to do than simply to support itself, the blood is there collected in larger quantity. The *swelling* is produced by an extravasation of coagulable lymph, with some serum; but this lymph differs from the common lymph, in consequence of passing through inflamed vessels; it is this lymph which becomes the uniting medium of inflamed parts; vessels shoot into it, and it has even the power of becoming vascular itself. The *pain* proceeds from spasm. The *redness* is produced either by the arteries being more dilated than the veins, or because the blood is not

changed in the veins. When, after an injury, a part cannot be restored to health by inflammation alone, or by adhesion, then suppuration, as a preparatory step to the formation of granulations, and the consequent restoration of the part, takes place. The vessels are nearly in the same state as in inflammation; but they are more quiescent, and have acquired a new mode of action. See Hunter on the Blood, Inflammation, &c.

That the capillaries are distended in inflammation is pretty generally agreed; and, this allowed, we clearly explain the increased size of the part, without admitting that lymph is extravasated, a fact of which we have no proof.

We have not space to enter at full into the proofs of the distended state of the capillaries. There is less discussion required about this distention, however, than it has been the fashion to enter into; for it is visible to the naked eye, and is still more clearly shown by the microscope. The independence of this distention on the heart is also pretty clearly established; for we observe blushing from shame or ire, and a redness in various parts of the body, without general accelerated pulse. But, though the distention of the capillaries in inflammation is pretty generally allowed, pathologists are by no means agreed as to the rate of motion which the blood undergoes in them; some, as Wilson, asserting that the velocity of the blood through an inflamed part is diminished; others stating that it is increased. Dr. Parry shows very clearly, that this is of little consequence to our speculations on this subject; but properly remarks, that, if the *velocity* be diminished, yet, the *quantity* being increased, the momentum must still be greater than ordinary. Again; a question arises, whether the arteries retain during inflammation the alternately-contracting force which we have assigned to them in health, or whether this power is lost. The proofs of the first alternative rest on what is observed by means of the microscope on the transparent parts of cold-blooded animals; as, for instance, on the web of a frog's foot. It is there seen, that, on the application of stimuli to a certain degree of force and for a certain time, a permanent or unvarying dilatation of the capillaries supervenes, and the blood seems to move slowly. This observation is not worth much, however, because even the alternate contractions of the capillaries are not visible in the situation above mentioned, on account of the small size of the vessel. We may adduce a pathological observation more strongly corroborative of the inert dilatation of the capillaries in inflammation; which is, that, whereas the exhaustion of the contents of arteries (not having been thus affected) is met with almost invariably, inflamed arteries are not exhausted of their blood.

The *pain* in inflammation is not easily accounted for. That the sensibility of the nerves is much increased is evident from the extreme uneasiness which ordinary impressions produce on them when in a state of inflammation; but we are ignorant by what means this pain is produced. It has been attributed to the pressure of the distended capillaries; and this appears plausible at first view; but the idea is opposed by the facts, that many parts suffer distention of their capillary vessels without pain occurring; and that the pain is often most severe before this distention begins; as for instance, after a blow, or in the case of gout, in which disease, as is well known, the coming-on of redness and swelling often relieves the excruciating pain of the first attack; so that we are compelled to state increased sensibility as one of the essential circumstances of inflammation, but we cannot trace the cause of its production. The increased warmth of the part has been supposed to depend upon the presence of an increased quantity of blood. But, as the extrication of heat is a process which is dependent upon the nervous system, and consequently influenced by altered conditions of that system, the increased warmth, and the increased evolution of heat, which accompany inflammation,

tion, may be chiefly attributed to the irritated state of the nerves. And accordingly we find, as Mr. Hunter's well-known experiments testify, that the heat of internal parts (to which the office of extricating heat does not belong) have not their temperature increased during inflammation. It is worthy of remark, that the real increase of heat in the inflamed part is not so great as the feelings of the sufferer might lead us to suppose, the thermometer seldom indicating very remarkable changes in this respect. To the irritated state of the nerves we must therefore look for this sensation of exalted temperature.

Mr. Hunter's account of the *redness* of the part seems very probable, especially if we add to what he has said on the subject, that the total want of secretion must prevent the chemical change on which the darkened colour depends. It appears then, that the two states of exalted sensibility of nerves on the one hand, and plethora of the capillary vessels on the other, account for the four first phenomena of inflammation; and it would perhaps preserve us from much obscurity in our speculations, if we assumed the existence of these states without endeavouring to penetrate into the mode of their production.

The two states of altered nervous sensibility and altered muscular or vascular contractility, are capable of separate existence. Plethora is well known to produce sometimes no pain; and the most excruciating pain, as for instance in tic douloureux, is often unaccompanied by inflammation. In the majority of cases, however, these states seem to follow each other. The obstruction of the circulation in a limb causes pain and inflammation; and impressions which can only act through the medium of the nerves cause the same action.

The primary impressions which disorder the properties of an artery, must occur through the medium of the nerves, or of the contained blood. From what we observe of the effects of an undue degree of nervous influence being transmitted to one part, as in cases of fatigue, &c. we are led to infer, that the excessive transmission of nervous power brings on two kinds of alteration in the contractility of an artery. It may produce increased contraction; and this will surely be followed by such a diminution of that force as accords with this remarkable and well-known law observed in contractile fibres over the whole body; that they, having exerted their function beyond a certain point, lose their contractility for a given time. Again; the nature of the nervous impression may be such as to weaken or directly impair the contractility of the vessel, and thus distention of the arteries may occur without any previous contraction.

The alterations induced by the bad *quality* of the blood will be of the same two kinds; a direct diminution or direct increase of the contractility of the vessel; the former being less uniformly followed by the latter state than when it arises from nervous influence. These facts form the basis of our theory.

It must not be forgotten, that this reasoning with regard to the state of vessels in inflammation has been thought to be overthrown by some, because it is inadequate to explain the various appearances and products; as of inflammation, the different cutaneous phlogoses, erysipelas, terminations in gangrene, ulceration, &c. And these authors have talked of various kinds of inflammation; as that arising from different morbid poisons, &c. To this we reply, that we do not take inflammation in this wide sense: all we know of the function of the vascular system of red blood demonstrates that this system is capable only of a change of the contractility of its vessels; and no diminution or increase (and diminution or increase are the only changes in contractility of which we can form any clear notion) will account for a variety in the appearance of inflammation. We must therefore look to the secretory system for the various forms of inflammation; and, though the little we know

of these vessels keeps us still much in the dark on the subject, yet the phenomena in question admit of our forming plausible and general deductions from the inferred properties of the white vessels. Indeed the effects of inflammation depend much upon the nature of the secretion carried on in particular parts. Thus, when inflammation is seated in a mucous surface, (i. e. on a surface possessing vessels which secrete and pour out mucus,) an increased quantity of mucous fluid will be poured out. When a surface upon which exhalants open (or, in other words, a serous surface) is the seat of inflammation, that state is, in many instances, followed by increased flow from those vessels. The irritated state of the nerves alone would dispose the exhalants to give passage to an increased quantity of fluid; and the same effect might result from simple plethora. There are other fluids which are the products of such vessels as are situated in an inflamed part. As the blood furnishes the materials for all such fluids, so will the plethoric state of the blood-vessels, during inflammation, furnish an increased quantity of those materials, while the separation of them from the blood is influenced, or produced, by the state of the nerves. In each of these cases, we have strong evidence that the secretions are the parts peculiarly affected, while the state of the capillaries is the same; so that we may conclude, that inflammation is in all parts and structures the same; i. e. a dilatation of the capillaries, while its various appearances arise from the changes which the secretions undergo, whether that change be in the pouring-forth of unnatural products, or assimilating and retaining those products in their cavities. In other words, that variety of secretions is the concomitant, not the essential, circumstance of inflammation. The same notion may be extended to surfaces in which secretions are not poured out, but deposited in the cellular substance; as erysipelas, and various unbroken cutaneous defecations.

We have said, that distended capillaries and the extreme sensibility of nerves account for the four local phenomena of inflammation—heat, redness, swelling, and pain. We must not forget to mention, that the distention of the capillaries is, as Dr. Haughton has shown, generally preceded by increased action or excitement, in which the vessels are smaller, and contract probably with greater frequency. This is so clearly proved by Dr. H. that we shall not relate his experiments or repeat his observations, but refer the reader to the series of experiments which he has published (on bronchitis); the fact is of importance, since it shows that excitement, which we have been wont to consider a minor species of inflammation, is really an opposite process.

The discussion of the general phenomena of inflammation, fever, and the buffy appearance of the blood, requires us to show in what the state denominated *fever* consists, how it is connected with local inflammation, and how a general change in the quality of the circulating fluids arises, from the local inflammation or from the general disturbance.

With regard to the altered quality of the blood, this fluid, taken from a patient labouring under inflammation, exhibits peculiar appearances. The blood, when it has escaped out of the living vessels, spontaneously separates into two distinct parts, the serum and the crassamentum. The last is a compound substance, consisting chiefly of coagulating lymph and red globules, the most heavy ingredients in the blood. Now it is to be observed, that blood taken away from persons affected with inflammation, is longer in coagulating, and coagulates more firmly, than when drawn from people in other circumstances: hence the red globules, which are very heavy, not being so soon entangled in the lymph, descend by their gravity more deeply from its surface, which, being in this manner more or less divested of the red colouring matter, is, from its appearance, termed the *buffy coat*, or *inflammatory crust*. The firmer and more compact coagulation of the lymph

lymph compresses out an unusual quantity of serum from it, and the surface of the *fiery* blood, as it is frequently called, is often formed into a hollow, the edges being drawn inwards. These changes in the blood are, in some cases, a more infallible proof of the existence of inflammation than the pulse itself. In peritoneal inflammation, the patient sometimes seems to be in the most feeble state, and the pulse, abstractedly considered, would rather induce the practitioner to employ tonics and stimulants than evacuations; but, should the continuance or exasperation of the disorder, or any other reason, lead the surgeon to use the lancet, then the *buffy coat*, the *concave surface* of the blood, and the *large quantity of serum*, clear away all doubt concerning the existence of inflammation. It is important, therefore, always to inspect the blood after it is cooled, with a view to the detection of this unnatural state. But every practitioner ought to bear in mind, that, in pregnant women, and in a few anomalous constitutions, the blood, taken away by the lancet, always exhibits the foregoing peculiarities, though inflammation may not prevail.

The above alteration in the quality of the blood has never been accounted for. As it is only observable in constitutions where some source of nervous irritation is present, we should be inclined to refer its appearance to that irritation. We shall hereafter have occasion to show how important a part nervous excitement plays in developing the phenomena of fever; and it is to be remarked, that, while inflammation is merely local, no change takes place in the state of blood in general; but no sooner has fever become established, than the blood exhibits the buffy coat. Now, in the instance of pregnancy, it will be allowed on all hands, that the gravid uterus is a perpetual source of nervous irritation to most females; and it has been remarked, that those anomalous constitutions in whom this appearance has been always met with have been persons who exhibited excessive sensibility in the nervous system, or were, in other words, of the nervous temperament.

The action of the nervous system may produce this change in the blood by the disproportionate evacuation of the elements of the blood, as in excessive secretion, or by the undue retention of some of these parts; both of these disturbances being of course effected by the action of the nerves on the secreting vessels. The present state of our knowledge does not permit us, however, to show in what structures this conjectured deprivation or retention is effected.

In considering the next general symptom of inflammation, *fever*, we shall enter into a full account of the febrile state, both idiopathic and arising from this action, or, as it is termed by surgeons, symptomatic fever. We have gone so far into the subject of inflammation, because it was necessary to the right understanding of the febrile phenomena we have next to explain. These general views having been taken, we shall trace the various forms inflammation exhibits in the different structures, and the different changes in secretion which accompany it, when speaking of Phlogotica, the second order of this class.

It is generally allowed that no general definition of fever, capable of embracing all its varieties, has been given. A general alteration is found in the organic, oftentimes in the animal, functions, the former suffering the first changes. The sanguineous and muscular systems are also altered; and, when the disease is established, all the functions seem impeded together. This statement, that fever consists in an alteration solely of almost all the functions of the body, is, it must be confessed, extremely vague; yet it is the only one which will embrace all the varieties of fever; for cases are recorded where the heat was not exalted without the pulse being sensibly augmented, and vice-versa; and so on of every other function.

Order I. PYRECTICA, [*πυρετός*, Gr. from *πυρ*, fire.] Fevers.

Here we have the heat and number of the pulse preternaturally augmented; usually preceded by rigor, and followed by perspiration; pains fixed and wandering; lassitude, debility of mind and of the voluntary muscles.

In our introduction we have mentioned some of the most remarkable opinions as to the essential nature of fever. The speculations of Brown and Darwin were noticed; and many have arisen since; but there are few which we now deem worth detailing. The first which, from the strong facts by which it is supported, is deserving of notice, is the theory of Dr. Clutterbuck. We shall copy from the article FEVER of Dr. Rees's Cyclopædia, Dr. Bateman's (this gentleman being understood to be the writer of that article) exposition of Dr. Clutterbuck's theory, and his luminous objections; reserving our own remarks for the end of it.

Dr. Clutterbuck's Theory.—Fever has usually been called a general disease, affecting all the functions, in contradistinction from local diseases, in which some particular organ is the primary seat of the disorder, and the affections of the other functions are secondary or symptomatic. But Dr. Clutterbuck denies the existence of general disease, and maintains that all general or extensive derangement of the animal system is referrible to local derangement in some organ. The organ universally affected in all the varieties of idiopathic fever, which differ but in degree, as well as in those which arise from specific contagion, as malignant fore throat, scarlet fever, small pox, &c. is, in the author's opinion, the *brain*. This is manifest, he contends, from the symptoms, as the head-ache, the depression of strength, and other derangement of the animal functions, the delirium, the tremors, failure of vision, &c. It is manifest from the nature of the remote causes which act chiefly on the brain and nervous system, as intoxication, fear, grief, and other passions, external irritation, not to mention miasmata and contagion, of the operation of which we are ignorant; as well as from the predisposing causes, which probably consist in a deficiency of sensibility, as in idiots, negroes, old people, and *infants*: but it is more particularly manifest from the consequences of fever, whether after recovery, or after death, ascertained in the latter case by dissection. Among the consequences of fever, which are not uncommon after recovery, are an impaired condition of the senses; such as deafness, imperfect vision, depraved taste; paralytic affections, or convulsive complaints, as epilepsy and chorea; derangement or loss of the mental powers, such as melancholy, great irritability of mind, loss of memory, or even complete fatuity. The consequences observed on dissection, after death occasioned by fever, are frequently visible disease of the brain, of which several examples are quoted by the author. He then proceeds to show, that the local affection of the brain, thus manifest, is in fact *inflammation* of that organ; or that fever, therefore, "is nothing less than a species of *phrenitis*, or topical inflammation of the brain," and should be arranged in the order of *Phlegmasia*, with pleurisy, enteritis, and other symptomatic fevers: but, as *Phrenitis* has been generally applied to a particular form of inflammation of the brain, and implies delirium, which does not always occur in fever, although it is a frequent symptom, Dr. Clutterbuck proposes the term *Encephalitis* as the denomination for fever. The arguments adduced in proof of the notion that the topical affection of the brain, in fever, is inflammation, are, 1. The analogy between the symptoms of fever and those of inflammation, viz. pain, heat, throbbing, acute sensibility, &c. being common to both. 2. The occasional buff of the blood in both. 3. The similarity of several of the exciting causes of both. 4. The occasional alternation of fever with inflammation. 5. The analogy in regard to the cure of the two diseases generally, as by means of blood-letting, vomiting, sweating, purging, blistering, and the application of cold. 6. The symptoms

of fever not being distinguishable, on the whole, from those which belong to phrenitis, as described by authors. 7. That the morbid condition of the brain, discovered by dissection, is such as implied previous inflammation.

"In the first place," says Dr. Bateman, "Dr. Clutterbuck, like other theorists enamoured of a favourite doctrine, appears to have laid too great stress upon those phenomena which support that doctrine, and to have conceded less to opposing facts than they are entitled to claim. Hence, in retracing the delineations of fever, in the words of the most creditable writers, he has distinguished by italics all those signs which indicate derangement of the encephalon, by which they are made to stand the most prominent features in the picture. Hence, also, he has assumed the position, that the derangements of the natural and vital functions, which are nearly, if not altogether, as universal concomitants of fever as the disorders of the animal functions, are nevertheless, in all cases, secondary symptoms, originating from the primary affection of the brain. Thus the nausea, the vomiting, the total loss of appetite and of the digestive power, are believed to be always sympathetic of the affection of that organ; so likewise is the quickened action of the heart and arteries, and of the respiration. That this, however, is a gratuitous assumption, may be shown, 1. By attending to the very histories which Dr. Clutterbuck has quoted, in which the occurrence of the deranged condition of the stomach is as constantly mentioned as that of the disorder of the encephalon. 2. By observing, that the sympathy between the brain and the stomach is perfectly reciprocal; so that the brain suffers in sympathy with the stomach, not less manifestly than the stomach with the brain. 3. By remarking, that the symptoms of disordered stomach are capable of being relieved or removed, while the supposed cause (affection of the brain) remains; the thirst being allayed, and the sickness removed, by changing the state of the skin only, the former by moistening it with water, the latter by exciting sweat, as observed by Sydenham. Whence Drs. Cullen and Darwin seem to be rather justified in attributing the derangement of the stomach, when it is affected secondarily, more frequently to its sympathy with the state of the skin than of the brain.

"Farther, the connexion of many of the leading symptoms with some disorder of the brain, or common sensorium, is admitted by all, and equally favours the hypothesis of the other authors, as well as that of Dr. Clutterbuck; since, whether the brain is primarily or secondarily affected, certain phenomena in the nervous system must necessarily ensue. We have just stated some reasons for believing that it is often thus secondarily affected; and it now remains to offer our reasons for supposing that inflammation of the brain, when it does occur in fever, (to which we cannot consider it as essential,) is commonly secondary likewise.

"The first symptoms of the affection of the brain are by no means those which indicate inflammation or unusual excitement of the sensorium; on the contrary, they are such as indicate an opposite state, which Dr. Cullen has termed *atony* and *collapse*, and Dr. Darwin *torpor*; the head-ache itself, according to the observation of Dr. Fordyce, is altogether distinct from the head-ache of inflammatory excitement, or of the hot stage. Any symptoms that can be interpreted as indications of local inflammations, such as redness of the eyes, protrusion of the features, flushed countenance, throbbing of the arteries, and even delirium, are the appearances belonging to a subsequent period of the fever. But at this subsequent period, inflammatory congestions are liable to occur in the other viscera, if not so frequently, at least not unfrequently; as in the stomach, for example, the intestines, the lungs, and other organs. This fact has been noticed by many physicians of accurate observation. Riverius long ago remarked, that acute and malignant fevers scarcely ever occur unaccompanied by inflammation in

some one of the viscera; and he has stated in another place in most distinct terms, that we ought assiduously to recollect, that all those fevers, with which local inflammation is conjoined, are not symptomatic, but often idiopathic, and that the inflammation supervenes, not being the cause but the consequence of the fever; *quæ febrem inflam non efficit, sed illi potius succedanea est*. Thus, he adds, 'We frequently observe in practice, that patients labour under continued fever for a day or two before pain of the side and other symptoms of pleurisy appear; thus also many persons on the third or fourth day of fever fall into inflammation of the brain, &c. *Sic nobis frequenter in usu pratico videre licet ærotantes, ab initio febre continua laborantes per unam aut alteram diem antequam dolor lateris et alia pleuritis signa appareant: sic multi tertia vel quarta febris die in phrenitidem incidunt, &c.*' (River. Prax. Med. lib. xvii. cap. i.) Dr. Donald Monro, whose testimony on subjects of morbid anatomy is of considerable weight with Dr. Clutterbuck, remarks, when speaking of malignant fever, that 'this fever occasions in general more or less redness (I do not know that we can properly call it true acute inflammation) of the membranes; and the febrile matter is apt to fall on particular parts, and there to create abscesses, particularly in the brain, the lungs, and the glandular organs.' (Treatise on Military Hosp. vol. i. p. 237. and Dr. Clutterbuck's Treatise, p. 172.) Observations to this effect might be easily multiplied, and we have already enumerated several in a former part of this article. It is somewhat singular, that Dr. Clutterbuck, who quotes the remark of Dr. Monro, should deem it favourable to his hypothesis of exclusive inflammation of the brain; since it obviously proves an equal liability to inflammation in other organs, if it proves any thing. Now, it must be admitted, that, if fever depends upon inflammation of the brain, and is merely symptomatic of such a state, this state must be always present, when the symptoms of fever occur; one clear negative example is surely fatal to the theory. Dr. Beddoes collected a considerable quantity of evidence from the histories of dissections, made during the prevalence of several epidemic fevers on the continent; from which it is proved, indeed, that congestion, or some other morbid appearance, was frequently observed in the brain or its membranes; but it is also showing, that abscesses, gangrene, or other marks of inflammation, were not less frequently found in the viscera of the thorax and of the abdomen, especially in the stomach and liver. These facts we have detailed, when speaking of the consequences of fatal fevers, as discovered by dissection; and it is unnecessary to repeat them here. Dr. Beddoes is fairly led (supposing the facts accurately represented) to this inference, that, in idiopathic fever, the stomach and contiguous parts have been found more constantly and more deeply affected with inflammation, than the brain and its membranes. (Researches, Anatomical and Practical, concerning Fever, &c. by T. Beddoes, M. D. published in 1807.) But, lest the testimony of authors of little note may be questioned, we shall quote that of one of the most able and experienced of our hospital-physicians, Dr. Lind of Haslar. Speaking of a destructive contagious typhus, which prevailed in the French fleet in 1757, he says, 'the symptoms of the fever were the same as we have already given in the description of the gaol-distemper. On dissection, the brain of those who died was found perfectly sound, though during their sickness the head had always seemed greatly affected: in two cases only, out of twenty which were inspected, the blood-vessels of it appeared a little enlarged. The lungs were generally found gorged with blood, and seemed to have a gangrenous disposition. The abdomen more immediately suffered by the disease, particularly the liver, stomach, and intestines; in the intestines there was often found a green offensive liquor, sometimes worms.' (See Lind on Fevers and Infections, chap. iv. sect. 3.)"

For these reasons Dr. B. concludes, "that inflammation occurs only occasionally in the brain; that this organ is liable to inflammation only in common with the other viscera; and that inflammation is in all the organs a secondary result of fever, and not its essential cause. In this view of the subject, all the arguments from analogy between fever and inflammation, which Dr. Clutterbuck has brought forward, may be (and indeed must be) admitted; while, at the same time, they add no weight to his theory: for the analogy is equally favourable to the notion of a secondary as of a primary occurrence of inflammation. And we cannot but observe, before we take leave of these doctrines, that the analogies which Dr. Clutterbuck has pointed out, as well as the various facts which we have quoted from Riverius, Monro, Beddoes, and Lind, tend to confirm the hypothesis of Darwin, under which these facts, contradictory as they are, to the opinions of Dr. Clutterbuck, are reduced to a perfect consistency." It may be added, that a doctrine, according most accurately with that of Dr. Cl. is taught by Dr. Ploucquet, in the university of Tübingen.

Now, speculating upon this contention between the two most eminent writers on the fever of this country, it will appear, that Dr. Clutterbuck's hypothesis is neither proved by himself nor refuted by his antagonist. For, such is the sympathy between all parts of the body, that, if inflammation of the brain be produced, a general increased action of the heart and arteries occurs, and those parts predisposed to inflammation will take on that action, or inflammation arising on other parts will as surely disturb the cerebral. The succession of symptoms does not overthrow this theory, because, though the first symptoms denote diminished energy of the brain, such a state is, according to a law before laid down, most likely to be followed by the opposite state.

To the testimony of Lind and others, Dr. Clutterbuck objects, that we are not acquainted with the appearance of a brain perfectly sound; and the changes in that delicate structure must often be inscrutable; and he thinks that few persons die without some morbidity of the brain. We are not, however, disposed to advocate the opinion of Dr. Clutterbuck (principally for the last objection, which his answer does not overthrow), but to show that it is not much affected by the arguments in question; and we have no hesitation in saying, that, whether as a cause or a consequence, inflammation of the brain is more generally found in the fevers of this country than any other kind of lesion, as indeed we should naturally expect to find in civilized society, where the brains of the inhabitants are for the most part in a state of unnatural excitation. We should therefore pay the greatest attention (at least in fevers of this country) to the occurrence of inflammation of the brain.

With respect to the *gastric* origin of fever, hinted at by Dr. Bateman in the preceding extract, and which when first promulgated obtained few supporters; it is remarkable, that it is now believed (with some modification) by many of the most eminent continental pathologists, among the first of whom is Broussais. This author conceives that the plague, and all varieties of fever, whether adynamic, ataxic, typhous, or yellow, are nothing else than various species of inflammation of the mucous membranes of the stomach and small intestines, differing in their degrees of violence, as well from the peculiar constitution of the patient, as the causes which may have produced them. M. Broussais terms these maladies *gastro-enterites*, not because he believes that, in all cases, the stomach and intestines are irritated in the same degree, but because the affection which commences almost constantly in the first of these organs is quickly propagated to the second; and from the curative indications being the same, whatever may be the part most violently affected. He endeavours to point out, from the symptoms, the principal seat of irritation in the different stages of the disease.

When it is violent, and has continued for a certain length of time, he has constantly observed that it has been communicated throughout the whole extent of the superior portion of the digestive canal. The large intestines are, however, ordinarily free from disorder; and, when they are implicated, the particular symptoms give notice of it to the attentive practitioner. In proof of this theory, Broussais asserts that all the modifications of the *gastro-enteritis* present the following symptoms: loss of appetite; more or less of urgent thirst; on the centre of the tongue a coating, which is variable in thickness, density, and colour; and, about the point and lateral parts of that organ, a redness that varies in colour from a rose-tint to the most fiery hue: appearances always noticed by authors who have written of fever, but which M. Broussais considers as most positive and constant signs of gastric irritation. The heat of the skin being increased, particularly about the abdomen and the epigastric region, and its conveying a sensation of roughness to the hand, is generally, according to this author, the effect of irritation of the mucous membrane of the digestive organs. The morbid actions, manifested in the nerves and the brain, as depression of spirits, morosity, cephalalgia, even the most profound stupor and depression of the nervous power, or, on the contrary, the most furious delirium, are considered to be the result of sympathy with the stomach and small intestines; as also the violent and almost insupportable pains in the joints which attend some fevers.

In examining the most frequent causes of febrile diseases, M. Broussais thinks we find evidence of existing irritation of the mucous membrane of the stomach and small intestines, because those causes act, either directly or indirectly, on the digestive system. Thus, repeated errors of regimen, the ingestion of acid and irritating substances, the influence of putrid miasmata, &c. appear in the first order; amongst those of the second may be counted those miasmata which, being received into the system through the skin, or by the respiratory or digestive organs, always evince their influence on the latter; excessive heat of the atmosphere, which excites the skin, and sympathetically the stomach and small intestines, &c. Moreover, gastric irritation, as all authors have observed, is very often the precursor of *gastritis*, in the common application of this term, or of gastric, mucous, and ataxic fevers, which succeed each other in the above order in the same individual. The causes that produce typhus, yellow fever, and plague, sometimes confine their influence to the determination of a slight degree of gastric irritation. In the progressive increase of the symptoms which characterize the passage of the malady from the most trifling to the most violent form, Broussais thinks it is absolutely impossible to observe any exact period at which the affection precisely changes in its nature: every thing, on the contrary, indicates that it is the same organic lesion, acquiring more intensity, and producing more alarming sympathetic affections. He therefore sees no reason which should authorize us to divide the collection of symptoms into two, three, or more, sections, and to say that two or three different maladies have succeeded to each other.

From the effects of medicines, which may lead us to recognize the nature of diseases he still sees further corroboration of the theory in question. Having shown that antiphlogistic measures are those which most frequently succeed in the maladies of which we treat, and that, the fortunate results he has obtained from their application are beyond any comparison in extent with the success that has ensued from contrary modes of treatment; he rashly infers, that tonics and stimulants increase the febrile commotion, because they stimulate the inflamed surface. But the strongest evidence of the theory of Broussais is drawn from his numerous dissections. "On the termination of *gastro-enteritis*, or of the numerous maladies which

which represent the different degrees of that affection, we always find the consequences of inflammation of the digestive canal; but the aspect and nature of these remains of organic irritation present several varieties, the knowledge of which is of considerable importance. When the disease has been but of short duration, we sometimes find the tunics of the stomach and intestines injected with blood, and presenting throughout their whole extent, even on their external surface, a rose-coloured hue that is not natural to them, without discovering manifest inflammation of any determined portion of the mucous membrane. This shows that these organs have been the seat of irritation that has occasioned an inordinate afflux of blood to those parts, but that inflammation had not developed itself. We may compare this state to that of apoplexy, where the vessels of the brain are found distended with blood, without any effusion having taken place. It would not, however, be right to represent to ourselves the mucous membrane as little coloured with blood during life as we may find it after death: the tongue is very often of a bright red colour in the patient, but becomes pale and discoloured in the dead body. It seems that irritation must have continued for a considerable length of time to render the colour of the parts permanent after death; that is to say, to combine a certain quantity of the red fluid with their tissue."

In general, whatever may have been the disorder observed in the superior parts of the intestinal canal, the inferior portion (that is, the large intestines) is unaffected. But, when gastro-enteritis has been accompanied with diarrhoea or dysentery, we find traces of inflammation of the latter parts also; this extent and complication of organic lesion constitutes the epidemic dysentery.

A theory similar to this has much obtained in America. Dr. Chapman, professor of medicine in the university of Pennsylvania, (in his Elements of Therapeutics,) states, that "fever, whatever may be the cause, is always a disease of *sympathy*, having the primary link of its ultimately lengthened and complex chain in the stomach. It is upon this organ that contagion, marsh-effluvia, and other noxious matters, act; and hence, precisely as in the cases of poison, a local irritation at first occurs, which, if not at once arrested, spreads itself, by multiplying the trains of morbid association, till the disease becomes general, involving more or less every part of the animal economy."

Dr. Harrison (in the Gullstonian Lecture for the year 1820) has adopted a theory identical with that of Broussais. He says, "Fever I consider to be a derangement of certain functions of the body, dependant on irritation of some particular part, which becomes a cause of disturbance to the rest of the system by means of the sympathy existing between its several organs. But irritation of any part will not give rise to fever; and it appears, that it is irritation of *one organ solely* that will produce this effect, and that organ is the *mucous membrane*. The functions deranged in fever are those of the secretory organs: hence the morbid state of the secreted fluids, and the alteration of the temperature of the body. From the derangement of these functions arise all the essential phenomena of fever. The increased frequency of the action of the heart and arteries, and the *disturbance of the intellects*, which ordinarily accompany it, are *accidental phenomena*, and are not necessary in order to constitute fever. The intellects are often not disordered; and we not unfrequently observe typhous fever run its whole course without any increased frequency of the pulse.

"Disturbance of the functions of the brain is a *general attendant* on all severe febrile disorders, and, as it is here shown, is an effect of the local disease already described; the delirium being in a *direct ratio* with the inflammation of the mucous membranes; as indicated by

the inflamed conjunctiva, and other evidences of this state." Dr. H. likewise asserts, that the most strongly marked cases of inflammation of the mucous membrane of the stomach often commence in this way. The patient at first suffers an inordinate craving for food, which is not immediately removed by the introduction of aliment into the stomach; it however usually subsides in about half an hour or so; but it re-appears soon afterwards with increased violence; and in a short time, as a few days, especially if stimulating food is taken, it becomes a sense of absolute pain, attended with nausea, vomiting, and disgust for every kind of alimentary matter, except cool and unirritating liquids. This has often been observed in yellow-fever, the origin of which is one of the most severe forms of inflammation of the mucous membrane of the stomach and duodenum. The disorder of the stomach above described is not unfrequently the only sign of the approaching disease for one or two days; and we may often witness the same circumstances in the several forms of fever that occur in our own climate.

"Fever does not immediately result from irritation of any other part. We find extensive and very severe inflammation of serous and cellular membranes, and of the fibrous and bony structures, and no fever exists: but, if the irritation of any of those parts be participated by the mucous membranes, all the phenomena of fever immediately appear."

This theory has been by some confounded with the luminous one of Dr. Jackson; but it certainly differs widely in this point. Dr. Jackson shows that the mucous membrane of the stomach is the part which ordinarily receives the impression of contagious effluvia, and that the same membrane does frequently take an inflammatory action; but he is far from asserting with Broussais and Harrison, that inflammation of this membrane is the essential cause of fever; i. e. that without which it cannot exist. Again, M. Broussais is conscious that the first impression giving rise to the phenomena of fever always affects the *mucous membrane of the stomach*, either from the exciting cause having been immediately applied to this organ, or from its sympathizing with some remote part in a state of irritation; and, unless such a sympathy happens in the latter case, he considers that real fever cannot arise. Dr. Jackson equally inculcates the doctrine of the local origin of contagious fever, but he does not fix this origin in any part exclusively; and he, besides, considers that *the skin itself*, properly speaking, or the cutaneous envelopment of the exterior of the body, as well as the mucous membrane of the lungs and alimentary canal, may be the part first affected; and that the irritation of this organ may excite in the system the whole of the phenomena to which the generic term *fever* has been applied, without the mucous membrane of the stomach being necessarily interested in the production of the series of symptoms; though he states that such an implication does take place in by far the greater proportion of instances.

The other point of difference, is the part of the nervous system which forms the medium through which the symptoms are developed; though the reality of a difference in this respect is not very evident. Dr. Jackson designates it as the *sensorium*; by which it appears he means the cerebral system: though he may intend only to signify the *principle of sensibility* generally, without specifying the particular parts in which it may be seated. M. Broussais considers the ganglionic nerves as the essential organs by which the sympathies in question are produced.

The next pathologist whose theory of fever demands our attention is Dr. Nicholls. We quote from his excellent "Pathology." A particular and methodic analysis of the symptoms which constitute the several stages of the morbid condition of the system which is thus termed, leads him to conclude that the *early stage* of it results

results from "diminished sensibility of the nervous system; diminished action of the heart; a contracted state of the small arteries." The *height* of it, from "increased sensibility of the nervous system; increased action of the heart; increased flow of blood through the smaller arteries, the opposition which is made by the exertion of the contractile power of these vessels being overcome by the increased action of the heart." The *decline* from "diminished sensibility of the nervous system; enfeebled action of the heart; relaxed state of the small arteries."

The respective states of the several stages above enumerated, Dr. Nicholl considers, may occur in either of the three following orders: "1. Contraction of the small arteries; diminished action of the heart; torpor of the nervous system. 2. Diminished action of the heart; torpor of the nervous system; contraction of the small arteries. 3. Torpor of the nervous system; contraction of the small arteries; diminished action of the heart."

Adverting then to the subsequent phenomena, Dr. Nicholl says, that "these three states having existed an uncertain time, a new order of states arises. The action of the heart becomes increased, increased sensibility of the nervous system takes place, and an increased quantity of blood is received by the small arteries. These three changes may take place in varied order; for instance: the increased action of the heart may first arise: this may produce a removal of the torpor of the nervous system; and it may, by increasing the momentum of the blood, overcome the resistance which is offered by the exertion of the contractile power of the small arteries to that fluid. Or, the sensibility of the nervous system may become increased; and to this altered state of that system may succeed increased action of the heart, and a more copious flow of blood through the small arteries. Or, if the contracted state of the small arteries give way, a more free and powerful action of the heart may follow, and the torpor of the nervous system may be removed."

The states which produce the symptoms of the second stage of fever may, then, occur in either of the three following orders, viz. 1. Increased action of the heart; increased flow through small arteries; increased sensibility of nervous system. 2. Increased sensibility of nervous system; increased action of heart; increased flow through small arteries. 3. Diminished contraction of small arteries; increased action of heart; increased sensibility of nervous system.

"Having arrived thus far in our inquiry, let us return to the states which produce the symptoms of the first stage of fever. Let us suppose a case in which *increased contraction of the small arteries* is the first effect of the primary cause of fever. In such a case, the resistance offered by those arteries to the current of the blood may induce an obstructed state of the general round of the circulation, whence will ensue a turgid condition of the larger arterial and venous trunks, and of the cavities of the heart; and from these effects will arise an oppressed and an over-powered state of the action of the heart. The obstructed state of the circulation will lead to a turgid state of the cerebral blood-vessels; which effect, as well as the want of a free supply by those vessels of blood which has duly undergone the pulmonic process, will induce torpor of the cerebral structures, and, from the torpid state of those structures, as well as from the diminution of the quantity of blood received by the small arteries, will ensue diminished sensibility of the nerves in general. Thus will the several causes of the symptoms of the *early stage* of fever be present.

"The action of the heart, at first overpowered by the resistance offered to the blood by the small arteries, and still more enfeebled in consequence of the diminished sensibility of the nervous system, may gradually become increased. It may become increased, possibly, from its own powers of contraction having acquired an accumulation of energy during its oppressed state, or in consequence of increased sensibility of the nervous system; or

perhaps, in some instances, owing to a diminution of the contraction of the small arteries, and a consequent diminution of opposition to the action of the heart. Should the action of the heart become increased, the momentum of the blood will be increased, and consequently the resistance offered by the small arteries may be borne down; in which case the freedom of the circulation will be restored. The removal of the obstructed state of the circulation, and the distribution of an increased quantity of blood throughout the nervous system in general, will remove the causes of torpor of that system. Torpor of the cranial brain is, in many instances, succeeded by a degree of sensibility of that structure greater even than that which immediately preceded the insensible state of it. This is constantly the case after sleep. So also an insensible state of the nerves in general is, in many instances, succeeded by a degree of sensibility greater than that which immediately preceded the insensible state. In the case under consideration, then, it may happen that the torpor which prevailed in the early stage of fever may, after it has existed for some time, gradually be resolved into a state of increased sensibility. The presence of increased sensibility of the nervous system will be followed by increased action of the heart, and by the flow of an increased quantity of blood through the small arteries. Thus may those states be formed which give rise to the symptoms attendant on the *second stage* of fever.

"Suppose that torpor of the cerebral structure is the first effect of the primary cause of fever. Such a state will give rise to general insensibility. The action of the heart will be diminished, and the contraction of the small arteries will be increased. The increased contraction of these arteries will, as we have seen, tend to produce an enfeebled action of the heart; and a diminution of the action of the heart leads, as we have also seen, to increased contraction of the small arteries. Thus may the causes of those symptoms which attend the early stage of fever be present.

"If the torpor of the cerebral structures, after it has existed for an uncertain time, subsides, and is succeeded by a degree of sensibility even greater in degree than that which preceded it, such new condition of the cerebral structures will be attended by increased sensibility throughout the nervous system generally: increased quantity of blood will flow through the small arteries. Thus those states will be established which give rise to the symptoms attendant on the *second stage* of fever.

"If diminished action of the heart be the first effect of the cause of fever, diminution of the momentum of the blood will ensue, to which will succeed increased contraction of the small arteries and torpor of the cerebral structures, and consequently, a general diminution of the sensibility of the nervous system. And thus those states will be formed which produce the symptoms of the *early stage* of fever.

"When these states have existed an uncertain time, if, as we have supposed, the heart be enabled, from changes which take place within itself during its state of inactivity, to act with a degree of force even greater than before; the momentum of the blood will be increased, and the resistance of the smaller arteries will be overcome. The torpor of the cerebral structures will be removed, and a preternatural degree of sensibility of those structures may arise, not only as a consequence of an increased flow of blood through their blood-vessels, but possibly, as we have supposed, as a consequence of the previous state of torpor. The increased sensibility of the cerebral structures will induce a general increase of sensibility throughout the nervous system, and will cause the action of the heart to be still more forcibly exerted. Thus, in various ways, those several states which characterize the *second stage* of fever will be established. During the existence of the *second stage* of fever, although an increased quantity of blood flows through the small arteries, yet this increased flow appears to arise, in the

generality of cases, not from cessation or diminution of contraction in those vessels, but from the increased action of the heart enabling the blood to force its way into, and through, these arteries, in spite of the opposition which is offered by their contractile power to that fluid. So that, in the second stage of fever, there is, as it were, a continued contest and struggle between the action of the heart and the contractile power of the small arteries, the balance of power being constantly in favour of the former.

"We now proceed to the consideration of the last stage, or the *decline* of fever. We observe that, whenever a high degree of sensibility of the nervous system has existed for some time, it is, sooner or later, succeeded by a state of torpor, the degree of which is proportionate to the duration and the degree of the preceding sensibility. We also find that, when a high degree of action has been kept up for some time by the heart, a languid action of that organ sooner or later succeeds; the degree of languor being proportionate to the duration and the degree of the preceding strength of action. When a high degree of resistance to the momentum of the blood has been offered, for a length of time, by the contractile power of the small arteries, the exertion of that power will, sooner or later, become enfeebled, or will be suspended; the diminution of that exertion being proportionate to the degree and duration of its previous activity.

"We have traced the various ways in which those states which characterize the second stage of fever may be formed. Let us suppose that, in either of those ways, these states have been produced. The high degree of sensibility of the nervous system; the high degree of action on the part of the heart; the strong, but unavailing, resistance of the small arteries, may severally last an uncertain time. The natural consequence of each of these states will be, as we have just seen, the formation of an opposite state. The high degree of sensibility will give place to torpor; the powerful action of the heart will subside into feeble contraction; the stubborn resistance of the small arteries will give way. Accordingly we find that these natural consequences are precisely the occurrences which are met with in the last stage of fever. The sensibility of the nervous system becomes diminished in proportion to the duration and degree of its previous increase. The action of the heart becomes feeble. Both these new states favour the increase of each other. The contraction of the small arteries gives way; the struggle between these vessels and the heart is at an end, so that the contraction of the heart, although enfeebled, may still be able to carry on the circulation of the blood; and thus an obstructed, or a stagnant, state of the round of the circulation, which would otherwise result from the languid action of the heart, may be prevented.

"It appears, then, that both in the first and in the last stages of fever, the sensibility of the nervous system and the action of the heart are diminished; while, in the early stage, the contraction of the small arteries is increased; whereas, in the decline of fever, it is diminished or altogether suspended. The different state of the contractile power of the small arteries, then, appears to constitute the leading distinction between the character of these two stages of fever. From the result of our investigation, it appears that the states which characterize the second stage of fever are the consequences of those states which usher in fever; and that the states which constitute the third stage are the natural results of those which are met with in the second stage. It follows then that the states attendant on the third stage, as well as those which mark the second stage, are the consequences of those states which appear in the first stage of fever."

Before we proceed to examine the justness of these views of fever, we shall present to our readers a history of those phenomena. It is now pretty generally acknowledged, that the division of the fevers of this country into *synocha*, *synochus*, and *typhus*, is not founded in

nature, but engendered by hypothetical notions in the brain of Cullen. On this account we shall proceed to say, that, of fevers in general, the commencement is commonly marked by some degree of languor, lassitude, and general uneasiness; the patient feels himself ill, without being able to refer his uneasy feelings to any particular part of the body. There is also a listlessness, or a desire frequently to change the posture, but at the same time the sense of weariness disposes the patient to resist this inclination; the motions when made are sluggish, and frequent yawning and stretching accompany the attempt. The mind is affected in a similar way; it cannot rest upon any object; the attention is not under the command of the will, but wanders from one subject to another; and, as the ability of exerting the muscular powers becomes diminished, there is likewise an inability of exercising the faculties of the mind; the patient cannot think or reason, even upon his ordinary affairs, with his usual ease. Along with these symptoms, but more frequently after them, he feels a sensation of cold, commonly first in his back, but afterwards over the whole body; the same kind of sensation that he feels when surrounded by a colder medium than he is accustomed to: he wishes, therefore, to go near a fire, or into the rays of the sun, or to put on warmer clothing. At the same time the face and extremities are observed to be pale, the features shrink, the bulk of every external part is diminished, and the skin over the whole body appears constricted, as if cold had been applied to it. This sensation of cold varies much more in different instances of incipient fever than the languor and lassitude before mentioned; in some cases it is very slight, in others not at all felt or noticed; whilst in many instances, particularly in the intermitent fevers, it becomes so great as to produce a tremor or shaking in all the limbs, with a chattering of the teeth and frequent rigors of the trunk of the body. In this state, the actual heat of the surface, whether measured by the sensations of a by-stander or a thermometer, is considerably diminished; in the extremities in particular it is many degrees below the standard of health. Not only on the surface, as is generally imagined, but even over the whole system, the heat is probably diminished; the air expired from the lungs feels cool to the back of the hand, held near the mouth. Dr. Currie states, that he has found the heat under the tongue, and at the axilla, as low as 94, 93, and 92, degrees of Fahrenheit's thermometer. (The healthy temperature of the human body, it may be observed, is about 98° of the same thermometer.) Dr. Fordyce affirms, that 94° was the lowest degree of heat that he had witnessed under the same circumstances. (First Dissertation on Fever, p. 40.) The sensations of the patient, however, do not always correspond with the actual degree of cold, as measured by the thermometer, or by the sensations of others; for it has been remarked, especially towards the termination of the cold stage of the fever, that the patient feels himself cold, even on those parts of the body which are shown, by the application of a thermometer, to be of the natural heat, or even hotter than they usually are in health. With this state of coldness, the sensibility of the body is considerably diminished; all the sensations, but especially those of touch and taste, are less accurate and distinct than in the healthy state. Dr. Fordyce remarks, that, "in the attack of fever, such a degree of insensibility, with a feel of coldness, has in many cases taken place, that even hot substances have been applied in such manner as to coagulate, nay perform the chemical analysis of the part, without any sensation of heat having arisen in the mind of the patient." (Loc. Cit. p. 49.) The diminution of the faculty of sensation is very various in different instances of the attack of fever.

Upon the first approach of febrile languor the pulse is not always altered in respect to frequency, but it always becomes weaker than before; sometimes it is also slower than

than in health for a short time; but, as the sense of cold increases, it becomes smaller, and gradually more and more frequent, and often irregular. While the contractions of the heart and arteries are thus feeble, all the secretions of the system are likewise diminished. The tongue and mouth become dry and clammy, in consequence of the diminished supply of saliva and of the mucus of those parts; the skin also becomes dry, as well as pale and cold, there being little or no matter of perspiration poured out. The changes in the urine are still more remarkable; the impaired action of the secretory vessels of the kidneys is evinced by the diminished quantity of the urine at this period of fever, as well as by the paleness of its colour, in consequence of its holding less of the mucilaginous and saline parts in solution than in health, and by the absence of any cloudiness or deposition when it cools. There is generally also a smaller quantity of feculent matter evacuated from the intestines at the commencement of fever, or in other words a degree of constipation, which implies a deficiency of the fluids secreted from the inner surface of the alimentary canal, as well as of the bile and pancreatic liquor, by which the fæces are rendered more liquid and moveable, and the bowels are stimulated to action. Analogous to these changes in the state of the secretions are the sudden and considerable detumescence of swellings, which may happen to subsist on the surface of the body, and the drying-up or cessation of the discharges from ulcers and wounds, during the cold stage of fever.

The respiration also suffers some change in the attack of fever, being often short and frequent, and sometimes attended with a cough, more particularly in intermittent fevers. There is at the same time a great anxiety, or a sense of weight, fullness, and great uneasiness, in the breast. This distressing feeling, which has been thought by some physicians a pathognomonic symptom of fever, and hence denominated *febrile anxiety*, is totally different from, and independent of, the general uneasiness all over the body, which was before mentioned, and often occurs in a very disproportionate degree. It resembles that anxiety which takes place from grief, fear, and other depressing passions of the mind, and which is also accompanied by paleness, and diminution of size of the veins which are seen on the surface. The patient likewise respire irregularly, as one under the influence of the passions just noticed, and frequently sighs deeply, as if to free himself from the load that oppresses the region of the heart.

At the beginning of the attack of fever, sometimes as the very first symptom, but often later, a dull pain is felt in the small of the back, which seems to occupy the lumbar vertebræ, but is not accurately referred to any particular point. It is very similar to the pain which arises from weakness or fatigue; but, unlike that, according to Dr. Fordyce, it is equally felt in the horizontal as in the erect posture of the body. The head at the same time is affected with pain, which is commonly seated in the forehead over the eyes, and feels to the patient as external; sometimes it likewise occupies the back part of the head; and occasionally it is felt all round the head. It varies much in degree, but commonly increases as the attack proceeds; it is usually attended with a sense of weight, and is often augmented by light falling upon the eyes. A similar pain generally arises all over the body, which the patient often describes as seated in all his bones, without being able to particularize in what part of the body it is felt. Sometimes it is more particularly confined to the larger joints; and it is occasionally attended with great soreness, as from over-fatigue. Such soreness, however, is more commonly confined to the subsequent periods of the disease.

From the commencement of the attack of fever the natural functions are always deranged. The changes in the appearance of the tongue are among the first indications of this derangement. At first the tongue appears

to be thinly covered on its upper surface with an extremely viscid fluid, especially in the middle and towards the root, the edges and point being nearly free from it. The under surface of the tongue, below the point, is scarcely ever covered with this matter. Sometimes, at the very beginning of the disorder, the covering of the tongue is a solid crust of a whitish colour, adhering so firmly as to be incapable of being scraped off; sometimes it verges towards a brown colour. At the approach of the cold stage of fever the stomach is commonly affected; the appetite for food ceases, and aversion even to the sight or smell of meat often takes place. Dr. Fordyce remarks, that he "has known several instances where persons, sitting down to the table with a strong appetite, an attack of fever having suddenly taken place, in less than two minutes they have been unable to eat any thing, and have been seized with perfect aversion even to the smell of food." (Loc. cit. p. 93.) Sickness at the stomach often comes on at the first attack, and this is increased occasionally to such a degree as to produce vomiting. More commonly, however, this does not take place at the very commencement; but the disinclination to food increases gradually to nausea, then to vomiting, which in some cases is very severe, not only the contents of the stomach being evacuated, but likewise those of the duodenum, and of the glands, the secretory ducts of which open into it. Bile, therefore, and the pancreatic juice, are thrown up, together with the contents of the stomach, and the other fluids secreted into the stomach and duodenum. Of these fluids, however, the bile is the most conspicuous from its colour, taste, and smell; and it has therefore often been observed by practitioners, while the gastric and pancreatic and other juices secreted into the duodenum, as they are not very conspicuous from their sensible qualities, have not been taken into the account. Combined with the sickness and aversion to food, there is generally a considerable degree of thirst.

Few other symptoms, which are observable at the commencement of fever, remain to be mentioned. The state of the countenance is very peculiar and characteristic, from the moment of the attack. It not only becomes pallid, or of a dirty hue, in common with the rest of the surface of the body, but it assumes an expression of dullness or heaviness, partly in consequence of the languid action or relaxed condition of the muscles of the face, and partly from the same condition of the muscles of the eye-ball, by which its form and motion are altered, and its usual brightness and quickness are impaired. The disposition to sleep is diminished or lost; or, if it occurs, the repose is short and interrupted, and very imperfect, so that there is much dreaming, during which the ideas that present themselves are mostly of an unpleasant kind.

When the sensation of cold, and the attendant symptoms, have continued for some time, (the period being very various in the different kinds of fever,) the cold becomes less violent, and is alternated with flushes of heat. In the more severe continued fevers, it frequently happens that the cold is not permanent for any length of time, but that this alternation of chills and heat takes place from the beginning. By degrees the cold goes off entirely, and a heat greater than natural is extended, at first unequally in different parts, but at length generally over the whole body; but even when it is so far advanced, that the heat, measured at the axilla or under the tongue, is greater than the standard of health, a slight accession of external cold will produce a general chilliness. There is no regularity in the restoration of the heat to the surface; in some parts the heat is above what is natural, while in others it remains below this standard; and hence arises that mixed sensation of cold and heat, which every one acquainted with fever has experienced, in the transition from the cold to the hot stage of the paroxysm. This inequality of the distribution of the heat is less in the simpler forms of fever, and greater in those which

are more complicated and irregular. In general the sense of cold predominates, even after a morbid heat has taken place at the axilla, under the tongue, and in different parts of the thorax and abdomen. At length, however, the heat of the surface becomes general and uniform, rising to 102, 103, 104, and sometimes 105, of Fahrenheit's thermometer. Different authors indeed speak of febrile heat four or even five degrees higher than this; but such heat never occurred under the observation of Dr. Fordyce or Dr. Currie, the best authority on this subject: Dr. Bateman also had frequently employed the thermometer, in cases of continued fever, and never observed a higher temperature of the body than 104 in intermittent or continued fever, the patients being in cool apartments, with very light bed-coverings. The sensation of heat becomes at length strong and steady, and the accession of external air does not produce a return of chilliness as before; this sensation is most powerful in the extremities, particularly on the palms of the hands and soles of the feet.

The increase of the circulation takes place at the same time as the returning heat, and often in the same unequal manner, being evidently greater in some particular parts than in others. Thus it frequently happens, that one part shall become red and enlarged, one arm, for instance, while the other is pale and contracted; the veins of the one being full, and the blood flowing in them more rapidly, while those in the other remain contracted. This shall continue for some time, when the parts become affected in the opposite way; the arm which was florid and distended becoming pale and contracted, and *vice versa*. This shifting, however, remains but a short time in *simple fever*, perhaps not above half an hour; in the paroxysms of *intermittents* it continues longer, and still longer in the first attack of *continued fever*. Universal redness at length takes place; the features of the face and other parts of the body recover their usual size, and become even more turgid; and the superficial veins evince the greater circulation now going on through them by their fullness and increased size. The skin is relaxed and smooth, no longer exhibiting the goose skin appearance by its contraction round the little glands and roots of the hair; but it continues for some time dry. The pulse now becomes fuller and stronger, and its frequency continues or is still farther increased; in simple fevers, it beats occasionally at the rate of 140 or 150 strokes in a minute, with a considerable degree of fullness and hardness (Fordyce); but in the hot stage of *intermittents*, and in the heat of *continued fevers*, it is most commonly from 90 to 110 at this early period of the disease; subject, however, to great variation according to the constitution of the patient, and the type of the fever. The respiration, though more free than during the chilliness, continues still frequent, and accompanied by a sense of load and anxiety, which the patient endeavours to remove by occasional laborious efforts, and deep sighing. The secretions still remain diminished; the skin is parched, no perspiration breaks forth; the tongue and mouth are also dry and parched, and the fur on the former becomes thicker; the urine, though it becomes higher coloured than in the cold stage, remains transparent, and deposits no sediment; and the bowels are costive. The thirst is considerably increased as the heat advances; the nausea and vomiting gradually diminish, but the aversion to food is augmented.

The corporeal strength and the mental powers become more oppressed; the sensibility, however, is restored in general with the returning circulation and warmth of the surface; sometimes it becomes even more acute than in the healthy state, so that the skin is more easily irritated, the eyes are offended with the light, and the least noise is heard with pain, and greatly disturbs the feelings of the patient. The attention becomes less under the control of the will, and the faculty of recollection and the reasoning power are exerted with difficulty, and im-

perfectly, so that some confusion of thought takes place, which often arises to delirium; when the hot stage is completely formed: occasionally, indeed, a degree of delirium occurs in the beginning of the cold stage, but more frequently in the subsequent periods of the fever. The numerous and distressing dreams, which constantly recur in the disturbed and unrefreshing sleep which takes place in the first stages of fever, may be considered as the slightest degree of delirium. In the next degree, the patient, when he awakes, is some time before he can attend to the impressions made on the organs of sense: he does not know his bed, his bed-chamber, or his attendants, for a few minutes, but seems to awake as it were a second time, and becomes perfectly sensible. If the delirium is in a little greater degree, the ordinary impressions of external objects produce no effect: the ideas, which float in the mind rapidly, seem to be excited without train or connexion; the association being carried on by the internal impressions alone. If the attention of the patient, however, be strongly excited by external impression, he is capable of distinguishing the surrounding objects, and of returning correct answers to questions put to him; but, that strong impression being withdrawn, he relapses into his delirious dream. As the delirium increases, with the advance of the fever, the faculty of distinguishing the objects that surround him gradually diminishes; he begins to express his ideas in words, i. e. to talk incoherently; the ideas which present themselves rapidly, and without apparent connexion, are generally disagreeable and distressing. He is sometimes in a church-yard among tombs, sometimes falling from a precipice, sometimes pursued by wild beasts, in the midst of conflagrations, &c. The delirium increasing, he becomes completely insensible to external objects. This is a common progress of the alienation of mind in fever, beginning on the second or third day, or later, and increasing to the fourteenth or fifteenth, if the patient survive so long; at first being only obvious in the night, or during the imperfect slumbers, or in the waking moments, when external impressions are fewer, or almost entirely excluded; but afterwards continuing night and day without intermission.

With the beginning of the hot stage, the head-ache is commonly increased, and appears to be dissimilar from that which took place in the cold stage. The latter pain, Dr. Fordyce remarks, "always feels to the patient as external; it is clearly a pain affecting the integuments of the head, perhaps the skin alone, at most the pericranium; but the pain which arises in the second stage is felt by the patient internally, and gives him the idea that there is something distending the head or the brain, so as to attempt to burst the cranium." (First Diss. on Fever, pp. 85 and 228.) In the mean time the carotid and temporal arteries beat full and strong, the eyes are rather red, and the face is flushed. Connected with these symptoms, which obviously imply an increased quantity and impetus of the blood carried to the brain, the organs of sensation, while fully capable of conveying impressions to the mind, nevertheless produce sometimes erroneous impressions. Thus the patient can see, but he mistakes objects; he fancies one individual is another, or that a man is a post: and his organs of hearing, which are also more readily affected, do not convey the same perceptions which the same sounds would excite in health. The same thing happens with regard to his other senses.

All the symptoms above enumerated increase from the second day of fever. The tongue grows more foul, and the crust which forms upon it thicker, until the middle of the second week. Towards the end of the second week this crust often disappears more or less, and the surface of the tongue looks raw when moist, and when dry has a polished glaze, especially about the middle, some of the crust remaining upon the sides towards the edges.

Before these symptoms, however, have advanced to the degree

degree just described, and after the general heat has continued for an indefinite time, (in the ephemeral and intermittent fevers a few hours, in continued fevers several days,) it often happens, that a partial moisture begins to appear on the skin, generally on the forehead, which extends gradually downwards to the neck and breast, and at length a free sweat takes place from the whole surface of the body. At the same time the symptoms of the first stage of the fever begin to abate, sometimes one giving way first, and sometimes another, so that it cannot be said which has the priority: sometimes the weight and anxiety about the præcordia are first observed to diminish, sometimes the change of the pulse from hardness to softness is the first obvious amendment, and sometimes the relaxation of one or other set of secretory vessels, &c. Such a change of the symptoms, terminating speedily in a restoration of the health, has been called, by a term borrowed from the Greek, a *crisis*; and the excreted fluids, which are poured forth at the time of this change, have hence been denominated *critical discharges*. The most striking appearance, both to the patient and bystander, is the perspiration, which is frequently carried to the extent of profuse sweating in intermittents and the simpler forms of fever, but sometimes amounts only to gentle moisture. While the sweating continues, all the symptoms of the previous stages abate: the preternatural heat is gradually diminished; the pulse becomes softer and less frequent; the breathing is likewise frequent, and more free, and is unaccompanied by sighing; and the anxiety and heaviness in the chest are greatly alleviated. The head-ache gradually goes off, and the pains of the loins and extremities cease; the nausea and vomiting no longer distress the patient, who now acquires a relish for light nourishment; the thirst is removed; the mouth and tongue become moist, as the salivary and mucous glands pour out their fluids, and the tongue becomes gradually clean, first upon the edges, afterwards in the middle and near the root; the crust, which had formed upon it, coming off in small flakes, until the whole surface is in its ordinary state. The secretions of the liver, pancreas, and intestinal glands, being restored, the bowels begin to act, and the evacuation from them comes to its ordinary quantity. A loose stool is commonly passed at the end of a paroxysm of intermittent fever; and sometimes a diarrhoea comes on in continued fever, and, being the most obvious, is then considered as the critical discharge. The urine generally undergoes some peculiar changes in the crisis of fever: it is not only secreted in larger quantity, but, although bright and transparent when discharged, if allowed to remain for some time it is observed to grow turbid, as if containing a quantity of a yellowish-red powder, and at length to deposit flaky crystals of a dirty red colour, commonly termed a *luteitious sediment*. Tumours, which were diminished during the cold, and more painful in the hot, stage, return to their usual size during the sweat, and ulcers again begin to discharge matter. The intellectual functions are also restored during the crisis; the attention of the patient is no longer absorbed by his uneasy feelings, the confusion of his head is relieved, and he is not harassed by the perpetual recurrence of distressing images to the mind, especially in his slumbers; a disposition to calm sleep returns; and the countenance resumes its natural expression.

It was remarked by Hippocrates, and the majority of the ancient physicians, that these *crises* occurred more frequently on particular days of the fever, which they, therefore, observed with great care, as affording both particular indications in practice, and the means of prognosticating the phenomena of the subsequent periods of the disease. Hence they called these days *critical days*. These periodical changes, happening on particular days, are however seldom distinctly noticed in this country; they seem to occur more decidedly in warm climates, where all fevers have a greater tendency to assume the

remittent form. Dr. Cullen, who believed that even in this country these critical days were observable, though less distinctly than in hot climates, explained their occurrence upon the principle, that continued fevers were in some degree disposed to take on the types of intermittents; and in this principle he has been followed by Dr. Fordyce. (See Cullen, First Lines, § cxix. Fordyce, Third Dissert. on Fever, p. 120.) But it must be remarked, that the doctrine of critical days, as taught by Hippocrates, was ridiculed by Asclepiades and Celsus, who practised in the same climate with Hippocrates, and in the same city with Galen; and Herophilus altogether denied its truth.

In this country, and in cold climates in general, continued fevers are seldom terminated by crisis. Some practitioners have maintained, that a crisis never takes place, whilst others have insisted that crises happen in all continued fevers. Dr. Fordyce justly remarks, that these extremes of opinion are both inconsistent with correct observation. It is admitted, however, that crises occur much less frequently in this climate than in hotter countries; and we think that the physician just mentioned considerably over-rated the proportion when he says, that "not above one-third part of the fevers which happen in London are terminated by a crisis." (Loc. cit. p. 126.) We believe the proportion to be very far below this statement. In the great number of instances of fever, no crisis takes place; but the disease terminates in a more slow recovery, or in death.

The symptoms before enumerated increase gradually to the end of the first, or middle of the second, week; sometimes by the seventh day the symptoms have attained their greatest severity; sometimes, too, the second week is gone through without very severe symptoms, and in other cases symptoms of the greatest distress and danger then occur; and there are all gradations between these extremes. The appearances in the second week, when the fever is not extremely severe, are often as follows. The pulse is frequent, beating from 100 to 110 in the evening, and in the morning somewhat less; the skin continues dry and hot, in various degrees; the tongue is covered with a brownish fur; the appetite is often totally lost; thirst continues, but is often complained of less during the second than during the first week; and the depression of strength is considerable. The sleep is disturbed and short, and the delirium is manifested in the intervals by the incoherence of the observations of the patient, until he is completely roused by some strong impression on the senses. In the morning the delirium is less than in the early part of the night, and the sleep sometimes tolerably quiet; even during the day there is considerable confusion, and occasionally much slowness of intellect. Hence perhaps the thirst, as well as the head-ache, and pains of the back and limbs, are less complained of, rather than from actual relief or diminution of these symptoms. The eyes have a dull and confused appearance, and commonly some degree of redness, from a number of small vessels distended with blood. Sometimes a degree of stupor comes on in the morning, and continues till the more active delirium of the night. If this state should remain, Dr. Fordyce observes, till about the fourteenth day, the evening attacks become by degrees less, but the stupor continues, with deafness, and inattention to external objects; and these appearances remain the very last symptoms of the disease.

Very frequently about the end of the second week, and often sooner, the symptoms begin gradually to diminish in severity. The first appearance of this abatement is not uncommonly a cleanness and healthy look about the edges of the tongue; sometimes, although not very generally, sweating takes place all over the body, and the skin afterwards continues moist; more commonly the moisture and softness of the skin appear in a less marked manner. The delirium abates altogether in the day, and

returns less severely at night; or, if the patient be deaf with some stupor, these symptoms are little changed in the twenty-four hours, but remain until the whole of the disease has disappeared. The depression of strength goes off, but leaves real weakness behind. The urine deposits sometimes a copious lateritious sediment for a day or two, and afterwards returns to its natural appearance. Sometimes there is a copious lateritious sediment in the urine made in the night, and a mucous one in that made in the day-time. The costiveness goes off, and the faces return to their ordinary appearance; and all the secretions become gradually increased, not equally, but sometimes one more speedily, sometimes another. The eyes, unless when the delirium has ended in stupor, begin to have a more healthy appearance, are more composed and clearer, and express a greater attention to the objects around them. The sleep returns, but not equally; the patient sometimes passing a quiet, at others a restless, night. The appetite returns, although seldom regularly; sometimes it is voracious, but the patient is notwithstanding satisfied with a very small quantity of food; in the other cases it returns very slowly. Although the depression of strength sometimes goes off almost at once, yet it leaves the patient often with a greater feeling of weakness. Thus, however, the whole disease disappears, and the patient recovers his strength very quickly.

But, although this favourable termination of fever occurs in a large majority of instances in this country, it is nevertheless a disease frequently fatal, and, under particular circumstances, the cause of great mortality. When fever terminates fatally, the symptoms present themselves chiefly under two different aspects, but variously modified, approaching to each other, or even partially combined. The individual varieties it is impossible to depict; a knowledge of them can only be attained by personal observation of numerous cases at the bed-side of the sick. One of the forms, just alluded to, consists principally of a great aggravation of the symptoms of the hot stage. The heat of the skin continues great and pungent, and its surface dry and parched; the countenance is flushed, and the eye suffused with redness, and intolerant of light; the head-ache is severe, little or no sleep is obtained, the delirium is augmented, and is accompanied with extreme restlessness, often with vociferation, and even great muscular strength, so that the patient is with difficulty confined in bed; and the pulse is frequent, with considerable hardness. About the end of the second week these symptoms suddenly change; the delirium ends in an indistinctness or confusion approaching to stupor, the articulation becomes indistinct, the breathing laborious, the strength sinks rapidly, cold sweats and convulsive motions ensue, and the patient is cut off in a few hours. Sometimes symptoms of inflammation of the lungs supervene, and, continuing together with the delirium, hot skin, frequent pulse, and brown tongue, the patient dies with symptoms of suffocation; and sometimes inflammation of the intestines, or other important organs, being super-added to the original fever, accelerates and modifies the fatal termination. This has been called *inflammatory fever*. The other form of the disease, above mentioned, is extended more commonly to the third week, sometimes later, and the progress of the symptoms is more gradual. The depression of the muscular powers continues to increase with the disease: the eyes become sunk, dull, and listless; the countenance dejected, and of a dusky hue; the delirium is attended with a low muttering, and the patient lies without the disposition or the power of making any exertion, or he picks the bed-clothes; the tongue becomes crusted with a dark-brown or black matter, a similar sordes collects upon his teeth and lips; the pulse is frequent, beating from 120 to 130 times in a minute, and is at the same time small and feeble; the respiration is also weak, generally frequent, and interrupted with sighing or a dry cough; the voice

becomes indistinct or inarticulate; and there are slight convulsive twitches, or subultus tendinum. At length the prostration of strength becomes extreme; the patient lies on his back, being unable to support himself in any other position, and even slides down towards the bottom of the bed; he is altogether insensible to external impressions; the sphincters, as well as the muscles of voluntary motion, are relaxed, and he passes his stools and urine involuntarily in bed; the pulse becomes very feeble, tremulous, and scarcely to be felt at the wrist; partial clammy sweats break out; the eyes appear glazed and fixed, and the other features shrink; the patient is unable to swallow; his breathing becomes irregular and laborious, attended with some noise in the throat, as the fatal event approaches; the extremities grow cold; and, often after some hours, the functions of life finally cease. When fever assumes this form, it constitutes *typhus*, or the nervous, malignant, &c. fevers of authors.

There are some other appearances, which, though not the ordinary attendants on fever, occasionally occur, especially when the disease is of a severe kind, and which have been considered as evidence of malignancy, or of putrescence. Generally in the second week of the disease, but sometimes as early as the fourth or fifth day, (see Pringle on Diseases of the Army, part iii. chap. 7. and Huxham on Fevers, chap. vii.) an eruption of spots, not elevating the cuticle, of a red colour, sometimes pale, often darker, or even of a livid or purple hue, appears on the skin: these spots, or *petechiæ*, are thickest on the breast and back, less numerous on the legs and arms, and are seldom, if ever, seen on the face. They were first described, among the moderns, by Ingrassia of Naples, afterwards more particularly by Fracastorius, under the names of *lenticula*, *puncticula*, or *peticula*; whence also the same appellations were given to the fevers themselves. (See Fracastorius de Morb. Contag. lib. ii. cap. 6.) *Petechiæ* appear in fever, most frequently in close and crowded situations; formerly they were very frequent attendants on the fevers which occurred in the persons under confinement in close cells, or crowded apartments in our prisons. Dr. Willan has stated, however, upon the authority of the surgeon of Newgate, that, since a general attention to ventilation and cleanliness has been adopted, *petechiæ* do not now appear in more than one case of fever in thirty in that prison. He has also added, from the observation of Dr. Bateman, physician of the Fever Institution in London, that the proportion of cases, in which *petechiæ* occur in that institution, is about one in forty-two. (See Willan on Cutaneous Diseases, order iii. p. 468.) Sometimes the purple spots are of a large size; in which case there are often also livid blotches, or stripes like the strokes of a whip, *vibices*, and hæmorrhages, break forth from the internal parts, as the bowels, lungs, stomach, and wherever the surface is covered with a very thin cuticle, as from the nostrils, the gums and mouth, &c.

A rash of a different species, which Dr. Willan has termed *roseola*, "a rose-coloured efflorescence, variously figured, without wheals or papulæ, and not contagious," (Loc. cit. order iii. genus 4.) sometimes makes its appearance in fever of the typhous type: sometimes it precedes the formation of purple spots and *vibices*, and in other cases it is seen early in the fever, but remains only for a short time without any material consequences. Some other cutaneous appearances occasionally occur, as mentioned by Huxham, (Loc. cit. p. 97.) such as military pustules, a scabby eruption about the lips and nose, and aphthæ.

We have thus laid before our readers an ample account of the phenomena of fever, in order that the relation between those phenomena and our explanation of them may be more clearly seen. We proceed to examine the merits of the gastric theory of fever. In the first place, the assertion of Broussais, that a furred tongue and other appearances of the mouth indicate inflammation, by no means

rests on a stable foundation, because those disordered secretions may be the result of disturbance in the brain. It must be granted, however, that the red appearance of the edges of the tongue, a symptom this author particularly dwells upon, is a sign of inflammation; but every one knows that this symptom is often wanting in fevers; and, that all other appearances of the tongue may be produced by nervous irritation, altering the secretion on the surface of that organ, is clear enough, from the observed and well-known effects which the artificial interruption of nervous power to a secreting surface invariably occasions. Now that inflammation of the mucous membrane itself may produce the various appearances of the tongue in fever, we cannot admit, because local applications, known to be capable of bringing on inflammation, do not cause the display of similar appearances. Moreover, if it were allowed that inflammation of the mucous membrane do exist, it were still impossible to show by what influence general febrile commotion is produced; because inflammation in one part must be the same as in another to a certain degree; and hence fever might result from inflammation of any organ of the body without implicating the digestive tube, which does away with the theory. The effect of stimulants and tonics in fever does not require us to believe this theory, since the intimate sympathy between the stomach and brain offers a ready explanation of the fact. Independently of this, a few cases have occurred in debilitated and generally-diseased patients, in whom the exhibition of gentle stimulants has produced highly favourable consequences.

The strongest facts adduced in favour of the doctrine of Broussais, is the red appearance of the inside of the stomach on dissection, because his opportunities for carrying on dissections of that kind have been almost unlimited; but we think whoever attends to the class of patients from whom these dissections were made, and the climate they existed under, will have no hesitation in believing, with us, that this author has been led to form this sweeping conclusion as to the general sources of febrile ailments from having principally had under his care the gastric form of fever, i. e. a complication (very frequently met with) in which the stomach, sometimes solely, sometimes in common with other organs, is in a state of phlogosis. We have seen patients who have died of fever, in whom redness of the mucous membranes in the stomach was not found; and, though our very limited experience would feebly indeed counterbalance that of a Broussais, we conceive that a very few unequivocal cases overthrow the whole theory as to the essential cause of fever.

We have no hesitation in contradicting Dr. Harrison's assertion, that the intensity of fever is in direct ratio to gastric inflammation. We deny this from dissections; and we leave this and the above assertion, which we have made in opposition to Broussais, to be corroborated by the experience of our medical brethren.

It must be granted, after all, that gastritis in various degrees of severity, though usually mild, is (most probably from the same cause which produces heat and redness of the external skin) a frequent concomitant of continued fever; and that it always exists in the Exanthematicæ, or eruptive fevers.

It will be seen, that Dr. Nicholls's rationale of febrile phenomena is principally derived from the application of the two laws, that diminished sensibility is followed by excess of sensibility, and the same of contractility (or, as he styles it, *tonicity*). The extensive and accurate manner in which he has traced their operation in the long quotation we have given, will save us from pointing them out further. It will be seen, however, that this author by no means enters into those questions which the majority of writers have contended about, and which we have before detailed. There are moreover many conclusions stated of which Dr. Nicholls has adduced no proof; as where he says, in speaking of the first stage of fever, that

fulness of blood in the head will arise from want of action in the heart; and it is on this assumption that many of his reasonings turn.

Upon reviewing these various theories of fever, not one of which has maintained altogether its ground, we nevertheless see much to admire; and we shall now proceed to cull the good parts of each and exhibit them in what appears to us to be the most simple form. We shall first pass in review the causes of fever. These are of three kinds: inflammations of all parts; animal irritants, or contagious effluvia; and vegetable irritants, or marsh miasmata. A predisposition of body is required to enable these agents to produce the febrile state, since all are not equally liable to undergo their operation.

The state of body which seems to be most liable to be affected by sympathetic fever, or that from local inflammation, is plethora; though it is to be remarked, that this does not argue that symptomatic fever is in plethoric habits the most formidable. The state of the body which disposes to the influence of contagion and miasmata, is a weakened condition of the nervous system. Thus cold, bad living, fatigue, the depressing passions, Venus nimia, have long been accounted predisposing causes. They are also in conjunction, or long applied, exciting causes, and will produce fever without contagion.

From these well-known and generally-allowed statements it follows, that the operations of febrile commotion is carried on through the medium of the nervous system; a fact long since shown by Cullen and others, but of which we have been long in making a proper use in the prosecution of this subject. We have seen that in fever the capillary system betrays the first symptoms of derangement, principally manifested in the skin. These symptoms are generally coldness or rigor, the consequence of constriction of the capillaries. Now, to this general constriction (as is explained by Dr. Park in his Pathology of Fever) may be referred all the phenomena of the first or cold stage of fever. For, every part having a different mode of feeling, and a different function to perform, it follows that various effects will result in different organs from the same change of circulation. And accordingly, that state of vessels which occasions a sense of cold on the surface is accompanied by the sense of nausea in the stomach. The same constriction in the capillary system of the brain produces diminished performance of the sensorial functions; or agents directly debilitating the brain may give rise to this constriction over the whole surface. However this may be, the atonic state of the brain must be looked to as the cause of the languor and lassitude, the lengthened muscles of the face, the loss of strength, fainting, &c. which are the concomitants of the first stage of fever. To the same conditions of nervous torpor and capillary constriction, we refer the feeble small pulse, the paleness of the skin, and the shrinking and diminution of size in the features, and every other external part, as well as of morbid swellings. From the contracted condition of the capillaries the other secretions are diminished, through wanting a due supply of blood. The mouth and tongue become dry from the scanty supply of saliva; the pancreatic juice, the bile, the mucous and serous excretions in the alimentary canal, being diminished, as well as the muscular action of the bowels enfeebled, the fæces are not passed forwards, and costiveness takes place; the urine is not only small in quantity, but of pale colour. The heat of the body is dependent on the due supply of animalized blood and nervous power, and always increased when the ratio of these fluids is increased, is now diminished by their diminution. The diminished circulation of blood in the capillaries naturally throws a larger supply on the heart; and to this circumstance the anxiety, and sense of load about the region of the heart, the sighing, yawning, and stretching of the limbs, as well as the short and disturbed respiration, are to be attributed.

All the symptoms, then, of the onset of fever, constituting

stituting the phenomena of the cold stage, are explicable on the supposition of a depression or diminution of the nervous energy, however induced; and chiefly acting by constricting the capillaries, or by constriction of those capillaries which involve the brain in torpor. In like manner, the symptoms of the hot stage and the subsequent phenomena, in continued fevers, are referrible to an imperfect recoiling, as it were, of the nervous power, and more immediately to the increased action of the heart and arteries, and of the capillary vessels.

The heat, the redness of skin, and flushed countenance, the returning size of the external parts, the restoration or even increase of the sensibility of the organs, are all the result of the distention of the extreme vessels by the red blood, as the opposite symptoms of the cold stage were the consequence of an opposite condition of the circulation. Hence the frequent soreness of the body, which cannot bear its own pressure without pain; hence intolerance of light in the eye, and the quick sensibility to noise in the ear, both of which increase the head-ache, which is now more acute, and deep-seated: hence also diseased parts become more painful. The quick and strong pulse implies the greater force of the heart, and of the arterial action; nevertheless the dryness of the skin, and the continued suppression of the rest of the secretions, evince the continuance of a morbid condition of the extremities of the exhalants and secretants by which their functions are impeded.

This last circumstance has been variously explained. Cullen attributed it (as before stated) to a spasmodic contraction of the termination of the vessels; but, as we before showed, it did not explain how this was produced; and it seemed curious that a suspension of secretions should arise both in the hot and cold stage from the same cause. A new explanation has been promulgated by a late author, Dr. Park. He conceives that, "During the hot stage of fever, that these mouths are closed can hardly admit of dispute; as it seems impossible in any other way to explain, when the vessels to which they belong are gorged and distended with fluids, what prevents these fluids from transuding at every pore.

"In order to explain why they are thus constricted in the hot stage, and to understand the nature of these patulous mouths which perform an important part in the production of both fever and inflammation, we have only to regard them in the light of sphincters, to which they are perfectly analogous. The office of both is to retain the contents of the organ to which they belong, or to allow their transmission only at suitable times, and in proper quantity. Accordingly, the action of the sphincter appears to be vicarious with that of the organ, as its office requires it should be; that is, the sphincter relaxes when the organ contracts, and, on the other hand, the sphincter contracts when the organ relaxes. Thus, for example, when the stomach is roused to inordinate efforts of contraction by an emetic, its sphincter, the pylorus, relaxes, and bile is transmitted through the duodenum in vomiting. When the intestines are excited to contraction by a strong purgative, the sphincter of the rectum relaxes, and feces are with difficulty retained. When the bladder contracts for the expulsion of urine, its sphincter relaxes, and allows the transmission of this fluid. So likewise, when the vessels of the surface shrink, and paleness is produced by fear, a cold sweat breaks out, and the surface becomes moist. Or, when the vessels collapse from loss of blood, the same clamminess of the surface attends, and is the forerunner of syncope; and thus transpiration is increased, and not suspended, as Dr. Cullen supposed, by moderate contraction of the vessels.

"On the other hand, the sphincters and the pores alike become constricted when the organs or vessels to which they belong are relaxed and over-distended. Thus, when the stomach is distended with food, the pylorus closes,

and suffers nothing to be transmitted till the bulk of its contents is reduced by absorption. When the rectum is over-distended by immoderate accumulation of feces, its sphincter contracts, and the most obstinate constipation is apt to ensue. When the bladder is over-distended with urine, its sphincter becomes constricted, and strangury is the consequence. In like manner, when the vessels of the surface are over-distended by immoderate determination of blood in fever or inflammation, the pores then become constricted, and transpiration is suppressed. And for the same reason, the secretion of bile is suppressed in active inflammation of the liver; and that of urine in acute inflammation of the kidneys. Thus the mouths of the exhalant vessels, terminating on the external and internal surface, appear to be governed by the same laws, and to exhibit the same modes of action, as the sphincters belonging to larger organs. In the hot stage of fever, then, transpiration is suppressed, and morbid heat kept up by over-distention of the vessels exciting spasmodic constriction of their mouths; and accordingly it is to the removal of vascular distention that we must look for a cessation of that constriction, and the return of transpiration."

To us, this idea of the sphincter-like properties of the secreting vessels appears as visionary and gratuitous as the notion before mentioned of Cullen. Moreover, much must, in the relaxation of sphincters, be attributed to the form which their antecedent muscular parts oppose to them. At all events, this supposition is not required. If secretion were a process dependant on the mere straining or letting-through of certain parts of the blood, we could account well for the hindrance of secretion on the notion of contraction in the vessels; but the products of secretion depend on nervous influence; take away the nerves going to a part, and secretion ceases. Can this be because such deprivation causes a contraction of their mouths?

The alteration of the secretion in fever is thus explained. Secretion is diminished in the first stage, because the constriction of the capillaries brings to the secretants smaller quantities of blood. It is still more diminished, or it is altered or suspended, in the hot stage of fever, because, the nerves being pressed on by the distended capillaries, or the nervous power being more rapidly expended in the blood in the generation of heat, perhaps a more rapid motion in the sanguineous circulation is hindered from acting on the secretants. It matters not whether the latter be distended or contracted, or in a mean state: they are too small to receive blood; and the state of its parts depends on the faculties derived from the nerves, which we see have here lost their power.

Cullen erred in considering the hot to be an invariable consequence of the cold stage of fever. The cold stage may happen; and so great may be the debility induced, that re-action may never return; or the hot stage may be manifested at once, as in symptomatic fevers and some other kinds. The sweating stage is produced in a manner not very well understood. It was supposed by the older physiologists, as Albinus, Haller, &c. that the sweat, as well as the insensible perspiration, is a mere exudation of the watery part of the blood through the cuticle; hence it was said to arise, in fever, from a mechanical relaxation of the extreme arteries, which were supposed to be spasmodically contracted during the hot stage. But it has been observed by later physiologists, that this opinion respecting the nature of the perspiration is contrary to all analogy, and founded only upon experiments made on the dead body. The opinion of Dr. Fordyce and Mr. Cruickshanks appears to be the true one; namely, that the matter of perspiration is secreted from the blood by the capillary arteries, and thrown out on the surface by organic pores in the cuticle, (however difficult to be discovered,) connected with the extremities of these arteries; and that in this process there is not a

separation merely, but a new combination, as in similar instances of secretion.

It has been very generally held, that the coming-on of perspiration tends to cure fever. We do not altogether subscribe to this doctrine, though certainly sweating produces a salutary refrigeration. It seems to us, however, that it is critical, rather because it shows that the nerves have resumed their functions; that it is not so useful in itself, as in being an indication of another salutary change in the constitution. It is to the restoration of the nervous influence that we refer the re-establishment of secretion all over the body; as the moisture of the mouth, the absence of thirst, the return of appetite, and the copious flow of urine. The increase of the febrile phenomena in the hot stage towards evening, is explained by the well-known fact, that the action of the heart always accelerates at that period.

According to the views here taken, the actions of the nervous system are essential movements of the febrile state. When we consider that this is indeed the only one through which the general sympathy between the capillaries of all parts of the body can be manifested, we shall readily conceive that the brain must be the part whose morbid condition is essential to fever. Our ignorance of the structure and functions of that organ, prevents us from reasoning so hastily as to affirm with Dr. Clutterbuck, that inflammation is the condition which produces fever. But certainly it does seem, that a perpetual sympathy being established along nervous continuations, a sympathy capable of causing at their remote parts disease similar to that which gave rise to it, must in its course implicate in this same action (inflammation) a part where the vascular and nervous systems are so closely united as the brain.

The illustration we have attempted seems to embrace the symptomatic, the idiopathic, and the intermittent, forms of fever. The first we shall now dismiss the consideration of, as appertaining to SURGERY, under which article the subject will be resumed. Of the others a little remains to be said as to the agents which produce them. Of the natural agents, i. e. the atmospheric, the mental, or the terrestrial, which are daily altering the nature and constitution of our bodies, we may remark, that our present knowledge renders us quite incapable of tracing or illustrating their effects. We shall speak therefore of contagion.

An opinion has been rashly broached by some, that, because fever is often directly traceable to contagion, therefore it arises from no other cause. It has been wisely and most impugnably answered, that, on this supposition, the seeds of all the manifold ills which "flesh is heir to" must have been latently contained in Adam, and that many of them must have laid in the same dormant state for hundreds of generations; 'as in the cases of small-pox, syphilis, &c. The more general notion, and the only one which bears the test of reasoning, is, that contagions are produced by natural chemical changes, whether external or internal to the human body; in which latter situation they re-produce their kind. Thus putrid decompositions of animal substances, the same processes acting on vegetables, or the action of the sun on the earth itself; seem, in some situations, to have been each followed by a distinct contagious fever. The contamination of the air by the breathing of many individuals, as in close places of confinement or in large theatres, has been followed by the same consequences, even when the individuals in question were all free from infectious fever. Often, however, the fevers which follow exposure to the above-mentioned agents are not transferrable from one to another, but are rendered common by the general influence of the exciting agent. It seems too, that some diseases which are not generally contagious may, under circumstances of peculiar violence and intensity, acquire this property; for, on the testimony of very eminent physicians, phthisis and croup have been

VOL. XIX. No. 1298.

said to be infectious; erysipelas is well known to have become so on some occasions; and indeed we should not be surprised, when we consider the multiform products of diseased secreting surfaces, that secretions of a volatile nature should be generated, and that they should be so related with our frame as to produce like actions to those whence they took their rise. But, whether in the bodies of men or out of them, this product is amenable to the action of the common agents of matter. We see diseases, which have been idly called *specific*, altering in the course of years their nature,—old ones lost, new ones arising. For the horrible leprosy of the ancients we in vain search a prototype in the medical history of our own time. The dreadful syphilis which mutilated the soldiers at the siege of Naples, is now so changed in its character, that we hardly recognize it in the ancient descriptions; and, though scarlet fever, measles, &c. hold on for centuries their unchanging course, this is no evidence against the fact, that many diffusible maladies do change by the hand of time, while all are subject (though in a minor degree) to the influence of the same agents which control similar actions of the body when called into play by other causes.

The most important part of our inquiry respecting contagion, relates to the mode and circumstances of its communication from individual to individual, and of its general spreading, with a view to discover the means of suppressing it, or preventing its extension. This enquiry is, of course, limited to the contagions which are soluble or diffusible in atmospheric air; since it is obvious that the indiffusible contagions may be avoided, by shunning the contact of the diseased. And it must be premised, that all the febrile contagions have been found, by experiments, to be propagated according to the same laws, and to be suppressed by similar means.

Whenever a contagious epidemic disease prevails, a very general alarm is excited, in consequence of a notion, that the seeds of an evil so generally destructive must be diffused through the atmosphere at large; and that, if we stir abroad, we breathe contagion at every step. This opinion has been promulgated by physicians of high rank and authority; but recent observations have shown that it is erroneous; thus at once removing all grounds for this unnecessary alarm, and directing our attention to those means of precaution and prevention which can alone effectually contribute to our security.

Without entering into the long string of authors who have supported this opinion, it is enough to state simply, that a sufficient number of facts are now known to establish the inference that the popular opinion and apprehension are groundless, and that the most malignant contagions are never conveyed to any great distance through the atmosphere; but that they are, in fact, rendered inert and harmless by diffusion in the open air, and even in the air of a well-ventilated apartment. It is also established on clear evidence, that an accumulation of contagious matter may occur, and may undergo, from the warmth of the body, a change which will increase its force; so that the strictest cleanliness in the clothes and person of the patient should always be insisted on.

Contagion is capable of being contained in unventilated clothes. A nation has been exterminated by some of its people wearing a blanket tainted with contagion; but ventilation so effectually removes this, that we are in no fear of carrying infection from one house to another in our clothes. It may indeed hang about furniture, or it may remain for some time in the air of a place where the access of fresh air is excluded.

In most cases, the contagious essence of fever remains some days in the body before its effects are manifest. In others, the attack is almost simultaneous with the reception of the contagion. Where a sudden infection takes place, a disagreeable sensation is excited at the moment

of exposure, which different persons have described differently. Some have felt a sharp taste in the mouth, as if blue vitriol were dissolving in it, but which no washing or gargling could remove. Others have compared the first impression to that of an earthy exhalation from a newly-opened grave, the sensation extending down to the stomach, sometimes exciting instantaneous sickness and shivering. Dr. Haygarth mentions that two of his patients, who were physicians, were infected suddenly by a short exposure. One of them thought that he caught the fever by creeping behind, in order to assist his patient; the other by inspecting morbid fæces. In both these cases, the exposure was such as might probably afford a full dose of the contagion. Dr. Lind is of opinion, that, in these diseases, the stools, especially if very fœtid, are most communicative of contagion; next to these, the breath; and, lastly, the effluvia from the body.

The activity of contagion is not always proportionate to the appearances of malignancy in the diseased. Sometimes only one man in a ship may be seized with the *petechial* or with the *yellow fever*, says Dr. Lind, while all the rest continue unaffected. And on the contrary, fevers, of the mildest description, sometimes spread extensively. The period at which different fevers begin and cease to generate contagious effluvia is not absolutely ascertained. It seems most probable that in eruptive fevers there is no contagion till the eruption appears; and that contagion remains so long as any scab remains on the skin. This is clearly the case in small-pox.

When it is considered, that contagion *originates* in accumulated and confined animal effluvia, and is *communicated* either to those who approach, or come in contact with the sick, or by means of substances impregnated with contagious matter, and in these ways only, the means of prevention are obvious.

With respect to the casual origin of contagion, it is scarcely necessary to say, that cleanliness and ventilation, as they preclude the confinement and accumulation of the animal effluvia and secretions, will infallibly prevent the generation of the poison. Where contagion exists, its farther communication may be prevented by avoiding contact or approach to the sick, and by confining the patient to a separate room, in which, if it be kept clean, and well ventilated, it has already been shown that the contagion will be inert at a short distance from the sick; and therefore that the necessary attendants, and medical visitors, will receive no injury from respiring the air within it. In this way contagion has been prevented from spreading in large schools, and other places, where a number of people live together, as in workhouses and hospitals, of which some examples have been already given. Dr. Haygarth's rules for the prevention of infection, seem to comprise all the requisite means to be adopted in houses where contagious fever exists: they are the following.

1. As safety from danger entirely depends on cleanliness and free air, the chamber-door of a patient, ill of an infectious fever, especially in the habitations of the poor, should never be shut; a window in it ought to be generally open during the day, and frequently in the night. Such regulations would be highly useful both to the patient and nurses; but are particularly important previous to the arrival of any visitor.

2. The bed-curtains should never be drawn close round the patient; but only on the side next the light, so as to shade the face.

3. Dirty clothes, utensils, &c. should be frequently changed, immediately immersed in cold water, and washed clean when taken out of it.

4. All discharges from the patient should be instantly removed. The floor near the patient's bed should be rubbed clean every day with a wet mop or cloth.

5. The air in a sick room has, at the same time, a more infectious quality in some parts of it than in others. Visitors and attendants should avoid the current of the pa-

tient's breath; the air which ascends from his body, especially if the curtains be close; and the vapour arising from all evacuations. When medical or other duties require a visitor or nurse to be placed in these situations of danger, infection may be frequently prevented by a temporary suspension of respiration.

6. Visitors should not go into an infected chamber with an empty stomach; and, in doubtful circumstances, on coming out, they should blow from the nose, and spit from the mouth, any infectious poison which may have been drawn in by the breath, and may adhere to those passages.

Besides these precautions, we are advised to endeavour by gaseous agents to destroy the contagious pabulum. The vapours of vinegar, and those of the sulphureous acid, have been long used with some degree of success; but those of the muriatic, and still more perhaps those of the nitrous, acid, appear to be the best antidotes to accumulated contagion. The evidence of the efficacy of the nitrous-acid fume, in purifying infected places and substances, which was a few years ago laid before the House of Commons by Dr. Carnichael Smyth, was such as to induce that house to vote a national donation of five thousand pounds to him for the discovery. This vapour is easily obtained, by mixing with powdered nitre a little of the strong acid of vitriol or sulphuric acid; the latter combines with the potash, the base of the nitre, expelling at the same time the nitrous acid in fumes. (See Dr. C. Smyth's treatise on the subject.) The vapour of the muriatic acid may be obtained in a similar manner, by using common sea or rock salt, instead of nitre. Where contagion has been long pent up in close cells or rooms, it is apt even to adhere to the walls. In such cases, white-washing, with hot or newly-slaked lime, is an efficacious aid of the acid fumigations.

We are sorry, however, after all, to be obliged to admit the justice of a remark of Dr. Clutterbuck's; "that these modes of chemically neutralizing the contagious virus, while they lead to a false security, are often quite useless." For this reason, ventilation and cleanliness are the chief means on which we should place our dependance in guarding against the diffusion of fever. These are both measures of so much importance, that the profoundest physicians have not thought it derogatory to their dignity to enter into minute and particular directions for their perfect establishment. The means required are however obvious to the meanest capacity. We shall just quote a short extract from Dr. Jackson, because the fact it contains is not generally known. He says, "In cold, damp, and foggy, weather, the free admission of external air might probably be injurious; for air of that description is not calculated to absorb or dissipate the floating contagion. In this case, the strong heat of fire in *open* fire-stoves, so placed as to diffuse its influence into the *lower layer* of the atmosphere, has appeared to myself to be the only substitute for defect of common ventilation, and the only sure means of rectifying the air that is vitiated by emanation from the bodies of living men. Heat, as acting on the skin, probably operates favourably on the conditions of contagious fever; it evidently operates favourably, as exciting and maintaining circulation of air within the apartment. I here take leave to mention the circumstance that first directed my attention to it. The wards in the barrack in Westmoreland Fort, on Spike Island, which were allotted to the reception of the sick of the St. Domingo expedition, and which were crowded to the most extreme degree of crowding, were also in some degree cooking-places; that is, employed for the preparation of the lighter parts of diet. A large fire was necessary: and a long grate, being filled with coals, threw out a great heat, sufficient to roast a furloin of beef. This was the case in the larger wards, where there were from forty to fifty persons stowed on the floor as close as they could lie. Those who lay within a certain distance of the fire generally did well, though the symptoms of the disease were often violent;

violent; those who were near the end where there was no fire died in great numbers, though the symptoms of the disease often appeared to be moderate. The air near the fire was comparatively light, and not offensive; near the remote end it was heavy, unpleasent, almost insupportable to the transient visitors. The influence of strong heat from fire, in a sick apartment, appeared to be so useful, at least so agreeable, in the present case, that large fires were ordered to be made in all the huts and sheds on the outside of the fort which were occupied by the sick. The air in these huts, though filled with sick to overflowing, was not offensive, the progress of contagion was not active, and mortality was comparatively moderate; in fact, on the lowest scale. From that and other more recent experience, I am disposed to consider the action of the heat of fire as a most important mean of ventilation, mainly conducive in arresting the progress of contagion; the chief trust, in fact, in damp, foggy, and still, weather, through which we can expect to preserve the air of hospitals, as filled with febrile sick, from a dangerous vitiation."

Fever is generally fatal from the occurrence of inflammation of some part or texture of the body; and dissections show, according to the type of the reigning epidemic, disorganizations of the mucous membranes of the brain, the lungs, the liver, or other viscera. In a few cases, however, no topical congestions are found; and the patient seems to be worn out by continued exhaustion of the functions of the nervous system.

The treatment of fever naturally grows out of the history already given of its causes, actions, and consequences. We shall confine ourselves to a mere outline of it, from a conviction that the peculiar varieties in character, and consequently in the treatment, of epidemics, are only to be learnt by experience of the particular fever which happens to be prevalent; or, in other words, that epidemics continually vary, as was indeed the opinion of Sydenham. For similar reasons we shall omit all notice of a vast store of drugs which in particular cases have had the merit of curing fever; e. g. yeast, carbon, mustard, with many others which occur to us even at this moment.

A distinction is to be made between fever as it is simple, and as it is complicated with inflammation of particular organs. First of simple fever. This requires some difference in treatment, according to the stage it has arrived at; the stages being three; viz. the cold stage, the hot stage, and the declining stage. This division, it is proper to observe, is in some measure arbitrary, and has no exact relation to time: for, as the whole duration of the disease is extremely various, extending from a few days to as many weeks; so the continuance of the different stages, both individually and relatively to each other, is not less various; and it becomes impossible to assign a determinate extent to any one of them; added to which, they often run imperceptibly into each other. A sufficient discrimination, however, may be made between them for the purposes of practice; which is the point of chief importance.

The application of contagious virus is first made, in the majority of instances, to the stomach; and there seems good reason to think that it remains there, and produces local effects before it is carried into the circulation. It is probably on this account that an emetic often effectually prevents the development of the febrile movements: this remedy should therefore be used in early cases; and purging should likewise be resorted to, because it is sometimes difficult to establish these actions in the hot stage of fever. When the hot stage is newly formed, it is still often desirable to change the order of sympathetic actions which are established. For this purpose, the abstraction of blood till fainting ensues, followed by a brisk purge, will often entirely prevent a severe fever from running its course.

In the more severe forms occasionally met with in fo-

reign practice, the measures for arresting the progress of the malady must be peculiarly energetic. The experienced Dr. Jackson, speaking of a severe and complicated form of fever, which he characterizes as presenting itself with appearances of violent irregular vascular excitement, and local determinations which threaten convulsion and apoplexy, suffocation or engorgement of internal organs, lungs, liver, or spleen; sometimes with a strong, or what may be called a concentrated, general action, thickened and constricted skin, ardent as a live coal; a condition, which threatens to subside by internal congestion, or to explode by local external gangrene of varied form, viz. petechiæ, streaks of ecchymosis, or extensive and deep blacknesses;—gives the following judicious directions. When a certain quantity of blood, only measureable by the physician as superintending the process, has been abstracted from the arm, it is advisable that the patient be stripped naked and immersed in a warm bath of moderate temperature, the immersion continued for fifteen or twenty minutes, the skin strongly scrubbed with brushes and soap while under immersion. At the expiration of twenty minutes, the condition is to be examined with care; and, if it be then found that the mode of action has not changed, that is, if the movement has not become general and equal, it will be advisable to re-open the vein, and to allow blood to flow, while the patient remains in the bath, until the object in view be attained: that is, until the circulation be in some manner equalized. When that is done, cold water is to be affused copiously upon the head and shoulders, while the lower extremities remain in the warm bath. The course of the disease will, in most cases, be suspended, if not perfectly arrested, by the effect of the proceedings now recommended; and when that is done, the body, being removed from the bath, is to be wiped dry, and laid in bed; blisters, as means preventive of return, are to be applied to the head, neck, back, or sides, according to the predominance of the local symptoms. Friction with warm oil will be useful; emetics and purgatives promise the same benefit here, after the case is simplified, as in the preceding. A bolus of camphor, nitre, tartarized antimony and snake-root, with half a grain of opium, and two or three grains of calomel, given every five or six hours, with plentiful dilution, frequent ablution, and frequent change of bed and body linen, conduce, if the course of the disease be not totally arrested, to maintain the movements in an equal tenor until the febrile circle be completed, when healthy action may be expected to re-appear. The outline of practice now suggested, varied according to circumstances, applies to the cure of the disease in all its conditions.

These violent measures are seldom resorted to in private practice, nor are they generally required in the fevers of this country; so that, if tolerably active bleeding and purging do not arrest the disease at its onset, we let it run its course, endeavouring to conduct it favourably to its termination.

It is well known that some thirty years back the treatment of febrile diseases consisted in stimulating and exciting the body to the highest possible pitch. The folly of this plan has been of late severely reprobated; but a shadow of defence has been instituted, on this ground; that, as epidemics are always changing their character, what was useful and right formerly has ceased to be so. But this is mere delusion; for Hippocrates, Sydenham, and Huxham, and indeed all judicious practical men, bled in fevers; nor can the nature of fever itself be so changeable, as to be cured by contrary remedies, though indeed its variations in character may require a corresponding variety in treatment. We must therefore refer to the well-known hypothetical notions of debility, &c. the fatal practice of our immediate predecessors.

Bleeding is now on all hands agreed to be the chief agent in subduing the violence of fever, though there is much disagreement as to its *modus operandi*, and as to the

the extent to which it may be carried with safety. Of the various explanations which different authors have given of the beneficial operation of bleeding we shall not speak, because they will naturally be understood from the general speculations of the pathologists already passed in review. According to the notions we have adopted, that a general distention of the capillaries of the system is the cause of fever, and that an increase in the production of nervous power in the brain and spinal marrow is the cause which perpetuates this distention from one part to another, and moreover suspends the actions of secreting vessels;—bleeding must of course be advised as a measure which relieves that distention. If distention be the state of the capillary system in fever, this state must be evidently increased by the increased action of the heart, the vis a tergo thence derived acting as a perpetual dilator of the affected vessels. The distention is also of course increased by the quantity of blood. Bleeding therefore relieves distended capillaries by taking from them two causes of their unnatural condition: first, it takes away the quantity; and secondly, as the action of the heart depends somewhat on the quantity, it takes away the distending force of the latter viscus. The latter effect is still further increased if bleeding be carried ad deliquium animi, or till circulation of blood in the brain be suspended. Now, deeming as we do, that the distention of the capillary system occurs also in the brain and spinal marrow, and thus excites the nervous symptoms, we consider bleeding on the same ground a great and direct assistance to the revival of the nervous functions, and hence to the restoration of secretion. The benefit of bleeding is also to be explained on other grounds; i. e. on the supposition of the increased contraction and dilatation of the capillaries in fever. It may in such cases operate by relieving plethora, the stimulus to contractility, and by diminishing the production of nervous power, the result of increased circulation in the brain and spinal marrow. Whatever side of the question we take, the propriety of early bleeding in fever is shown. It must be remarked, however, that a low nervous fever is often formed, in which we have no right, from the products of dissection or from reasoning, to infer enlargement of the cerebral capillaries; in which, however, a high degree of nervous irritation exists, and in which local bleeding is alone admissible. It is in this form of fever that counter-irritants are very useful.

From the above considerations the propriety of bleeding as early as possible in continued fever must be considered fully established. As to the quantity to be taken away, no dogmata can be laid down on the subject; for neither the pulse, the size, the age, nor the temperament, of the patient, are unequivocal guides to our practice. The consideration of these conjointly must direct us in general. The first bleeding should be carried on till the patient faints. As to the propriety of repeating the operation, the sly appearance of the blood noticed in fever, and a certain degree of inflammation of the lips of the divided orifice in the arm, will indicate to us the affirmative; while the diminished production of heat, and diminution of the pulse, will point out when it is time to discontinue the use of this potent measure.

Purging at the commencement of fever is of the highest utility; and will often, according to the testimony of Drs. Clutterbuck and Bateman, cut short the disease. It should be excited by the most active means; e. g. by cathartics of gamboge, elaterium, subnuriate of mercury and jalap, &c. (we have generally used elaterium.) The excitement thus produced on the bowels relieves the fever, both by emptying the secreting vessels, and by exciting an irritation vicarious to that existing in the brain. As the disease advances, (that is, about the sixth day,) this strong purging should give way to milder or laxative medicines, the administration of which should not be pushed further than to procure two motions in the four-and-twenty hours. The reason for not persisting long in

the use of drastic cathartics is lest inflammation be induced of the mucous membrane of the bowels; a circumstance much to be dreaded.

Digitalis is a medicine of great use in controlling the actions of fever. It seems to operate in the same way as bleeding; viz. by diminishing the action of the heart and larger arteries, it prevents the undue distention or excitement of the diseased capillaries. But it is a medicine which requires to be carefully watched. There is no rule to be laid down as to its use. We are contented, in ordinary cases, to give from five to ten drops of its tincture every four or six hours; but these doses may be quintupled in ardent fevers of great intensity, as we see the Italians are in the habit of doing, not only with impunity, but with success. (See p. 53 of this article.)

As to the *dietetic treatment* of febrile patients, we have scarcely any thing to say. The parched mouth and nauseating palate of the sufferers in question so clearly announce the painful violation of feelings which those must have undergone who were subjected to the discipline of the Brunonian school, that one almost wonders that the common sense and prejudices of mankind did not run against the injurious regimen of wine and stimulants. In the majority of cases our patients need eat nothing; a variety of cold drinks, as barley-water, lemonade, &c. may be provided for them, and allowed in the most unlimited quantities. Acid fruits may be taken freely; and this is in general all that is desired. Should sustenance be wished, thin gruel is all that should be allowed; for of the heating and stimulating effects of broths, beef-tea, &c. every one is sufficiently aware. At the same time the free current of air through the apartments in the houses of the poor, and the removal into another room of the huddled-up and dirty furniture, are also indispensably necessary. The bed-clothes, linen, &c. of the patient, should be changed at least every other day; and sponging the body with water (when maternal or anile prejudices do not oppose it) should be ordered. And let no one despise one iota of these simple (and, when uncombined, inefficient) measures; for they have saved the lives of thousands, and may be considered (in-significant as they are in themselves) among the proudest results which have arisen from the philosophy of the present age. To the cold effusion especially we are indebted for the preservation of many of our most efficient veterans at a time when the use of bleeding was not established.

Cold applications to the head are often of much avail in the removal of the nervous symptoms of fever. Dr. Clutterbuck thinks "they are most serviceable where the pain and throbbing are the most violent, and the heat of body generally much increased." Where, on the contrary, the face is pale, and the extremities cold, as is often the case in feeble subjects, and in advanced stages of disease, the use of warm fomentations to the head from time to time seems more beneficial.

The last stage of fever is marked at once by great disorder in, and imperfect performance of, all the sensorial functions. The patient is nearly insensible to impressions; there is extreme prostration of strength, indicated by the supine posture, and the continual sliding of the body towards the bottom of the bed; together with involuntary tremors of the hands and tongue; and lastly, early delirium, followed by an almost total annihilation of the powers of mind. The pulse is commonly soft and compressible, though often with considerable fullness; and the heat of the body is generally considerable.

It is in this stage, that black spots collect about the mouth and teeth; that the tongue turns black on its surface; and that petechiæ, purple spots, and vibices, with dark-coloured hæmorrhages, are apt to occur; succeeded by involuntary and foetid discharges by stool and urine. It is to fever marked by such symptoms, that the terms putrid and malignant were formerly and erroneously applied.

In former times, when persons labouring under fever were

were confined in a close and heated atmosphere, and when cordials and stimulants, under the name of alexipharmics, were largely employed, such a train of symptoms was by no means uncommon. At present, owing to a more judicious management of the patient, they are rarely seen. The treatment of patients under these circumstances is difficult; little in fact can be done. It is to be remarked, that this state is never met with when proper antiphlogistic measures have been premised. The patient, after having undergone their operation, always terminates his life in another manner; viz. either from a general wearing-out and exhaustion of the nervous functions, or from local inflammation of a particular organ.

With respect to the period of this stage at which bleeding becomes inadmissible, this is very uncertain; for it has been often successfully performed even when the patient appeared near his death. Dr. Clutterbuck says that he has occasionally employed it with advantage at almost every period up to the end of three weeks. He believes it may be safely done at any time, as long as the sensorial functions are carried on in a tolerably perfect manner; "that is, while the external senses are preserved, the intellectual found, the voluntary powers merely impaired, without being disordered." This author thinks that, contrary to what is generally supposed, "the more the sensorial functions are disturbed, particularly the greater the delirium, the less confidence can be placed in this evacuation." The pulse does not always indicate when it will be too late to bleed; for in numerous cases Dr. Clutterbuck has found it weak and small, when bleeding has proved of the most decided advantage. As a general rule, it may be stated, that, while a full and wiry pulse authorizes us to bleed in the most advanced stages of continued fever, a small and contracted state of it should be a veto to such practice. Hardness of pulse should also be particularly attended to. Dr. Clutterbuck thinks, when it is "soft and compressible, blood-letting is altogether inadmissible." In the advanced stage of fever, bleeding should be had recourse to with much caution and reserve, in regard to quantity; for the loss of two or three ounces will, at such time, be productive of very marked effects. He also thinks that this practice should not hinder the very moderate use of stimulants, as wine, ammonia, &c. Upon the whole, however, we should attempt very little of the latter kind of practice, and should content ourselves with the negative practice of abstracting all nervous irritants, as light, sound, &c. and open the bowels and excite the kidneys; always recollecting what Sydenham says, "ob nimia diligentia medicum." It is to be recollected, that we are not now speaking of those cases in which inflammation and disorganization takes place in a particular organ, this being the most frequent mode in which continued fever terminates.

A determination of blood to particular organs is a very frequent occurrence in epidemic fever. Sometimes these determinations happen very generally, from some peculiarity in the nature or the cause of the epidemic; as when we see inflammation of the lungs an almost constant companion of the prevailing fever; or where inflammation of the mucous membrane of the intestines, constituting dysentery, prevails. Occasionally, however, while simple fever is prevalent, the particular predispositions to disease which are present in the constitution are manifested by oppression of particular organs. As to the nature of these determinations of blood, we have no hesitation in ascribing them to inflammation. It should be mentioned, however, that this is denied by a physician, the excellence of whose descriptions and treatment of the above diseases forbids us to pass over his hypothesis, which we should otherwise consign to the oblivion it must soon meet with, and for which nothing but the practical merits of its author has procured even an ephemeral reputation. The hypothesis in question is that of

Dr. Armstrong, who considers that congestion of blood takes place in the veins of organs gravely affected in epidemic fever, and without any further disorder in the arterial system than simple excitation. Now nothing can be more baseless than the structure of this theory. It rests, first, upon the results of dissection; that is, upon finding actual congestion of blood in the veins. Now the veriest tyro that ever took up a scalpel knows that the last act of the arteries and the left ventricle is the propulsion of blood in the dead subject, so that the arterial system is always empty, the venous system full. And again, granting that an excitement of the small arteries existed, and caused distention and enlargement of the veins; the fact is practically unimportant, because our endeavours must be directed to the relief of the excited arteries, not to that of the veins, which are passive tubes. Venous congestion cannot, however, exist without derangement in the action of the heart; and if such derangement existed, congestions of the veins would exist generally; occurrences which certainly do not happen. Many other arguments suggest themselves against this wild speculation; but, as those we have adduced seem quite conclusive, we shall dismiss the subject. We must assert, however, that in no other work extant do we find so good a history, or such efficient treatment, of local inflammation supervening to fever, as in the work of Dr. Armstrong. From this gentleman's work, and from that of Dr. Jackson, we shall principally derive the symptoms of the following complaints.

We shall not enter into any discussion as to whether all fevers be of one kind; and the yellow fever, epidemic, dysentery, &c. the same disease, varying in intensity, and deriving the peculiar character of those forms of disease from the predispositions which climate and other external agents produce, though this seems a very probable view of the subject; but we shall confine ourselves for the present to an account of those complications which are met with in the epidemic fevers of this country. The most common complication is that of fever with inflammation in the lungs and its investments. In this case, in addition to the ordinary symptoms of fever, a permanent pain is felt in some part of the chest, generally acute, though occasionally obtuse; but, in either case, much increased by deep inspiration. There is a sense of weight or constriction across the breast. The respiration is always laborious; the thorax heaves, as if under some oppressive load; and the *alæ nasi* are thrown into strong motion. The patient is extremely restless, and has a frequent and troublesome cough, which augments both the pain in the side and the difficulty of respiration. Most frequently he cannot breathe with any degree of ease when incumbent, but is obliged to have the trunk considerably elevated. The features altogether indicate surprise, alarm, or anxiety; the eyes seem prominent; the cheeks and lips are generally of a deeper colour than natural, yet in some cases the face has a pale bloated appearance. The tongue is commonly foul in the middle, and of a dark red round the edges; the pulse is sometimes slow, full, and strong; and in other instances, quick, small, and weak. As in almost all local inflammations, the temperature of the skin varies a great deal in the day, and partial perspiration are not uncommon, especially when the pain of the side is acute. A milder form of inflammation attacks the pleura, which is often insidious and unsuspected. If the breathing be narrowly watched, it is observed to become quicker and more anxious, especially in the horizontal posture; and cough and uneasiness are almost always excited on a full inspiration. There is also, for the most part, pain or soreness in the left side, or under the sternum, with a feeling of weight or tightness in the breast, often with little pain. The progress of the inflammation is, however, involved in considerable obscurity; but it may, nevertheless, be traced by the continuance of uneasiness in the chest; by the increase of the cough, dyspnoea, and restlessness; by the pa-

tient's panting or breathing short whenever he speaks; by the number of respirations exceeding the natural amount in a given time; by the colour of the face, indicating some impediment to the common changes of the blood in the lungs; and by the gradual increase of the pulse, and of the fever. When the inflammation ends in an abscess, the uneasiness in the breast abates, but the breathing becomes more laborious, and there are chilly and hot fits, with copious sweats, and great loss of strength. The most common termination, however, of instances of this kind, is by an effusion of serum into the cavities of the pleura. This calamity is not necessarily fatal at once, some patients lingering for some time after it.

In this form of disease, the treatment of fever in general must be conjoined with the usual means for alleviating local inflammation. It is seldom an accurate diagnosis can be established between inflammation as it affects the substance of the lungs, or as it affects the pleura. In either case blistering may be considered a measure of great effect; and, if there seems strong evidence of the existence of inflammation in the pleura, we may have recourse more freely to the lancet than under ordinary circumstances. It is to be remembered that cold affusion is by no means to be allowed when the lungs are affected in fever. The warm bath is often, however, of great use when the temperature of the skin is unequal; and at the same time diaphoretics are of much importance. Of this kind of medicine, large doses of calomel, with as much opium as will counteract the purging property of the latter drug, are the most advantageous.

Another complication somewhat analogous to the preceding, is that of fever with bronchitis. The fever in this case is attended with a cough, at first dry, but afterwards moist. In recent cases the expectorated matter resembles the white of an egg, but in a more advanced stage it appears viscid and opaque. The pulse throughout is feeble and quick, the tongue foul, the heat variable, the bowels irregular, and the stomach prone to reject its contents; and, although the patient frequently appears drowsy, for the most part he obtains very little sleep. In some persons thus affected, the complaint continues many weeks, and often acquires a consumptive character before death. When it ends favourably, the convalescents remain long in an emaciated and enfeebled state. An abatement of the vomiting, some desire for light food, and a tendency to quiet sleep, are the appearances which augur recovery.

The treatment of this complaint must differ principally from that of simple fever in that a minor degree of bleeding will suffice, and in the exhibition of nauseating medicines, which are of very great use, notwithstanding the gastric irritability which prevails. In a word, the treatment is that of Catarrhus, (to which the reader is therefore referred for more explicit details,) conjoined with the more active and general treatment of fever.

Abdominal inflammation is frequently complicated with the fever in question; and it is often difficult to distinguish the precise situation of this occurrence; for the functions are so generally disordered, that their disturbance affords no diagnostic, as in cases of common inflammation. It is not, however, of the utmost importance to ascertain the precise seat of the inflammation, as the treatment does not vary essentially. The inflammation of the mucous membrane of the stomach which accompanies fever is so common in some countries abroad, that it has induced Broussais and others, as we have before seen, to inter its invariable presence in febrile diseases. In the works of the above author are to be found a variety of excellently-written cases of the complication in question. J. P. Franck (*De Curandis Hominum Morbis Epitome Prælectionibus Academicis dicata*, Ven. 1805.) more properly confines the term *gastric fever* to those cases in which the fever is accompanied and exacerbated, though not caused, by phlegm, bile, intestinal worms, or other irritating matter capable of inducing an

inflamed state of the stomach. We consequently generally meet with this disease in dyspeptic patients when they become the subjects of fever. We copy from a translation of Frank's work the symptoms of the gastric fever.

"It begins, like other fevers, with alternate cold, shivering, and heat, accompanied with lassitude, head-ache, and pains similar to rheumatism in the back, the loins, and the joints. The face becomes pale, and the eyes yellowish; but the stomach is chiefly affected with inflation, tension, and a sense of weight, joined with anorexia, loathing of food, nausea, retching, and eructation of disagreeable flatus, and of bilious, tenacious, acid, or acrid, matter. The state of the mouth is the best indication of the state of the stomach, which is observable in the foetid breath, the tongue loaded with tenacious white or yellow mucus, sometimes tasteless, and at others bitter and disagreeable. Disorders in the abdomen succeed, such as borborismus, gripes, wandering pains, sense of weight and fulness, with either constipation, or bilious, fetid, or frothy, dejections. In this stage of the affection the patient may not be so ill as to be confined to bed; but in a short time, though the cold fit be neither great nor constant, and sometimes may be absent; the heat, thirst, giddiness, and head-ache, increase, the pulse becomes more frequent and often intermittent, the symptoms of the stomach, nausea and retching, and of the abdomen, are aggravated; the flushing of the face is greater, with greenish paleness towards the sides of the nose; the under lip quivers, the eyes are suffused with tears, the respiration becomes hurried and difficult, often accompanied with a cough, either with or without expectoration; pain similar to that of rheumatism is felt in the thorax, scapulæ, and fauces; there is often great apparent prostration of strength, with delirium, drowsiness, or vigilia.

"After three or more days, remissions occur in the morning, with a gentle sweat breaking on the forehead and breast. The tongue is sometimes more loaded with yellow mucus, and sometimes dry in the middle, and of a brown colour; the urine is made with ardent pain, is deeper yellow, or appears like that of cattle, or with a pink or furfuraceous sediment. Towards night, sometimes with a slight chilliness, or shivering, all these symptoms are aggravated; the skin becomes dry, harsh, and burning, and is sometimes suffused with a yellow tinge; blood often drops from the nostrils, mixed with yellowish serum; and the vigilia, restlessness, and delirium, are exceedingly distressing.

"As the disease advances, the morning remission almost disappears: the region of the liver and stomach is more tense and painful; the anxiety, heat, thirst, and head-ache, become much aggravated; the delirium is almost constant; the fauces are parched; the tongue, brown, livid, approaching to black, and covered with a viscid mucous, is almost of a fragile hardness and chopped; and the speech is impaired and stuttering. The eyes are very red, the hearing is obtuse, and the temples throb. The circulation is quickened, while the blood-vessels are contracted; the urine, scanty, thicker, fetid, and voided unconsciously; and the stools, liquid, brown, or greenish, and extremely fetid: the abdomen is inflated and sounds to the touch, and the skin is parched or bathed in a viscid sweat.

"If the fever in this stage is either neglected or badly treated, or the patient is otherwise in unfavourable circumstances, it will soon terminate fatally. On the other hand, if the force of the disease is subdued either spontaneously or by art, then the offending matters are thrown off by the bowels and skin, the remissions become longer and more distinct, the tongue more moist, and the mucus which covered it either sloughs off, or, as the tip of the tongue becomes redder, comes away from the edges in soft scales. Sometimes a very sudden change now takes place: the viscid matter almost of a ligneous hardness, which was adhering to the palate, quickly softens, and is bedewed with a bland moisture. At this period, the fever

ver sometimes passes by almost imperceptible gradations into a periodic intermittent; or the exacerbation, becoming in its returns more tardy and mild, terminates in an equable and moist transpiration; the stools become copious, pultaceous, and natural; and the urine deposits a copious reddish-white precipitate.

"In the more mild and slow forms of the fever, the patient, on rising from sleep, feels little refreshed, is listless and morose, and his mouth and fauces are loaded with phlegm; he has fetid eructations, and copious mucous expectoration, with nausea; has little relish for food, but does not altogether loathe it, though after eating he complains of weight, fulness, drowsiness, flatus, and obstruction of the bowels. He has a slow, weak, and sometimes a full and rather-hard, pulse, with little thirst. Cold shivering is succeeded with wandering flushes, and dry squalid skin, or slight sweating; leaden heaviness of head, and murmuring and ringing in the ears, causing a degree of stupidity. The viscidities, in such cases, of the mucus in the stomach and intestines is often so great as to obstruct the orifice of the biliary duct, and give rise to jaundice. The abdomen swells, and feels painful to the touch in consequence of flatus, and of the inertia of the bowels. Singultus and difficult deglutition succeed to great anxiety and oppression of the stomach; but in a few days numerous aphthæ are observed to spread from the fauces over the whole cavity of the mouth, which soon slough off, and are replaced with a fresh crop. Some patients are also distressed with difficulty of breathing and cough, which is first dry, and afterwards accompanied with abundant and viscid expectoration. In this state of things we can scarcely call the disease fever, unless there is greater prostration of strength, pains in the joints, increasing towards night, burning of the skin, or eruptions frequently breaking out immaturely; and more particularly if there are distinct evening exacerbations, succeeded by less distinct remissions, vertigo, vigilias, stupor, delirium, frequent syncope, with recurrent diarrhoea, rapidly undermining the powers of the system. In other cases, great quantities of worms, sometimes living and sometimes dead, or nearly putrid, are ejected both from the mouth and anus, accompanied with peculiar fœtor of the breath, and the usual symptoms of verminous irritation; such as wandering pains, lancinating pains of the joints, itching of the nose, tremor, fainting, nausea, tenesmus, and copious dejections of putrid mucus.

"When the attack of the fever is more sudden, we generally, though not always, observe the cold shivering to extend beyond an hour, and to recur by turns, being followed by heat, which is for the most part parching, and increased towards night, often accompanied with furious delirium. In some cases a slight remission occurs in the morning; in others none. The pulse is weak and indistinct, collapsing after it has at first been full and somewhat hard. There is much nausea and bitterness of the mouth, and so great tumefaction and oppression of the stomach, that the very touch or weight of the bed-clothes is painful. Towards evening there is again an exacerbation, corresponding sometimes to semi-tertian intermittent; and the yellowness of the eyes, flushing, head-ache, vigilias, anxiety, fœtor of the breath, and delirium, are increased; and the thirst, and longing for acids, is sometimes intense, but occasionally is slight. The urine, at the access of the paroxysm, is brown, thick, turbid, and fœtid; during the remission, it is watery and crude. The stools are exceedingly offensive. Abundant but viscid perspiration gives no relief. The tongue is tremulous, and, with the teeth, is loaded with a brown viscid matter; or it is scabrous, almost black, very dry, and can scarcely be extended beyond the teeth. The stupor and vigilias increase; blood rushes copiously from the nostrils, or is passed with the urine and fæces; fluid, grumous, and preceded by pain extending to the pubis. Now large quantities of æruginous and viscid bile are ejected from the stomach, agreeing in this almost with

the yellow fever of America and Siam. The stools become more liquid, green, brown, frothy, and very offensive; and there is seldom power remaining either to void or to retain the natural discharges. The patient, notwithstanding, says he is very well, and attempts to go to his friends, whom he imagines are absent. He picks the bed-clothes, or mutters to himself; and sometimes bursts out into fits of furious delirium. This is succeeded by subsultus tendinum, comatose stupor, violent pulsation of the carotids, great difficulty of respiration, colliquative diarrhoea, cadaverous breath, hiccup, cold extremities; cold, profuse, and viscid, sweat; very rapid, and scarcely perceptible, intermittent pulse; lethargic sleep, convulsion, and death."

In our climate, though occasionally the gastric fever arrives at the same violence as above, upon the whole gastric irritation is more slow in its progress. It generally happens that the stomach and intestines suffer together, and that the inflammation implicates the whole structure of those parts, while in the accounts just rendered we often perceive a phlogosis of the mucous membrane only. In this case the complaint is generally attended with deep continued pain, and soreness of the integuments, increased on pressure; retching, vomiting, or anorexia, desire for cold acidulous drinks; short quick respiration, fulness as well as flatulence of the bowels, great prostration of strength, restlessness, and anxiety. The patient almost invariably lies upon his back, frequently tossing his arms about, moving his feet, or changing the position of his head. If desired to turn upon his side, it gives him considerable uneasiness in the abdomen; and, if suddenly raised into the upright posture, he generally begins to eruct, retch, or vomit.

The pulse is small and sharp, and in some cases very quick, but in others below an hundred in a minute; the tongue foul in the centre; the mouth clammy; the taste vitiated; the bowels are, for the most part, bound; the lips parched and pale, or somewhat livid; and the countenance expresses much distress. The pain of the belly is augmented by yawning, by coughing, or by drawing the breath deeply down, and sometimes even by the blandest liquids, which are usually rejected, unless taken in small quantities at once. If the pain be acute, the skin is often of a pungent heat about the breast and abdomen; while the forehead and face, exposed to the atmosphere, are sometimes damp and even cold.

During the advancement of the abdominal affection, the pulse grows smaller and quicker, the vomiting more urgent, the belly tumid; the thirst, sense of internal heat, and restlessness, being all aggravated. Upon the approach of suppuration, of effusion, or of gangrene, there are rigors or slight chilly fits, with much abatement of pain; but cold copious and clammy perspirations come on, attended with short agitated breathing, with an hurried undulating pulse, frequent dark lax stools, and incessant vomiting. Soon after this, the patient dies. For the most part, however, inflammation of the stomach or bowels terminates fatally before it has advanced into actual gangrene; the patient finally sinking under the accumulated force of exhaustion and of irritation.

It has been mentioned, that in most severe cases of gastric fever a great derangement of the functions of the liver is found. Sometimes, however, the latter circumstance exists alone. But we are not always to infer that morbid action of the liver exists because we meet with copious vomitings of bile; for the act of vomiting itself will induce copious discharge of bile from the healthiest individual. We again quote, chiefly from Armstrong, the history of the symptoms of this complication.

"If the liver be attacked with inflammation, giddiness, load about the breast, sickness, and vomiting, are often among the primary symptoms; and the patient, complaining of pain and soreness, with weight about the right hypochondrium, can neither bear pressure in that place,

place, nor lie upon the left side, without an increase of pain. When the convex surface of the liver is the seat of the inflammation, it is sometimes not very easy to distinguish the hepatic affection from pleuritis: but in the former uneasiness is excited by pressing the hand under and above the false ribs, and there is generally some pain at the top of the shoulder; circumstances not commonly observable in inflammation of the pleura: and further, the cough and dyspnoea are not so distressing as in the latter, while the abdominal secretions, especially those of the liver, are much more vitiated."

The cough is for the most part dry, but sometimes humid, and frequently excites a pungent pain in the part affected, with a tendency to nausea, retching, or vomiting. The spirits and strength, particularly the former, are much depressed; the mind is apprehensive, confused, or slightly delirious, the pulse quick and hard; or low, intermitting, or oppressed; the breathing anxious and variable; the tongue covered with a dirty white, or yellowish, more frequently with a brown fur; the urine scanty and deep-coloured; the bowels are generally irregular; and the faeces dark, slimy, varied, and mixed with morbid bile. The heat of the skin, though sometimes only a little, is at other times much, above the standard of health; it is sometimes jaundiced. Dr. Armstrong states, however, that this symptom often occurs without inflammation of the liver.

It is to be remarked, that there is often much obscurity in tracing the presence of gastric fever or inflammation in any part of the abdominal fever, when it assumes a slow and mild form. But the existence of this state in any part of the belly may be inferred in continued fever, when, after the supervention of the stage of excitement, the stomach remains uncommonly irritable; when there are constant feelings, however trifling, of weight or uneasiness about the scrobiculus cordis, when there is quickened or anxious respiration; a change always observable in abdominal, seldom in cerebral, irritations. We should also note the small and rapid pulse, the indistinct chills and heats, the dry or foul tongue, with thirst, restlessness, frequent eructations, sense of internal heat, soreness, or pain, in some particular part; and an unusual quantity of dark, thick, fluid matter in the stools on the operation of a purgative. The progress, indeed, of such affections must be traced by the above symptoms; for pain is not very conspicuous. But the best method of finding out obscure abdominal inflammation is to press forcibly on the bowels at a time when the patient's mind is occupied with some other object. It is proper to select this opportunity; for oftentimes patients complain of pain in reply to the question "Does pressure hurt you?" because they expect that such will be the case.

The most important feature in the treatment of the gastric complication of fever is its inertness. This is a fact not sufficiently dwelt upon in this country; and, though the too great dependance which our Gallic neighbours place upon medicated broths, eau sucrée, &c. may be worthy of censure when such remedies are applied to inflammatory complaints in general, yet, when the inflammation is confined to the mucous lining of the alimentary canal, the mere omission of irritating medicines, whether cathartics or stimulants, will do much for the cure of the disease. The nature of our treatment in abdominal inflammation will depend therefore upon whether the inflammation be confined to the above tube, or whether it more generally implicates the surrounding viscera. In the first case, free general bleeding seems by no means called for, though leeching the abdomen is highly necessary. As in this case a large quantity of irritating secretions have been collected, to the great aggravation of the gastric disturbance, it should be our first care to evacuate them from the system. In doing this, we should use such remedies as are most likely to bring about the desired effect without, by their own properties, irritating the inflamed membrane. In the first place, am-

ple dilution with acidulated drinks is to be had recourse to; an emetic is the next thing to be prescribed, and its effect is often miraculous; but, after the first time of giving it, its repetition seems by no means admissible. The evacuation of the bowels is to be effected by a dose of castor oil, if the stomach does not reject it, and by enemata: by the latter remedies, composed of oleaginous (or in cases of severe pain of anodyne) decoctions, the alvine discharge is to be regularly kept up. The medicines are to be such as at once diminish the temperature of the stomach; as, the common saline draughts, nitre largely diluted, &c. occasionally small doses of antimony may be used. No solid food or animal broths should be allowed; but cooling drinks may be taken in large quantities, together with sweet mucilaginous decoctions.

Now, if the collatitious viscera seem more deeply implicated, much will depend upon the state of the general fever. If the latter be highly manifested, if the temperature be high, and the pulse strong, bleeding and afterwards cupping over the affected part must be had recourse to without loss of time. If, on the other hand, a violent and intense inflammation supervenes, while the excitement of fever is not marked, (and this is no uncommon occurrence,) we should endeavour to excite those parts of the body which display a diminution in the quantity of their circulating fluids. To this end a hot bath must be premised before we bleed; and, in performing the latter operation, we should carefully watch the rising of the pulse; an occurrence so important, that we may occasionally endeavour to promote it by cordials and stimuli. After this, sinapisms to the feet, and other counter-irritants, will be found useful agents. It will be necessary also to excite the secretory system generally by large doses of calomel and opium.

When inflammation of the liver is clearly manifested, or when the mucous membrane of the bowels is threatened with ulceration, in addition to the usual revulsive measures we should exhibit calomel in five-grain doses, combined with half a grain of opium, every six hours, till ptyalism is induced. We may remark, that no general rules can be laid down as to the use of blisters: they are for the most part of the utmost efficacy in relieving the local complications attendant on continued fevers; but they require to be applied with much care, as to the state of the skin generally; for, when inflammation of the mucous membrane of the alimentary canal is attended with much heat and redness of the skin, it is generally found that blisters increase rather than alleviate the complaint: they also act in a detrimental manner in cases where excessive nervous irritability is present.

Besides the complications before mentioned, we sometimes find rheumatism or angina united with fever. Depletion may be pushed to the utmost extent in the former; in the latter, quite the reverse.

In taking leave of the treatment of continued fever, we have to say a few words on the management of *convalescents*. It is too much the practice even in this country, and it is carried to a much greater extent abroad, to give bark and other strengthening medicines, as they are improperly called, to those who have escaped from severe attacks of fever. We have no hesitation in strongly reprobating this practice. We should anxiously inculcate, that strength is only to be attained through the medium of healthy digestive organs; and that, when these are strong, a very small quantity of sustenance will produce a high degree of nutrition. Now, as sudden plethora is proverbially "a bad sign" when it supervenes to fevers, we should be cautious of producing it by exciting in an unnatural manner the energies of the digestive organs, and we should rather suffer them to recover their tone (which they will generally do) in a gradual manner, and by means of their own powers.

We now proceed to the consideration of **YELLOW FEVER**; a disease at the present moment committing dreadful

ful ravages on mankind, and concerning the origin of which the medical world is much divided. The conflicting opinions of medical men on this subject are indeed well known to the public; the grand question to decide being whether yellow fever is contagious or not. It is by no means easy however to trace the operation of the inscrutable agents which give rise to this disease; and hence, while one physician attributes its diffusion to exhalations from the body of the human species, another finds perhaps in the same case evidence of its origin from miasmata. In a late number of the Medical Repository we find the names of numerous and respectable authors marshalled in regular array against each other as taking opposite sides in this important question. We copy the chief of these, that those who want to examine closely the evidence on each side may have recourse to it.

Among those who consider yellow fever to be an imported and contagious disease, are ranked Arejula, Batt, Berthé, Dalmas, sir J. Fellowes, Moreau de Jonnés, B. Progetto, Salgado, &c. who found their opinions on the yellow fever of Spain; and more recently Pariset holds the same opinion. Also Bally, sir Gilbert Blanc, Caizerques, Chisholm, W. Currie, Des Portes, D'Oyarvide, Lind, Ried, &c. who derive their facts from the West Indies and America.

Among those who deny that yellow fever is contagious, and assert its origin to be entirely local, or dependent upon some mysterious and inappreciable change in the atmosphere, are ranked Amiel, Burnett, Cassan, Doughty, Keutfeh, Lacoste, Langerman, O'Hallaran, &c. who draw their observations chiefly from the fever of Spain; and Bancroft, Barker, Browne, Comstock, Clarke, Coventry, Davidge, Denmark, Deveze, Dickson, Ferguson, Gilbert, Hillary, J. Hunter, R. Jackson, Jefferson, M'Arthur, M'Lean, E. Millar, Moore, Moseley, Muffgrave, Muttlebury, Ramsay, A. Robertson, B. Rush, Savarés, Selden, Sheppard, Trotter, Valentin, Vanel, Veitch, Whitehead, &c. in the West Indies and America; and in Africa, Drs. Copland and Winterbottom.

Among those who hold a middle course, allowing the local origin of the fever, but asserting that it may become contagious, we find Eymann, Hofack, Humbolt, J. Johnson, Le Blond, Nicol, Palloni, Pugnet, Romans, &c.

To these we must add the singular opinions of Baron Larrey. This author divides virus into two kinds; the one fluid, as in syphilis, small-pox, and vaccina; the other gaseous, or miasmatic: of this last sort is (he says) the virus of the yellow fever. Each virus has a particular influence on certain parts. That of the yellow fever acts particularly on the nervous system of animal and organic life. It is connected with the lymphatic system; and, according to him, it is the most subtle and fugacious of all. It lasts but a moment at the highest point of disease; and then loses the power of transmitting itself. It is principally seated in the exanthema when this exists, and in the cutaneous transpiration. It is in this manner that M. Larrey endeavours to reconcile the contradictory opinion of physicians on this subject. He is, however, an advocate for measures of precaution; for if, says he, one patient only out of a hundred be capable of transmitting the disease, prudence requires that the whole should be sequestered, as it is impossible to ascertain the individual by whom the disease may be perpetuated.

For our own parts, we can only give the conclusions we have arrived at from an attentive perusal of most of the above works. It would far exceed our limits to detail, even in the most compressed form, the arguments of these numerous and conflicting authorities. But, taking up those opinions which seem to have been most carefully induced from facts, and which in some manner explain the dissonant evidences of various authors, the following circumstances appear to us tolerably well established. First that the YELLOW FEVER, the *bilious remittent*, the *Bengal fever*, the *Bulam fever*, &c. are all one and the

same disease modified by varieties in climate, constitution, and predisposing causes; that is to say, that they are so far the same disease, that their fundamental therapeutic indications are similar, and that they are apt, when external circumstances serve, to run into each other. Secondly, that this fever is for the most part caused by certain miasmata from marshy soils, which miasmata are supposed to be the product of putrefying vegetable substances, it being urged that animal putrefaction is not found to produce yellow fever. This, however, is by no means clearly ascertained. It is asserted that the miasmata in question are generated for the most part in situations where the water has receded or been partially dried up, and where consequently the muddy bottom is exposed to the sun's rays. It is asserted also, that an high temperature is an indispensable condition to the production of these miasmata, or at least to their morbid action on the human body; whether such heat be in actual existence, or whether it has immediately preceded a sudden accession of cool weather.

Though these miasmata from marshy soils are undoubtedly in many instances the sole cause of the yellow fever, yet something must be often attributed to the influence of descending dews from the atmosphere. Indeed Dr. James Johnson mentions having himself experienced the sensible effect of this dew on-board of a ship; and it seems very probable that it was only by the preventive treatment he employed, that he warded off an attack of this fever. This author likewise informs us, that a fever which broke out in the Leopard's crew followed upon a descent of dew which took place every night, and was *perfidely salt and bitter to the taste*. The above-mentioned fact, according to Dr. J. Johnson, leads to a "practical inference of considerable utility; viz. that, when necessity compels us to penetrate through those insalubrious woods, jungles, or marshes, we should select that point of time at which we are least likely to meet those miasms, whether in their ascending or descending state. This period seems to extend from three to six o'clock in the afternoon; that is, after the greatest heat of the earth and air, and, consequently, the greatest evaporation; and before the condensation and return of such exhalations as rose during the day, and which combine with those still issuing from the heated soil for some time after sun-set. Independently of this circumstance, the body seems to be possessed of greater energy at this period of the day than at any other, it being that time when the principal meal is nearly digested, and consequently the animal vigour at its highest pitch. The depressing passions, intemperate or bad living, and the other predisposing causes of the fever of this country, act with equal or greater force in assisting the baneful operation of the miasms of yellow fever.

Thirdly, it is inferred as a probability, (for we have no evidence of our own to offer,) that yellow fever arising from miasmata may in some constitutions generate the volatile material which other fevers do, and produce contagion. Independently of the evidence derived from the authors before mentioned, the principles we have laid down when treating of contagion lead to the same conclusion. Indeed, when we consider the nature of contagion itself, we cannot refuse our assent to the proposition in question. We see that a fever, clearly traced in the first instance to local injury, will, under the concomitant circumstances of foul wards in an hospital, deficient ventilation, &c. engender contagious fever through large bodies of men; so that we infer that any fever, however induced, may be contagious, seeing that its local origin does not hinder the contagious effluvia from being produced. Moreover, let us consider the manner in which contagion is produced. It must be a *volatile secretion*; and this can only arise from the mucous membrane. Now, when we see the great variety of appearances which the visible products of this membrane exhibit when inflamed, can we doubt that in almost all

violent inflammations contagious effluvia may be secreted. In common states of the atmosphere, this is probably mixed, diffused, and decomposed; but in peculiar conditions of the air a suspension may take place, and thus contagious fever may be rendered general. Now that the morbid secretions of the mucous membrane are contagious effluvia, and that these are modified by nervous impressions in the same way as all secretions are, seems rendered still more probable by the circumstances, that in those fevers which are most contagious, viz. the exanthemata, a phlogosed state of the mucous membrane is uniformly present, and that an emetic exhibited early in those maladies often prevents the attack; a fact which we can only explain on the supposition that this remedy actually removes a deposited secretion, or, in other words, contagious effluvia from the surface of the stomach. In fact, there seems good evidence in support of the opinion, that all inflammation of, or disordered secretion in, the mucous membrane may elicit contagious effluvia. Thus dysentery, cholera, erysipelas, the influenza, (a species of catarrh,) have all been sometimes contagious, though it is well known that all these diseases occur without such an effect being produced. Nor, can we, on the same account, dismiss with the absolute denial which most authors have thought proper to do, the well-supported assertion, that croup and phthisis are occasionally catching.

To return to the yellow fever; it is to be remarked, that a consideration of the medical topography of the countries where this fever has appeared must disclose grand and important circumstances relative to the management of our fleets and armies. As this subject, however, embraces a wide field in a branch of medical science hitherto not cultivated systematically, we regret that our limits will not permit us to discuss it fully; but we can, with the utmost confidence, refer our readers to a work by Dr. James Johnson on Tropical Climates; which contains all that is at present known on the subject.

As to the nature of yellow fever, its immediate causes operate of course, as in other fevers, through the medium of the mucous membranes; and the irritation which is communicated to the brain and spinal marrow forms the grand connecting and essential link to the development of the general febrile phenomena. The action of the predisposing causes, as climate, fatigue, &c. is however to render the mucous membranes particularly liable to inflammation; while the same influence, by affecting the circulation of the surface, as was shown when treating of Cholera, throws unnatural quantities of blood into the portal system, and produces *congestion* there, this being the only part of the venous system where such a stagnation can take place. The effect of this is particularly felt in the liver, the stomach, and indeed the whole abdominal viscera.

The characteristic symptom of this fever, viz. the yellow colour of the skin, is variously accounted for by different authors. Dr. Bancroft supposes it is induced by the pressure to which the act of vomiting subjects the liver and gall-bladder. But to this it is replied, that there is no proportion between the intensity of colour and the severity of the vomiting; and moreover, that it often occurs before the vomiting takes place. Broussais is of opinion, that the yellow colour depends on violent irritation of the duodenum propagated to the secretory organ of the bile. The most plausible opinion, however, though it has been much ridiculed, seems to be, that the suspension of the action of the liver prevents the elimination from the blood of the bilious elements, and that these, existing in the blood from the want of secretion, and not from absorption, produce the phenomena in question. We have some reason to believe, that a morbid state of blood might cause the same appearance without the liver being materially implicated. This indeed, as far as regards certain yellow dingy patches

which occasionally appear on the skin in this fever, is allowed by Dr. Bancroft.

The *black vomit*, a most formidable symptom in yellow fever, was for a long time attributed to a superabundant and altered secretion of bile; but certainly without foundation, as is evident from the fact, that in a great number of dissections the liver has been found in a healthy state; and, where it has differed from its natural appearance, it has frequently been of a paler colour; the gall-bladder has also at the same time been found in a healthy state, containing its usual quantity of bile, not at all altered in its appearance or properties. Moreover, at a time when the stomach has been distended with black vomit, the passage from the duodenum into the stomach has been completely obstructed by the pylorus valve, so that no portion of the matter could have been derived from the hepatic system, in every part of which system the bile was quite natural in colour, taste, and consistence. The matter of black vomit, compared with bile, differs materially from it in all its physical qualities. It differs from it in colour; for, however dark the bile may appear in its most concentrated state, it always displays a yellowish or greenish-yellow tinge, when spread on a white surface, or when diluted; and this is never observed with the matter of black vomit. Indeed Dr. Bancroft has found that an addition of bile to the latter, altered its nature so much as to give it an appearance different from what it had before; nor could the black vomit be imitated by any mixture of various proportions of dark-coloured bile with the fluids found in the stomach. It differs most decidedly in taste; the black vomit being always insipid, when freed from other foreign matters; whereas the bile can never, by any means, be deprived of intense bitterness.

A natural conclusion therefore is, that the black vomit proceeds from the stomach itself, and is a consequence of inflammation of that viscus; whether this be a particular morbid secretion by the inflamed vessels or glands of the stomach; or, as Dr. Bancroft thinks, "merely blood which has been effused from some of the small arteries, ruptured in consequence of the separation of certain portions of the villous coat, and which has coagulated within the general cavity of the stomach, or on the surface over which it was effused; and, having been afterwards detached and triturated by the violent and frequent contractions of that organ in the efforts to vomit, has had its appearance as a coagulum of blood altered, and its colour darkened by the gastric juice, or by some chemical decomposition, either spontaneous, or produced by the action of the air, or other matters contained in the stomach."

It remains to give a description of the symptoms of this fever, which we believe will be found to agree accurately with the above short pathological sketch. The descriptions, not being drawn from our own observation, are selected from the most accredited authors, whose names we shall subjoin. The chief distinctions between the different forms this fever exhibits are drawn from its violence, or, what amounts to nearly the same, its continued, its remittent, or its intermitting, form.

The first description is that of Dr. Bancroft, derived from the contemplation of this fever in the western hemisphere. "The progress and violence of the yellow fever differ greatly, according to the force of its cause, the vigour and excitability of the patient, and the season of the year. When it prevails epidemically in hot climates, and attacks young and robust men, lately arrived from temperate regions, the disorder commonly appears in its most aggravated form. In this, the patient first complains of lassitude, restlessness, slight sensations of cold and nausea, which symptoms are soon succeeded by strong arterial action, intense heat, flushing of the face, redness of the eyes, great pain and throbbing in the head and in the eye-balls, uneasiness and pain in the stomach, oppression of the præcordia, a white fur on the tongue,

and

and a dry parched skin, with a quick, full, tense, and generally strong, pulse, though it is sometimes oppressed and irregular. These symptoms are speedily accompanied by frequent efforts to vomit, especially after swallowing food or drink, with discharges, first of such matters as the stomach happens to contain, and afterwards of considerable quantities of bile, appearing first yellow and then green, sometimes tinged with blood, but in the progress of the disorder with matters of darker colours: an increase of pain, heat, and soreness of the præcordia, also occurs, with constant wakefulness, and frequently with delirium more or less violent. This paroxysm, or exacerbation, which has been called the inflammatory or the febrile stage, generally lasts thirty-six hours, but is sometimes protracted for seventy-two hours, and even longer, probably in consequence of either general or local inflammation, (particularly in the brain or stomach,) or of irregularity in the circulation, which are known to prolong the paroxysms in fevers of type.

"A remission then occurs, in which many of the symptoms subside, so as often to induce a belief that the fever is at an end, and recovery about to take place. Frequently, however the foundations of irreparable injury to the brain or stomach have already been laid in the former paroxysm; and in such cases the remission is short and imperfect. During these remissions, the pulse often returns apparently to the condition of health; the skin feels cool and moist, and the intellect, if previously disturbed, sometimes becomes clear; sometimes, however, the patient remains in a quiet and stupid state, a symptom generally denoting great danger. Another sign of danger, as denoting a very morbid condition of the stomach, is the renewal of the efforts to vomit, when pressure is made on that organ, or food is swallowed. After a certain interval, this remitting stage is succeeded by another, which may be called a second paroxysm, and which, probably, would appear as a renewed exacerbation, if the violent effects of the first had not almost exhausted the patient's excitability, and in conjunction with the extreme depression of strength which usually attends inflammation of the brain or stomach, rendered him nearly unsusceptible of those morbid actions which are necessary for that purpose. In this latter stage, then, instead of great febrile heat, and strong arterial action, the warmth of the body, and the frequency and strength of the pulse, are often less than when the patient was in health; but frequently the pain and heat in the stomach become excruciating, with incessant straining to vomit, which, in most of the fatal cases, are followed by hiccough, and repeated discharges of matters resembling turbid coffee more or less diluted, or the grounds of coffee, and also by evacuations of similar dark matters from the bowels. Here it is to be observed, that, when these symptoms occur, (indicating a violent affection of the stomach and bowels,) the patient is, in general, sufficiently in possession of his intellects to know those about him, and to give distinct answers to questions made to him, although his excessive weakness often renders him incapable of mental exertion, and his inability even to raise his head may induce the appearance of coma. In those cases, however, in which the brain has suffered greater injury than the stomach, the retching and black vomit, just described, do not so commonly occur; but, instead of them, low muttering, or coma, with convulsions of the muscles of the face, and other parts of the body, supervene. About this time, also the tongue and teeth are covered with a dark-brown fur; yellowness of the skin and petechiæ make their appearance; the urine has a putrid smell and dark colour; the fæces likewise become most offensively putrid; hæmorrhages sometimes take place from the nostrils, gums, and various other internal surfaces. There is in some patients, a suppression of urine; in others, an involuntary discharge of it, and of the fæces: the pulse becomes feeble and intermits; the breathing is laborious;

portions of the skin assume a livid colour; the extremities grow cold; and life is gradually extinguished."

On the above description Dr. J. Johnson remarks, that the propriety of characterising the subsidence of great heat and vascular action at the close of the first stage as a remission, is very questionable. It is, in fact, (says he,) the transition from inordinate action to exhaustion; to that almost hopeless state which (the foundation of almost irreparable mischief having been already laid in the most important viscera) is speedily to terminate in disorganization and death, and has nothing in it of the salutary tendency of a remission. As Dr. Gillespie observes, "it is proper to caution young practitioners against a mistake very common with regard to the yellow, or ardent fever; that is, of taking the fatal stage which follows the cessation of ardent heat and great excitement, and which accompanies a sphacelus of the viscera, for a salutary crisis of the disease." Diseases of Seamen.—"Cette diminution des symptômes en impose quelquefois au malade, et même aux médecins inexpérimentés." *Dict. des Sciences Médicales*, tome xv. p. 336.

This declension of fever at the close of the first stage excited early attention, and is often so marked as to have been frequently mistaken for a proof of returning health. It is noticed by Dr. Hume, who had the charge of the naval hospital at Jamaica between the year 1739 and 1749, and was afterwards a commissioner of the Sick and Hurt Board, in the following terms: "The pulse is at first full, quick, and strong; but in forty-eight hours after seizure, or thereabouts, it sometimes becomes calm and regular, scarcely to be distinguished from the pulse of a person in health." See Dr. Hume's Account of the Yellow Fever, published by Dr. Donald Munro.

Now, that we may more firmly establish the accuracy of the above description, as well as show the correctness of Dr. Johnson's remark, that the partial diminution of pain and uneasiness is not properly a remission, we subjoin the following account of the same fever as it occurs in another part of the west. It is detailed by Dr. M'Arthur. According to that author, this fever is usually ushered in by the sensations which precede other fevers; such as lassitude, stiffness, and pain of the back, loins, and extremities; generally accompanied by some degree of coldness. These are soon succeeded by a severe pain of the head; a sense of fullness of the eye-balls; intolerance of light; skin dry, and imparting a burning heat to the hand; pulse full and quick; tongue covered with a whitish mucus, but often not materially altered from the state of health; bowels bound. "I may here remark, that the actual degree of heat, as indicated by the thermometer, is not proportionate to the intensity communicated to the touch. It generally varied between 99° and 102°, very seldom exceeding 103°. yet the skin imparted a burning caustic sensation to the hand at these times. If the patient has been attacked in the night, he awakes with oppressive heat, head-ache, and the other symptoms of fever, the sensation of cold having passed unnoticed. At other times, after fatiguing exercise in the sun, and sometimes after a hearty meal, the violent head-ache, and other symptoms of the fever, are ushered in by an instant loss of muscular power, and immediate depression of nervous energy. The patient, as if he were stunned by a blow, falls down, his eyes swimming in tears. In those cases, delirium is an early symptom. In a few hours, the pain of the loins increases, and, in aggravated cases, stretches forward towards the umbilicus; the countenance is flushed; the white of the eye as if finely injected by blood vessels, the albuginea appearing through the interstices of the network of vessels, of a peculiar blue shining cartilaginous whiteness.

"During the first twelve hours, the patient is not particularly restless, enjoys some sleep, and, when covered by the bed-clothes, has partial perspirations on his face, neck, and breast. About the end of this period, there is

a great

a great exacerbation of the fever; he becomes restless; the heat and dryness of the skin increase; there is much pain of the eyes and frontal sinuses; the pain of the thighs and legs is augmented; thirst is increased, with a sensation of pressure about the region of the stomach. Nausea and vomiting occur towards the end of the first twenty-four hours. If the fever has not been arrested within thirty-six hours from its commencement, the patient is in imminent danger, and all the symptoms are aggravated; the pulse is strong and full, and pulsation of the carotids appears distinct on each side of the neck. The skin continues hot and dry; the thirst is increased; there is much anxiety, the patient continually shifting his posture; the urine becomes high coloured; all his uneasiness is referred to his head and loins. A sensation of pain is felt about the umbilicus, when pressed upon; the white of the eye now appears of a dirty concentrated yellow colour, and apparently thickened, so as to form a ring round the margin of the cornea. The blood-vessels of the eye appear more enlarged and tortuous; knees drawn upwards to the abdomen; frequent vomiting, with much straining; mucus, and his common drink only, being ejected.

"Delirium comes on about the end of the second day. There is now a dryness, or slight sensation of soreness, of the throat when swallowing; and about this time an urgent sensation of hunger frequently comes on, and a remarkable want of power in the lower extremities, resembling partial paralysis of the limbs. About this time, also, the pain of the loins is so severe, that the patient expresses himself as if his back was broken. The third day, or stage, begins by apparent amelioration of all the bad symptoms, the vomiting and thirst excepted. The matter ejected has small membranaceous-looking flocculi floating in it, resembling the crust washed from a port-wine bottle. The thirst is now urgent, and there is an incessant demand for cold water, which is almost immediately rejected by the stomach. The heat of the skin is reduced; the pulse sinks to, or below, its natural standard; the patient, for an hour or two, expresses himself to be greatly relieved; and, at this time, a person unacquainted with the nature of the disease would have hopes of his recovery. This state, however, is of short duration, and the delusion soon vanishes. The delirium increases; the matter ejected from the stomach becomes black as coffee-grounds, and is somewhat viscid. Diarrhoea comes on; first green, then black, like the matter vomited. The patient often complains of being unable to pass his stools, from a want of power in the abdominal muscles. There is an acrid burning sensation of the stomach, and soreness of the throat, extending along the whole course of the œsophagus, in attempting to swallow; eyes, as if suffused with blood; skin a dirty yellow; parts round the neck, and places pressed upon in bed, of a livid colour. More or less hæmorrhage takes place from the nose, mouth, and anus; and a deposition of blood from the urine. The delirium becomes violent; the body as if it were writhed with pain, the knees incessantly drawn up to the belly. The patient seizes, with convulsive grasp, his cradle, or any thing within his reach, and prefers the hard floor to his bed. The pulse now sinks; respiration becomes laborious; the countenance collapsed; the lustre of the eye gone. For some hours, he lies in a state of insensibility before death; at other times, expires after some convulsive exertion, or ineffectual effort to vomit. The tongue is sometimes but little altered during the course of the fever; and, if loaded in the early stages, it often becomes clean and of a vivid red before death.

"Such is the regular succession of symptoms which characterize this fever, but of longer or shorter duration, according to the violence of the disease, or strength of the powers of life to resist it. In weakly habits, the vascular action at the beginning is less marked; and, in these cases, the fever is generally more protracted, and

the patient expires unaffected by the laborious respiration, and convulsive motions, which attend the last struggles of life in the more violent degrees of this endemic. Very often the patient retains his senses till within a few minutes of his death; and sometimes will predict, with considerable precision, the hour of his dissolution.

"In the early stages of the worst cases of this fever, there is much anxiety in the countenance of the patient, who expresses a despair of recovery; and *I have never noticed a remission during the whole course of the fever.* Several cases of remittent fever under my care terminated in the endemic fever.

"A certain number of those attacked by this fever, if prompt measures to subdue it had been employed, recovered from its first stage. They exhibited evident signs of amendment within the first twenty-four, or at farthest thirty-six, hours, from its first attack. Also, a considerable proportion recovered from the second stage; that is to say, previously to black vomiting unequivocally appearing. But I have only known thirteen cases, in above five years, to have recovered from the last stage. Some of these were afterwards invalidated, in consequence of dyspeptic complaints, and generally-disordered state of the stomach and other abdominal viscera. In these cases, the stomach gradually became retentive; the eyes and skin became of a more vivid yellow; they had refreshing sleep, but continued extremely weak and languid for a long time. The oozing of blood from the fauces and gums also continued for some days; and the deposition of blood in the urine remained longest; this excretion being always the last to return to its natural healthy condition.

"Pain of the back, early stretching round to the navel; soreness in the throat and œsophagus; heat and acrid sensation in the stomach; urgent thirst; hunger; want of power, resembling paralysis of the limbs; violent delirium; despondency; enlargement of the blood vessels, and a red-yellow colour of the white of the eye, either singly or collectively, indicate extreme danger; and, when the black vomit has appeared, scarcely a hope remains."

The next form of yellow fever, is the *inflammatory endemic* which attacks new comers, (especially when they live intemperately,) on their arrival in the West Indies. The reader will see the precise similarity between this fever (which is allowed to arise from the united influence of plethoric constitution, intemperate habits, and changes in the temperature of the air) and yellow fever. Its symptoms are thus described by Nodes Dickinson: "In its severer aspect, and when neglected at the attack, this fever consists of two stages. In the first, there is increased excitement, resulting from an unusual stimulus applied in an excessive degree to a system peculiarly sensible to its impression: it produces a derangement in the functions of some or many viscera. If this goes on, the second stage appears, in which the structure of these viscera is altered to a degree incompatible with the living state. Thus the disease proceeds from high excitement to irreparable exhaustion, as we shall perceive by attending to the history of its symptoms. In the less severe example there is chilliness at the onset, soon followed by a permanent and universal sense of heat, flushed face, inflamed eyes, head-ache, increased susceptibility to the impressions of light and sound, vertigo, drowsiness, sighing, white tongue, arid fauces, thirst, wandering pains, loss of appetite, costiveness, high-coloured urine, dry skin, nausea, with full and frequent pulse;—should these symptoms in a severe degree remain without control, the disease is soon increased to its most aggravated form. The patient is extremely restless, with a continual desire to alter his position, but without relief. The heat and head-ache are intense; the carotids throb with unusual violence. There is sometimes a furious delirium; *tininitus aurium*, and even loss of sight. There is, occasionally,

sionally, a dry cough with pain in the side, and almost invariably a sense of heat, oppression, and pain on pressure at the præcordia, accompanied by constant sighing. Vomiting sometimes comes on very early in the attack. There is often great drowsiness, but no refreshing sleep. In some cases an acute pain is felt in the right side; and a yellow colour of the skin often supervenes. This yellowness is occasioned by the presence of bile, which is also detected in the urine and serum discharged from the blisters. Should the passage of bile into the intestines spontaneously take place, or be procured by the action of purgatives, this jaundiced appearance will generally be prevented: nevertheless, in some cases it may possibly arise from a redundant secretion, even when the bilious canals are free; and a bilious vomiting and purging may occur with the yellowness of the skin, and carry off the attack. These symptoms proceed with various degrees of violence, and they occupy an uncertain period. Within twelve, twenty-four, or thirty-six, hours, or perhaps after a longer but indefinite time, an important change takes place. It marks the commencement of the second stage. Many of the most urgent symptoms decline. The pain and heat of surface subside. There is a sense of cold with dampness of the skin. This change at first so much assumes the appearance of febrile remission as to give great hope to the inexperienced practitioner; but it speaks a state of the utmost danger. In some cases the patient sinks, at once, after the subsidence of excitement, apparently destroyed by the general affection, without any previously-fevere determination of blood to particular organs; and he dies at the moment of hope in his amendment. But, more commonly, the catastrophe is not so sudden. With the diminution of heat and pain, the pulse falls; the countenance exhibits great distress; the eye is sunk; the pupil dilated; sometimes delirium continues; at others, there is great insensibility with tendency to coma. Vomiting, occasionally, continues without intermission: at times, however, the stomach remains tranquil; and this, when there is much cerebral disturbance.

"As the disease advances, a discolouration of the skin often takes place. It appears in yellow, brown, and livid, patches. This discolouration never comes on until the subsidence of the symptoms of excitement, however early in point of time. It occurs within the passive hæmorrhage from various parts: from the nose, corners of the eyes, ears, &c. and at the same time with the black vomiting. This change of colour appears to arise from ecchymosis proceeding from exhaustion of the vis vitæ in the capillary vessels of the surface in consequence of previous inordinate excitement. It is very dissimilar from the bilious yellowness already noticed as an incidental symptom of the first stage of the disease.

"The first discharges from the stomach are merely the ingesta; afterwards a large quantity of ferous fluid is ejected, when little has been drunk. In a more advanced stage of the complaint, the material thrown up is ropy, and mixed with numerous small shreds, flocculi, or membranaceous films, which float in the ejected liquid. These soon acquire a dark-brown, purple, or black, colour; but do not, at first, communicate much general tint to the fluid in which they are suspended. Afterwards, the matters vomited are more intimately mixed together; and, with the addition of dark-coloured blood which is effused into the stomach, vitiated bile, and other morbid secretions, give an appearance in the aggregate of coffee-grounds. There is at this period, usually, a purging of dark-coloured matter resembling tar mixed with black blood.

"Sometimes within the first forty hours, at others after a more protracted period, the scene draws towards a close with the ordinary phenomena of approaching dissolution which accompany the last stages of acute disease in general. There are dilated pupil, strabismus, singultus, subsultus tendinum, coma, deliquium, hæmorrhage

from various channels, suppression of urine, low muttering delirium, total insensibility, occasionally violent raving, and an incessant disposition to rise in bed. These are among the last symptoms of an un subdued attack; and they mark the near approach of death."

To establish our assertion of the identity of the various forms of yellow fever, we shall now give a description of this fever as it occurs in the east and other parts. In many parts of the east, the comforts and habits of the people are far from proving such powerful predisposing causes of yellow fever as in the west; but, as this is by no means general, we often meet with the precise symptoms of continued fever, as exemplified in the following excellent description of the endemic of Batavia, drawn up by Wade Shields. "The patient, without much previous notice (of the first attack), is suddenly seized with giddiness and cold chills, a sense of debility, and vomiting, with pain over the orbits, and in the epigastric region. He frequently falls down, and is insensible during the paroxysm; his body covered with cold clammy sweats, *except at the pit of the stomach, which always feels hot to the palm of the hand*; the pulse is small and quick. On recovering a little, this train of symptoms is succeeded by flushings of heat, increased pain over the orbits and in the scapular, pain and a sense of internal heat about the stomach and præcordia, oppressed breathing; the lower extremities, at this time, not unfrequently covered with cold sweats. The eyes now become, as it were, protruded, and the countenance flushed. Retching, and, at length, vomiting of discoloured bilious matter, comes on; the tongue white and furred, the abdomen tense and full, with pain in the loins and lower extremities. The length of this paroxysm varied from six to eighteen hours, and was generally succeeded by cold rigors; very often low delirium, preparatory to the next stage or paroxysm of the fever. The intellectual functions now become much impaired, the patient not being at all sensible of his situation, or of any particular ailment. If asked, how he is? he commonly answers, "Very well;" and seems surprisèd at the question. This was a very dangerous symptom, few recovering in whom it appeared. In this stage all the symptoms become gradually, often rapidly, aggravated; particularly, the head-ache, pain and tension in the epigastric region, and vomiting. Some patients, on-shore, were carried off in eighteen, twenty-four, thirty, or forty, hours, and others not till as many days after the attack, especially when removed on-board, from the more noxious air of the island. A great proportion changed, in a few days, to a bright yellow; some to a leaden colour: other cases terminated fatally, in a very rapid manner too, without the slightest alteration in that respect. Generally, however, the change of colour indicated great danger. Vomiting of black bilious stuff, resembling the grounds of coffee, frequently commenced early, and continued a most distressing symptom; too often baffling all our attempts to relieve it. In some, a purging of vitiated bile, or matter resembling that which was vomited, occurred; in a great many, a torpor prevailed throughout the intestinal canal; rarely did any natural fæces appear spontaneously. The pupil of the eye was often dilated, and would not contract on exposure to a strong light; in others there was great intolerance of light: both indicated danger. Low delirium was a pretty constant attendant on this fever, from first to last; sometimes, though more rarely, raging-high delirium. The latter case is attended with red, inflamed, and protruded, eyes; great inquietude, hot dry skin, and small quick pulse. The patient's mind is actively employed about his usual occupations. During the violence of the paroxysms, he is quite insensible to every thing that goes on around him, constantly grasping at, or wrenching, objects within his reach. In the low delirium, also, the mind is much occupied on avocational subjects: if a seaman, about the ship's duty; if a soldier, about his regiment, marching, &c. Some patients were comatose

from the first attack; in others, the fever was ushered in with convulsions, delirium, and cold sweats, without any intervening heat of the surface, except at the pit of the stomach, which, in most cases, was burning-hot to the touch, and accompanied internally by a similar sensation according to the patient's own feelings.

Hæmorrhage from the mouth or nose seldom occurred; in two cases, which terminated fatally, the blood did not coagulate, but tinged the linen yellow. Aphthæ appeared in a few cases, and indicated danger. Subfultus tendinum often attended both on the low and high delirium. The pulse never could be depended on. In the very last stage it has been regular; but in general it is small, quick, and either hard or stringy and tremulous; sometimes, during the reaction of the system, full and hard. Deafness was very common, and an unfavourable symptom. Two kinds of eruption appeared about the lips: one such as we often see at the decline of common fevers; the other, consisted of small black or brown spots round the lips, and was likewise a dangerous, indeed a fatal, symptom. With this eruption, the teeth, tongue, and fauces, generally become covered with a brown or black crust, and the breath intolerably fetid. Locked jaw took place in two cases at Onrust-hospital, but the patients were insensible of it: both died. The brain appeared the organ chiefly affected at first—the stomach and liver in succession. In those cases which occurred on-board, and where the patient had not slept on-shore at Edam, the symptoms were much milder, and the fever resembled more the bilious remittent of other parts of the East. A great torpor prevails generally throughout the system, with the low delirium; blisters, medicines, &c. having little effect on the patient, who appears as if intoxicated. When roused, he recollects the person who is speaking to him, for a moment, and answers in a hurried incoherent manner: then lies on his back, his mouth and eyes half open; both feces and urine often passing involuntarily. I have seen patients remain in this state for hours, nay, for days together, scarcely moving a single voluntary muscle all that time. Never was there a disease so deceitful as this fever: I have frequently seen instances where every symptom was so favourable, that I could almost have pronounced my patient out of danger: when all at once he would be seized with restlessness, black vomiting, delirium, and convulsions, which, in a few hours, would hurry him out of existence! The fatal terminations generally happened on the third, fifth, seventh, ninth, and not unfrequently the eleventh and thirteenth, day; if they passed this period, they usually lingered out twenty or thirty days. But very few indeed ever ultimately recovered, who had slept on-shore, and were attacked at that dreadful island, Edam! No constitution was exempted from the assault of this fever. It seized with equal or nearly equal violence on those who had been many years in India, and on the most robust and plethoric, or newly-arrived, European. Even the Dutch officers and Malays, who had been drawn from different parts of Java, and whom we had prisoners at Edam, fell victims as fast, or nearly so, as the English. Several officers, seamen, and soldiers, were sent on-board from this island, in hopes that the change of air might mitigate the disease. Many of even the worst cases of these would promise fair for a few hours in the forenoon; but night always dispelled our hopes, for then the patient relapsed as bad as ever: they almost all died. But their fate was considerably protracted by the change; many of them lingering out a great length of time on-board, sinking at last from the consequences of the fever, rather than from the fever itself. Several of them changed into obstinate intermittents at sea, with great derangement of the liver, spleen, and bowels. Indeed the *liver*, in most cases, seemed affected from first to last in this fever; but, in all protracted states of it, this affection became the prominent symptom. In those that were cut off during the first eighteen, twen-

ty-four, or thirty, hours, the *brain* appeared to be the organ oppressed."

The *remittent* form of yellow fever is that most frequently met with in the East. We shall accordingly proceed to describe the marsh remittent, or endemic fever of Bengal, in the words of Dr. Clark. "This fever attacked in various ways, but commonly began with rigors, pain and sickness at stomach; vomiting, head-ache, oppression on the præcordia, and great dejection of spirits. Sometimes, without any previous indisposition, the patients fell down in a deliquium, during the continuance of which the countenance was very pale and gloomy; as they began to recover from the fit, they expressed the pain they suffered by applying their hands to the stomach and head;" so great indeed, that delirium often came on at once; but, "after vomiting a considerable quantity of bile, they soon returned to their senses. Sometimes the attack was so sudden and attended with such excruciating pain in the stomach, that I have been obliged to give an opiate immediately.

"In whatever form the disease appeared at first, the pulse was small, feeble, and quick: the pain at the stomach increased, and the vomiting continued. As the paroxysm advanced, the countenance became flushed, the pulse quick and full, the eyes red, tongue furred, thirst intense, head-ache violent; delirium succeeded; and the patient became unmanageable; but a profuse sweat breaking out in twelve or fourteen hours, generally mitigated all the symptoms. In the remissions, the pulse, which before was frequently 130, fell to 90. The patient returned to his senses, but complained of great debility, sickness at stomach, and bitter taste in the mouth. This interval, which was very short, was succeeded by another paroxysm, in which all the former symptoms were aggravated, particularly the thirst, delirium, pain at the stomach, and vomiting of bile. If the disease was neglected in the beginning, the remissions totally disappeared, and the skin now became moist and clammy; the pulse was small and irregular, the tongue black and cruusted, and the pain at the stomach and vomiting of bile became more violent." It is needless to say, that from this period till death closed the scene, the features of this fever were such as characterise the last moments of all violent and fatal fevers.

The unfavourable terminations are generally between the third and seventh day, though in some cases the fever goes on to the fifteenth or twentieth day: but visceral obstructions are almost always the consequence; and hepatitis and dysentery complete what the fever fails to accomplish. Dr. Johnson adds, that several cases occurred under his inspection where there was a yellowish suffusion on the skin, as in the endemic of the West, with vomiting of matter bearing a considerable similarity to the grounds of coffee. This however is by no means an uncommon symptom in the fevers of the East.

Occasionally, in the advanced season of the year, or when cold weather sets in, this fever assumes an *intermittent* form. The similarity in the nature of the two forms of disease is well supported by a Report drawn up by Drs. Ainslie, Smith, and Christie, on the epidemic fever of Coimbatore. The Report states, that it was either remittent or intermittent, according to the constitution, treatment, and season of the year. People by nature delicate and irritable, or rendered so by irregularities or want of care, were sometimes attacked by the disease in the remittent form, proving bilious or nervous, as the constitution inclined. "The same happens to the more robust, when improperly treated, as where bark is given early and before proper evacuations have been premised. As the season becomes hotter too, the remittent form prevails over the intermittent. Males suffered more than females, and young people and those of middle-age more than old people and children. The remittent form sometimes makes its approach very insidiously. The patient feels himself out of sorts for a few days; his appetite

appetite fails him; he has squeamishness, especially at the sight of animal food; universal lassitude; alternate heats and chills; stupid heaviness, if not pain in the head. The eyes are clouded; the ears ring; the bowels are invariably costive. In other cases, the enemy approaches rapidly; and rigors, great prostration of strength, vertigo, nausea, or vomiting, usher in the disease.

"The first paroxysm, which is often attended with delirium and epistaxis, after continuing an indefinite period with varying symptoms, terminates in a sweat; not profuse and fluent, as after a regular hot fit of ague, but clammy and partial, with the effect, however, of lowering the pulse and cooling the body, but not to the natural standard. The latter still feels dry and uncomfortable; the pulse continuing smaller and quicker than it ought. This remission will not be of long standing, without proper remedial measures. A more severe paroxysm soon ensues, ushered in by vomiting (sometimes of bile), and quickly followed by excessive heat; delirium; great thirst; difficult respiration; febrile anxiety; parched and brownish tongue. The next remission (if it do take place) is less perfect than the first, and brings still less relief. In this way, if medicine or a spontaneous purging do not check the disease, it will run its fatal course, each succeeding attack proving worse than its predecessor, till exhausted nature begins to give way. The pulse declines; the countenance shrinks, and looks fallow; the eyes become dim, the abdomen swells from visceral congestion; the stomach loathes all food, when hiccup, stupor, and low delirium, usher in death. Such severe cases, the committee think, were, in general, owing to neglect or blunders at the beginning of the disease."

Between the *bilious fever* and the continued form of the western endemic we observe little difference. In each, gastric irritability, inflammation or fullness of the abdominal viscera, oppression of the head, are for the most part present. The other febrile symptoms are by no means constant and regular. Thus the pulse is frequently regular, and sometimes up to 120 or 130 in the minute. It is the same with the temperature of the skin. Often, when mad delirium is present, the pulse will be 86, and the thermometer in the axilla at 96° of Fahrenheit. The bowels are almost always constipated, or in a state of dysenteric irritation. No such thing as natural stools in this fever are ever to be seen, unless procured by art. Frequently, but not always, yellowness of the eyes, and even of the skin, takes place; and the mental functions are very generally affected, which indeed is characteristic of all bilious diseases.

The following is the most general order in which the febrile phenomena present themselves. Severe pain in the head, arms, loins, and lower extremities; stricture across the breast, with great pain under the scrobiculus cordis; retching and griping. In some cases the pulse intermits, and the temperature of the skin is increased; in others, cold chills come on, attended with partial clammy sweats; but all patients complain of *pain under the frontal bone*; most have white furred tongues, and thirst. An increase rapidly takes place in the severity of the pain in the head, limbs, loins, and across the epigastric region; constant vomiting of viscid bile comes on; intermission of pulse goes off. In some, the skin is cold; in others hot, with insatiable thirst. Tongue, in most cases, covered with a thick white crust. Great irritability of the stomach, and aversion to food. Bowels constipated; but a few patients have a foetid bilious purging. The third or fourth days bring an increase of pains across the epigastric region, and in the head, with frequent vomiting of bile; tongue swelled and furred, but no great heat or acceleration of pulse. An increase of all these symptoms, especially the violent pain in the head under the frontal bone, takes place; delirium, and yellowness of the skin, come on; and the fatal progress of the disease is precisely similar to that of the continued

fever before detailed. Throughout the whole of the disease, the *liver* appears to be severely affected.

The disease does not always proceed, however, in the manner here mentioned. Sometimes violent madness is the first decided symptom: the patient endeavours to commit suicide, and has been known to attack with fury those who have endeavoured to prevent his throwing himself over-board, or committing similar acts of violence. The patient often falls suddenly down, with suffused eyes and insensible limbs; and awakes after some time to undergo the most violent inflammation of the brain.

The appearances found on *dissecting* those to whom yellow fever has proved fatal, are such as commonly follow inflammatory action; and, according as this action has been violent or otherwise, we observe the various gradations of mortification or sloughing, of abscess or ulceration, of adhesion or effusion, or (rarely) of simple redness and dilatation of vessels.

The parts principally affected are, the brain, the membranes of which are often found adhering together, and the ventricles containing watery or bloody fluids; the liver, the structure of which is variously affected, from a slight hardness and darkened colour of its edge, to a state so completely dissolved and broken down, that with the slightest pressure the finger runs into it. The gall-bladder is almost always turgid with bile; the stomach and smaller intestines inflamed, in various degrees, the stomach being frequently ulcerated or sphacelated, and the intestines exhibiting various diseased products: it rarely happens that the inflammation extends to the colon. The thoracic viscera are not generally much affected, though occasionally polypi are found forming in the heart, or the pericardium is unusually distended. But ulceration or abscess of the lungs is perhaps the least frequent organic lesion of the viscera. The skin is often affected with inflammatory action, as exemplified by its frequent termination in spots and ecchymoses. It is to be remarked, that sometimes the abdominal viscera are very much diseased, while the brain is tolerably sound; but much variety exists as to the organs affected.

We pass over numerous histories of the forms of yellow fever. We have stated what appear to us the principal divisions. To attempt to detail the perpetually-changing varieties in febrile disease is equally beyond our limits or our power; for a history, so far complete, that it embraces all the forms of yellow fever that have hitherto appeared, we again refer our readers to the work of Dr. J. Johnson, before quoted, and to which we have been much indebted in our compilation of the history of this disease.

The course of few maladies so strongly exemplifies the danger of following with unvarying measures diseases similarly named as that of the yellow fever. The treatment of this disease must change according to the prevalence of particular symptoms, according to the mode of attack, and according to the effects it produces. It cannot uniformly be grounded on the division of stages, so useful in most ailments; for we have before seen, that it sets in in various and opposite ways; being sometimes attended with coldness and diminution of all the phenomena of life; sometimes, on the contrary, with raving delirium, and great exaltation of strength, heat, &c. It cannot altogether be founded on the exciting cause; for the intenser and the milder forms equally arise from the action of the same agent, if the constitution be different; nor can an observance of the constitution of the patient always lead us to discrimination, since the weakest patients have borne depletory measures under which the robust have sunk, and of course vice versa.

The first accession of the fever being the period at which alone remedial agents can be depended on, it behoves us to meet it with the utmost promptitude and decision. If the cold stage be first manifested, we should lose no time in putting in force those measures of bleed-

ing on the one hand, and restoring the balance of circulation on the other, as detailed in the quotation from Dr. Jackson in our 209th page. If the raving delirium and increased circulation be first manifest, our bleeding must be still more free; and here let us caution our professional brethren against those futile half-measures which systematic writers in this country have been accustomed to recommend. We repeat the opinion of the best-informed practical writers on Indian maladies, when we quote Dr. J. Johnson's expression "Bleed boldly and decisively till the head and præcordia are relieved, or draw no blood whatever." Indeed it is effect we must look to. The pulse is so changeable, that it is a bad guide; and, as to quantity, this is so various in different persons of the same appearance, that the measurement of ounces is still more fallacious. Ninety ounces of blood have been drawn during the early stage of this fever; and not until that quantity was extracted did the symptoms abate. This measure frequently relieves not only the head and abdominal congestion and inflammation, but also the distressing and perpetual vomiting. In prosecuting it we must let nothing deter us from our purpose. Should mental impression cause faintness, the patient is to be supported with a little wine and water; the bleeding restrained; and, as soon as animation is restored, we must again open the vein. When the head is violently affected, cold lotions are to be applied to it; and, if there is general and high excitement, water should be dashed over the whole body. Against emetics strong testimony exists; and indeed, when the great irritability of the stomach is considered, we should naturally suppose such remedies must do harm. The only case in which an emetic seems at all allowable, is when a full meal of solid food has been taken soon after the accession of the fever, and the stomach has not rejected it. Here it appears highly probable that the undigested aliment must excite more serious inflammation than the transient stimulus of the emetic.

Purgatives in a condensed form, as calomel with rhubarb and jalap, may be next exhibited; and these should be assisted in their operation by oleaginous or saline enemata. When the irritability of the stomach is so great that we fear the rejection of purgatives, a scruple dose of calomel combined with a grain of opium, is said to reduce the disposition to vomit in a rapid and astonishing manner; after which the purgatives may again be persevered in. When the bowels have been freely evacuated by purges, we must have recourse to calomel, a remedy which writers on this fever have floridly called their "sheet-anchor." This medicine, exhibited in large doses and combined with opium, has been found to be a remedy of universal application. Many have trusted to it alone; but though with these practitioners some patients were cured, and the lives of others considerably prolonged, yet the rate of mortality which occurred during the exclusive use of mercury so far exceeded that which attended the practice of conjoining its exhibition with bleeding, that the latter practice is now resorted to in all violent cases. This fact may be explained on the ground that absorption does not readily take place when the blood-vessels are full, or on the ground that the generally-increased momentum of blood keeps up inflammation in the capillary system of the diseased viscera, notwithstanding the favourable action of mercury on the secretions. At all events, it is almost impossible to impregnate the system with mercury till ample depletion has been used. Of the mode of action of mercury we have before regretted our ignorance, when speaking of cholera and dysentery. In the fever in question, it seems to be chiefly effective by establishing general secretion; and we find that, when this happy occurrence has taken place, (which is denoted by ptyalism coming on,) then, and not till then, is the patient in a fair way of recovering. If the stomach rejects the calomel, mercurialunction may be substituted.

The above-urged measures of course require some modification. If the head be more exclusively affected, and the liver in a trifling degree only, we need not always push the mercury to the extent of ptyalism; but we should carry the bleeding to the highest pitch, and particularly attend to the cold affusion. When the disease assumes the mild remittent or intermittent form, the paroxysm may be conducted by the same means as before mentioned. During the intermission, calomel may be conjoined with bark, and the latter injected per ano; but, ever keeping in mind to restore the action of those parts which are deficient, and diminish those motions which are excessive, we should endeavour by blisters, by baths, and by local bleeding, to relieve topical inflammation, and restore the balance of power of which all the phenomena of this fever indicate a severe derangement. It is scarcely necessary to add, that it is of importance to avoid the exciting causes of the complaint, since these invariably aggravate it. Thus the removal of soldiers into barracks at a distance from pestilential effluvia, of sailors from on-board of foul or crowded vessels, &c. should, when practicable, be strongly urged. It is to be remarked, that some have supposed the yellow fever to be a disease which cannot occur twice in the same individual; but this is contradicted by the best authorities.

We must now return to our nosological arrangement, which, for the obvious reason that it entirely disagrees with the opinions we have adopted as to the identity of several fevers distinctly named, we have thus far abandoned. Dr. Good gives in the present order of Pyrexia four genera.

Genus I. *Ephemera*, [from the Gr. *ἡμέρα*, a day.] Ephemeral, diary, or simple, fever. Generic characters—Attack sudden; paroxysm single, and terminating in about twenty-four hours. There are three species.

1. *Ephemera mitis*, or mild *ephemera*: without preceding rigor; heat and number of the pulse increased slightly; lassitude and debility inconsiderable; pains obtuse, chiefly about the head; perspiration and breathing pleasant. This species is usually produced by excess of corporeal exertion, study, or violent passion; by suppressed perspiration; sudden heat or cold.

2. *Ephemera acuta*, or acute *ephemera*: severe rigor; great heat; pulse at first small and contracted, afterwards quick and strong; perspiration copious; great languor. It is frequently produced by a surfeit of eating or drinking; or some temporary organic obstruction. These two species of *Ephemera* generally go off spontaneously; or, at most, by the help of rest and abstinence.

3. *Ephemera sudatoria*, the sweating sickness: tense pains in the neck and extremities; palpitation; dyspnoea, pulse rapid and irregular; heat intense; intolerable thirst; drowsiness or delirium; excessive sweat.

The history of the rise and progress of this singular and formidable disease constitutes one of the most curious articles in the annals of medicine. Its origin is involved in a good deal of obscurity; and much vague and inconclusive reasoning, concerning the mode in which it was propagated, is to be met with even among the most authentic authors who describe its ravages. It seems, however, to be generally admitted, that it first appeared in the army of the earl of Richmond, afterwards king Henry VII. upon his landing at Milford Haven, in 1485; and that it soon spread to London, where it raged from the beginning of August to the end of October. Whether the troops, which were foreign soldiers, levied by the earl of Richmond, brought the disease with them from the continent, or whether the contagion was generated in the crowded transport-vessels on-board of which they were embarked, it is impossible, amidst the deficiency of evidence, to determine. It may readily be supposed, however, that a highly malignant and contagious disease might have been generated

under

under these circumstances, especially as this body of troops is described by a contemporary historian (Philip de Comines) as the most wretched he had ever beheld; collected, it is probable, from jails and hospitals, and buried in filth. The most general opinion at the time, however, certainly appears to have been, that it arose from some peculiar state of the atmosphere, and was propagated by contagion; but no writer has distinctly pointed out the connexion of this or of any other epidemic with a specific condition of the air, nor detected any peculiarity in the circumstances attending its first appearance, or subsequent returns.

The sweating-sickness broke out in England four different times after this, but at unequal intervals. The summer season was always the period of its commencement, and it continued rise from three to five months. It appeared during the summer of 1506; and again in 1517, from July to the middle of December; when it raged with peculiar violence, proving fatal in the course of three hours; extending its havoc to many of the nobility, and carrying off, in many towns, half the inhabitants. Its next recurrence was in 1528; at which time, though it was somewhat less fatal, many of the courtiers of Henry VIII. fell victims to it, and that monarch himself was in danger. Bellay, bishop of Bayonne, then ambassador in England, who was affected with it, reports, that of 40,000 persons attacked with it in London, only 2000 died. The last time that it visited England was in 1551, when its fatality was so great, that in Westminster 120 died of it in a day, and among others, the two sons of Charles Brandon, both dukes of Suffolk. In Shrewsbury, particularly, according to the testimony of Dr. Caius, who resided in that city, 960 died within a few days. The disorder had also, in the mean time, been desolating many parts of the continent. In 1529 it first showed itself in Holland, and thence spread to the Netherlands, and to Germany, destroying a great number of lives. It is stated to have interrupted a conference at Marburg between Luther and Zuinglius, about the eucharist. From the description which Wierus has given us of this epidemic, as it appeared in Germany, it seems to have commenced with a violent cold stage and shivering, which continued half an hour or more, accompanied with great pains in the region of the diaphragm and groin, and the other symptoms already mentioned as characterizing the disease, when observed in England. Swelling and stiffness of the hands at the beginning of the attack, and vomiting of black blood or bile, are also noticed by this author in particular. Erasmus, an eye-witness of its devastations, describes it in very forcible terms, "visum est ac anne Phlegetoneo emisum hoc malum."

This disease has been described by various writers under the names of *sudor Anglicus*, *ephemera Britannica*, *ephemera sudatoria*, *hydronosis*, and *hydroyretos*. It appears from their accounts to have spared no age or condition; but to have attacked more especially persons in high health, of middle age, and of better rank and condition. The invasion of the disease was exceedingly sudden, and was marked by the affection of some particular part, producing the sensation of intense heat, extending through the limb, and afterwards diffusing itself over the whole body. This was immediately followed by profuse sweating, which generally continued more or less through the whole course of the disease, and was attended with insupportable thirst. Extreme restlessness, head-ache, delirium, nausea, cardialgia, and an irresistible propensity to sleep, characterized its progress; together with great prostration of strength, producing frequent fainting, and irregularity in the action of the heart, which sometimes palpitated violently, while at other times the pulse was weak and fluttering. In this way the patient was carried off frequently in two, three, or four, hours from the eruption of the sweat. Those more especially who bore their sufferings with impatience, and who sought relief from the sense of heat, by which they were tormented, by ex-

posing their bodies to the air, or even by putting their arms out of bed, were often suddenly struck with death. The sweat, when promoted, is represented as being unusually clammy, as well as abundant, and as having a very strong and peculiarly fetid odour. The violence of the attack generally subsided in fifteen hours, yet the patient was not out of danger till the expiration of twenty-four hours.

For a long time physicians were at a loss how to treat this new and singular malady. The fatal effects of exposure to cold, however, suggested the propriety of accumulating heat round the patient, with a view of promoting the sweat, which appeared so manifestly to be a critical discharge. The moment a person was seized with the symptoms of the disease, he was to lie down immediately in bed, without taking off his clothes, and to be completely covered, all but the face, with bed-clothes; in which situation he was to remain perfectly still, not stirring a limb, if possible, nor putting a hand out of bed. He was enjoined abstinence from food during the whole twenty-four hours, and even from drink the first five hours: then a little ale or beer, or wine and water, was to be given in small portions, and sucked through a spout, the patient still lying in the same posture. At the expiration of about fourteen hours, the bed-clothes were gradually to be removed, and the sweating restrained; and, after it was quite over, proper food was to be given to recruit the exhausted strength. This was the process when the sweat flowed spontaneously: when this was not the case, attempts were made to excite it, such as by dry and warm frictions, wine, aromatics, vinegar-whey, China-root, and other sudorific medicines. By this method of practice, actively pursued, and properly adapted to the circumstances, we are told that the disease, though so fatal when neglected or mismanaged, was got over with a tolerable certainty of success; so that, according to the observations of lord Bacon, who has given us a short account of it in his History of Henry VII. it might be looked upon "rather as a surprise of nature, than obstinate to remedies." Great stress is laid by some physicians on the danger of indulging the propensity to sleep which accompanies the paroxysm. "If they were suffered to sleep," says Cogan, "commonly they swooned, and so departed, or else immediately upon their waking." (Haven of Health, p. 262.) It appeared, however, from the testimony of the continental physicians especially, that much harm, and frequently fatal consequences, arose from the extremes to which the hot regimen was carried.

Dr. Willan, in his publication on cutaneous diseases, has thrown out a suggestion concerning the origin of this affection, which he supposes might have been owing to some disease or depravation in wheat, or to some noxious vegetable growing with it in particular situations. This idea seems to have been suggested by some analogy to be traced between the fatal epidemic, called *feu sacré*, *feu St. Antoine*, *mal des ardens*, &c. which is supposed to have originated from eating rye damaged by a parasitic plant, constituting the disorder in corn termed by the French *ergot*; and it was alleged, that the inhabitants of Wales and Scotland who fed on barley or oat bread, were not attacked. This opinion appears, however, to be untenable, and has been ably combated in a paper in the Edinburgh Medical Journal, vol. iv. p. 464.

In a curious and scarce book, called the Touchstone of Complexions, first printed in 1633, we have the opinion of Dr. Lævinus Lemnius, the famous German philosopher, who visited this country at the beginning of the 16th century, as to why the sweating-sickness should prevail here more than elsewhere. It will be seen by the following extract, that we have been long and commonly regarded by foreigners as a gluttonous nation. "The *ephemera*, or *diaria*, is the sweating-sickness, which, because it began in England, is called the *English sweat*. Why this disease is termed by the name of the English

sweat, I suppose grew hereupon, for that the people of that country be often therewith attacked, partly through their curious and dainty fare, and great abundance of meats, wherewith they cramme themselves very ingluviouly, which I noted at my late being in that realme, (about the time of midsummer,) by reason that the ayre with them is troubled, cloudy, and many times with foggy dampes overcast, whereby is engendred the cause and originall, both inwardly and outwardly, of this disease; the vehemency whereof bringeth them into a bloody sweating, wherewith they must wrestle and strive as with a most fierce and strong enemy, and which they must endeavour with all might to supplant: hereupon happen traunces and swoonings, through febleness of body and minde, fainting and drooping of the spirits, decay of powers, stopping of the pipes and voyce, and life almost thereby cleane yielded up, and the party even brought unto death's doore."

Other books from which original information may be collected on the subject of this article are the following: A Boke or Confeill against the Disease commonly called the Sweat or Sweating-Sickness, made by John Caius, Doctor in Physic, 1552, 12mo. which was afterwards revised, enlarged, and put into a more scientific form, by the author, and published in Latin, in 1556, under the title of *De Ephemera Britannica*. Joh. Wierus, *De Sudore Anglico*. C. V. Dubourghdieu, *De Peste*. Forretus, *Schol. Observ.* vi. 8. Sennertus, iv. 15. Thomas Cogan's Haven of Health. Lord Bacon's Relation of the Sweating-sickness examined, &c. by Henry Stubbe, Physician at Warwick, 4to. Lond. 1671. R. Fortis, *Ephemera Anglica Pestilens*.

Genus II. *Anetus*, [from *αἰνῆμι*, I intermit.] Intermittent ague, or fever. Generic characters—Paroxysm intermitting, and returning during the course of the disease: the intermission generally perfect and regular.

There cannot perhaps be stronger evidence against the notion that local inflammation is the invariable accompaniment of fever, than that derived from the occurrence of intermittents. In these diseases, a cold paroxysm followed by a hot one, each more severe than in continued fever, leaves the patient perfectly free for some time from pain, or indeed loss of strength or derangement of function. Nevertheless, according to Broussais, these fevers are, equally with those of the continued form, *gastro-enterites*. But any one not blinded by a favourite hypothesis, cannot fail to view intermittents rather in the light of irritative than inflammatory affections; that is to say, as diseases in which the nervous system is primarily affected, and the capillary system secondarily and as a consequence. But the reason why intermittents take place is the difficult point to be decided. Darwin endeavoured to refer these periodical changes to the influence of our diurnal habits, in regard to activity and sleep, exhaustion of sensorial power and invigoration, and to the diurnal periods of heat and cold, light and darkness, &c. upon all the actions of our frame. That these circumstances greatly influence the operations of the animal body, cannot be doubted: and, were all the periods of action and intermission *diurnal* only, we might admit the generalization as correct. But we cannot reconcile the very frequent *intermissions* of disease, which continue for *tertian* periods, that is, during an interval of forty-eight hours, and still more those which continue for *quartan* periods, of seventy-two hours, with this general law. See *Zoonomia*, vol. ii. sect. 36.

The French writers (among whom the names Begin and Mongellaz occur to us at present) have speculated of late as to the cause of intermittents. But, though these gentlemen have detailed some remarkable observations concerning the laws of intermittents, we do not find any rational attempt at investigating the reason of the intermission. Dr. Park, in his *Gulstonian Lecture*, stated very properly, that irritation was the cause of the

fevers in question; and he founded his explanation of the cause of intermission on this assumption; viz. that the effects of irritation vary according to the mode in which it is applied; "that which is internal to the organs exciting increased contraction; while that which is external diminishes or suspends it."

"Beginning with internal irritation, its immediate effect is to excite the organs to increased contraction, as the following examples may show. Thus, emetics excite increased contraction in the stomach; purgatives increase contraction in the intestines; sudorifics stimulate the exhalent vessels to contract," &c.

On the other hand, our author infers that the influence of external irritation is to suspend or diminish contraction, because, "in affections of the stomach or intestines, rubefacients or blisters, externally applied, are used for this purpose. In morbid irritability of the womb, frictions and fomentations have that effect. In the vascular system, the influence of external irritation is obvious and visible on the surface, in the relaxation and increased fulness of vessels produced by it, in whatever mode it is applied; whether mechanically, as by rubbing, scratching, or bruising; or physically, as by the application of sinapisms, increased fulness and distention of the vessels being invariably the effect that results. And in the same way relaxation and increased fulness of the vessels is produced by strong stimulants applied to the internal surface of the stomach, where they act externally to the vessels ramified on that surface; hence the general glow and sense of warmth that arise from taking wine or ardent spirits."

The application of the above-mentioned proposition to the phenomena of intermittent fever is as follows. The first cause, whether marsh-miasma or any thing else being admitted to the mucous membranes, acts as a stimulant (according to Dr. Park causing relaxation) externally to these vessels; and hence the unusual flow of spirits which often precedes a febrile attack. As soon, however as this agent is absorbed, and carried into the circulation, it excites increased contraction, (according to Dr. Park with diminished circulation;) and hence the cold fit. "The duration of this cold stage (says Dr. Park) is limited, because the powers of action are limited; and, the more violent the contraction, the sooner those powers will be exhausted. The duration of the hot stage is limited, because the relaxation of vessels which occasions it arises solely from their previous over-action, and not from any personal debility."

The *sweating-stage* is referred by our author, according to an hypothesis before mentioned, when speaking of continued fever, to the relaxation of the sphincter-like extremities of the capillaries, these vessels having recovered their natural dimensions after the expiration of the hot stage. The beneficial operation of the sweating-stage is dependant, in the first place, on a reduction of irritability attendant upon a copious depletion of the vessels; and, secondly, on the partial expulsion of the irritating cause: "the quantity of which must be diminished with every paroxysm; one portion being thrown off by transpiration, while another is returned back into the primæ viæ, where it no longer acts *internally* to the vessels, and therefore no longer excites them to contraction." The paroxysm, however, recurs after a certain period; "because the portion that remains will be again taken up by absorption, and be *internally* applied to the vessels; where its strength will gradually accumulate, until it acquires force enough to excite another paroxysm; and thus the fever assumes the intermittent form."

Now it is obvious, that, according to the rapidity of this accumulation of the agent of the fever, so will the disease be quotidian, tertian, quartan, &c. Dr. Park likewise attributes somewhat of the second and following attacks of ague to an *accumulation of excitability*, which he says predisposes the body to be more strongly acted on by slighter causes; for, if this accumulation did

not take place, the miasmatal irritant being thrown off gradually by perspiration and other secretions, the paroxysms would always become milder as the disease advanced. But this is not the case.

This hypothesis, though far from being correct, appears to us the best yet promulgated; and the hint derived from it seems to us to serve as the foundation for a theory more consonant with acknowledged facts. We mean, that the idea of accumulation of material agents may be explained without the assumption (an assumption which a thousand facts deny) that internal irritants excite, while external irritants diminish, contractility. We should rather suppose the following circumstances take place: that the miasma, or other cause of ague, operates exclusively on the mucous membrane, it may be, of the stomach or lungs, but we know not where: it may be conjectured, however, on the stomach; that the irritation it excites is directly transmitted to the brain and nervous system in general, through the medium of which, as in continued fever, the capillaries are so affected as to produce fever. Absorption of the miasma taking place, this irritation is no longer kept up on the nerves of the mucous expansion; and, in unison with the law often urged, a re-action takes place over the whole body, merely in consequence of the nervous diminution of motion. Without inferring an actual accumulation of the miasm, since that would be disturbed by the passage of food, &c. we should say, that a number of impressions from the now secreted miasms were necessary to develop the sympathetic action of fever; and of course, as the constitution was more or less irritable, so would the febrile movements take place in a larger or shorter period. There is no necessity to infer that the quantity of miasm gets less, because we know that secreting vessels often secrete the same irritant as that which caused their morbid action; as is exemplified in morbid pains. Let it be said, however, this is only established with regard to animal irritants, we should account for the unaltered degree of fever observed in succeeding paroxysms on the well-known law of habit; viz. that sympathetic movements are more easily called into action in proportion to the frequency of their previous occurrence. It will be seen that much of this theory belongs in fact to Dr. Park; to whom moreover this much is due, that its structure is entirely owing to the train of thought into which his reasoning has cast us. And we shall endeavour to connect these views with an explanation of tic douloureux and other periodical nervous affections, when we come to the class Neurotica.

The actions which give rise to the paroxysms of intermittents, though kept up solely by irritation, being nevertheless similar in their nature to those of continued fevers, it follows, as in other diseases, that, if the contractility of the blood-vessels is impaired, actual inflammation will arise; and hence that continued fever will come on, or that a state nearly bordering on this, but at the same time capable of increase from the periodical action of the exciting cause, will occur; in which case we witness what is called a remittent fever.

Each paroxysm of an intermittent fever is divided into three different stages, which are called the *cold*, the *hot*, and the *sweating*, *stages*, or *fits*.

1. The *cold* stage commences with languor, a sense of debility and sluggishness in motion, frequent yawning and stretching, and an aversion to food. The face and extremities become pale, the features shrink, the bulk of every external part is diminished, and the skin over the whole body appears constricted, as if cold had been applied to it. At length the patient feels very cold, and universal rigors come on, with pains in the head, back, loins, and joints, nausea and vomiting of bilious matter; the respiration is small, frequent, and anxious; the urine is almost colourless; sensibility is greatly impaired; the thoughts are somewhat confused; and the pulse is small, frequent,

and often irregular. In a few instances, drowsiness and stupor have prevailed in so high a degree as to resemble coma or apoplexy; but this is by no means usual.

2. These symptoms abating after a short time, the second stage commences with an increase of heat over the whole body, redness of the face, dryness of the skin, thirst, pain in the head, throbbing in the temples, anxiety and restlessness; the respiration is fuller and more free, but still frequent; the tongue is furred, and the pulse has become regular, hard, and full. If the attack has been very severe, then perhaps delirium will arise.

3. When these symptoms have continued for some time, a moisture breaks out on the forehead, and by degrees becomes a *sweat*; and this, at length, extends over the whole body. As this sweat continues to flow, the heat of the body abates, the thirst ceases, and most of the functions are restored to their ordinary state. This constitutes the third stage. It must, however, be observed, that in different cases these phenomena may prevail in different degrees, and their mode of succession vary; that the series of them may be more or less complete; and that the several stages, in the time they occupy, may be in different proportions to one another.

Such a depression of strength has been known to take place on the attack of an intermittent, as to cut off the patient at once; but an occurrence of this kind is very uncommon. Patients are seldom destroyed in intermittents from general inflammation, or from a fulness of the vessels either of the brain or of the thoracic viscera, as happens sometimes in a continued fever; but, when they continue for any length of time, they are apt to induce other complaints, such as dyspepsia, disease of the liver, dropsy, &c. which now and then prove fatal. In warm climates, particularly, intermittents are very apt to terminate in a fatal manner. When the paroxysms are of short duration, and leave the intervals quite free from fever, we may expect a speedy recovery; but, when they are long, violent, and attended with much anxiety and delirium, the event will be doubtful.

Dissections of those who have died of an intermittent, show a morbid state of many of the viscera of the thorax and abdomen; but the liver, and organs concerned in the formation of bile, as likewise the mesentery, are those which are usually most affected.

The treatment of an intermittent fever resolves itself into those means which may be employed during a paroxysm to arrest its progress, or to mitigate its violence; and those which may prevent any return, and effect a permanent cure. This forms of course the more important part of the plan; but it is sometimes necessary to palliate urgent symptoms; and it is always desirable to suspend a paroxysm, if possible, not only to prevent mischief, but also that there may be more time for the use of the most effectual remedies. When therefore a fit is commencing, or shortly expected, we may try to obviate it by some of those means which excite movements of an opposite description in the system: an emetic will generally answer the purpose, determining the blood powerfully to the surface of the body. Should the paroxysm have already come on, and the cold stage be very severe, the warm bath, and cordial diaphoretics in repeated moderate doses, may assist in bringing warmth to the surface: when, on the contrary, great heat prevails, the antiphlogistic plan is to be pursued; and it is highly necessary, if any organ of importance be much inflamed, to take blood, especially if the patient is plethoric and robust: acidulated drink may be exhibited, with purges, keeping the surface cool at the same time. In the intermittents, stimuli of various kinds are recommended; at the head of which we place cinchona and arsenic, the former of which is to be taken largely in substance, where the disease is not complicated with visceral affection; in a quotidian an ounce at least should be given between

between the fits, in a tertian half as much more, and in a quartan two ounces. It will be generally better to clear out the primæ viæ before this remedy is begun with; and various additions may often be required, to make it agree better with the stomach and bowels, particularly aromatics and other stimulants, aperients or small doses of opium, according to circumstances. In these doses, however, it generally oppresses the stomach; and it may reasonably be doubted whether the application of bark has not often produced the visceral diseases which have happened in this complaint. The French use a preparation of this drug called *quinine*. It has this advantage over the cinchona in powder, that it contains all the remedial portion of that substance, without disturbing the digestive process by its large quantity of tough woody fibre. The dose is two grains, to be given every two hours during the intermission. The sulphuric acid has been stated to have proved very successful in the removal of this disease. But the most efficacious preparation we know of is the liquor arsenicalis: it must be given in doses of 10 or 12 drops two or three times a-day, and its effects watched.

Our readers will bear in mind (see p. 55 of this article), that the *black pepper* (in doses of 6 to 10 grains twice a-day) has been successfully given by Drs. Frank and Ghighini. Since that paragraph was written, many respectable testimonials have appeared in favour of the use of this drug. It is remarkable that this is merely an old medicine revived, Dioscorides and Casimir Medicus having both used it in the treatment of intermittents.

This complaint often seems kept up by an habitual operation of action after the exciting cause has ceased to exist. It is in these cases that so much has been done by mental impressions. We might fill a page with an enumeration of the various inert remedies which have, through the medium of imagination, cured the ague. It will be sufficient to extract two sentences from the works of two of the first philosophers of this country. "I myself," says Mr. Boyle, "was cured of a violent quotidian by applying to my wrists a paste made of bay-salt, new hops, and blue currants; which has also relieved many others both of quotidians and tertians." (Philos. Works abr. tom. i. p. 80.) And Lord Bacon says, that "juices of stock-gilly flowers, rose-campion, garlic, and other things, applied to the wrists, and renewed, have cured long agues." His lordship likewise recommends, in the heats of agues, to hold eggs of alabaster and balls of crystal in the hands.

The genus *Anetus* is divided by Dr. Good into five species, and those species into many varieties, as will appear from the following enumeration.

1. *Anetus quotidianus*, the quotidian ague: intermission about twenty-four hours; paroxysm commencing in the morning; usual duration under eighteen hours. This species is subdivided into the following varieties.

α. *Partialis*: confined to a particular part or organ, usually accompanied with distressing pain. Sometimes limited to one side. Sometimes, and still more generally, confined to the whole or half the head, embracing many cases of cephalæa.

β. *Comitatus*: catenated with, or giving rise to, foreign symptoms or other diseases.

γ. *Protractus*: leaving the intermission inordinately short, or imperfect.

δ. *Anticipans*, the anticipating quotidian of Fordyce: the paroxysm anticipating its antecedent period usually by about two hours; and continuing the same anticipation at every recurrence; so that the accession may hereby be thrown into any hour of the day or night.

ε. *Cunctans*, the retarding quotidian: the paroxysm delaying its antecedent period, usually by about two hours; and continuing the same delay at every recurrence as above.

2. *Anetus tertianus*, the tertian ague: intermission

about forty-eight hours; paroxysm commencing at noon; usual duration under twelve hours. Divided into,

α. *Comitatus*: catenated with other diseases; and,

β. *Protractus*: leaving the intermission inordinately short or imperfect.

3. *Anetus quartanus*, the quartan ague: intermission about seventy-two hours; paroxysm commencing in the afternoon; usual duration under nine hours.

This, like the former, has α, *Comitatus*; and β, *Protractus*. Also,

γ. *Anticipans*, or anticipating quartan: the paroxysm anticipating its antecedent period.

δ. *Cunctans*, or retarding quartan: delaying its antecedent period.

4. *Anetus erraticus*, the irregular intermittent: intermission and paroxysm less regular; the former more than seventy-two hours.

This is divided into, α, *Quintanus*; β, *Sextanus*; γ, *Septanus*; δ, *Octanus*; ε, *Nonanus*; ζ, *Decimanus*; and lastly, η, *Vagus*, which is equally irregular in the violence of the paroxysm, the duration of its stages, and the period of its return.

5. *Anetus complicatus*, the complicated intermittent: paroxysms intricate, multiply, or both. Here we have no fewer than eight varieties.

α. *Tertianus duplex*, or double tertian.

β. *Tertianus triplex*, or triple tertian.

γ. *Tertianus impar*, unequal double tertian.

δ. *Tertianus duplicatus*, single tertian with two paroxysms on the regular day of attack.

ε. *Quartanus duplex*, or double quartan.

ζ. *Quartanus triplex*, or single quartan with regularly-returning paroxysms, each of the intervening days being marked with a slighter attack.

η. *Quartanus duplicatus*, or single quartan with two paroxysms on the regular day of attack.

θ. *Quartanus triplicatus*, or single quartan with three paroxysms on the regular day.

Genus III. *Epanetus*, [from *επανημι*, I remit.] Remittent fever. Generic characters.—Strikingly exacerbating, and remitting, but without intermission; one paroxysm every twenty-four hours.

It is quite unnecessary to describe minutely the symptoms of the remittent fever, after the ample detail which we have given of those of fever in general. We may just observe, however, that it varies extremely in its character, according to the season, climate, and other circumstances under which it appears. In its milder forms, the remittent begins with chilliness, lassitude, pains in the bones, head-ache, and a disordered condition of the stomach, loss of appetite, sickness, and even vomiting. At night the febrile symptoms run high; the heat and thirst are great, the tongue and mouth are parched, the pain of the head is violent, the patient is totally unable to sleep, and is continually tossing and tumbling about, and often becomes delirious. But generally in the morning, an imperfect sweat brings on a remission of all the symptoms. In the evening, the paroxysm returns, but is not preceded by any cold fit or shivering; yet it is commonly more severe than the former. Next morning it remits as before; and these periodical changes recur daily, becoming however less marked, if the disease be neglected, until the fever insensibly assumes a continued form. The pulse is full and quick during the remissions to indicate fever; but rigors seldom precede the fits after the first attack. Many patients discharge a bilious matter from their stomachs by vomiting, and all are disordered in that organ. The more violent form of this complaint, as exemplified in the yellow fever, has already been described. The milder form is to be treated according to the same indications as the severe; but, of course, by much less powerful measures. Here we have three species, with their varieties.

1. *Epanetus mitis*, the mild remittent: pulse regular, though

though frequent; debility slight; remission distinguished by sweating or a cloud in the urine.

z. Epanetus malignus, the malignant remittent; pulse small, hurried, irregular; debility extreme; often with signs of putrescency. Of this there are four varieties.

α. Autumnalis, the autumnal remittent: often with a strong tendency to assume the tertian or double tertian type.

β. Flavus, the American yellow fever.

γ. Ardens, the burning remittent, the *Causus* (*Καυσος*) of Hippocrates.

δ. Asthenicus, the highly-debilitating remittent of the south of Spain, Gombron, Breslaw, &c.

3. Epanetus hectica, hectic fever: pulse weak; stages of chilliness, heat, and sweat, variously intermixed, and sometimes single; the cold stage exhausting; exacerbation chiefly in the evening: urine with a natant furfuraceous separation; countenance slightly flushed or pale, funk, fallow, shrunk, and tremulous; debility, but not decided prostration of strength; tongue whitish; emaciation great, but not fudden; vertigo, or pain in the head; position often supine; anorexia, sometimes nausea and diarrhoea.

Some writers have detailed accounts of an idiopathic Febris hectica; but we believe it will generally be found that this is merely symptomatic of a grave attack of Dyspepsia, under which article it has already been mentioned. It is for the most part found as a symptom in tabes; and sometimes in phthisis, chlorosis, lues, and scirrhus diseases of various organs.

Genus IV. *Enecia*, [from *ενεκηος*, perpetual.] Continued fever. Generic characters—One series of increase and decrease; with a tendency to exacerbation and remission, for the most part appearing twice every twenty-four hours. There are three species, besides varieties.

1. *Enecia cauma*, inflammatory fever; the Synoche of Sauvages and Cullen. Heat greatly increased; pulse quick, hard, and strong; urine red; disturbance of the mind slight. Dr. Good has four varieties.

α. Plethoricum. "Produced (says Dr. Good) by the stimulus of violent passions, undue muscular exercise, or heating foods, upon a plethoric habit; as also by a suppression of accustomed discharges, as those of menstruation, habitual venesection, or perspiration."

β. Biliosum: produced by the stimulus of an undue secretion or absorption of bile into the sanguineous system.

γ. Pleuriticum: accompanied with a violent stitch or pain in the pleura.

δ. Cephalalgicum: accompanied with great pain in the head.

2. *Enecia typhus*: pulse small, weak, and unequal; usually frequent; great prostration of strength, and disturbance of the mental powers. Two varieties.

α. Mitior, the nervous fever: with slight shiverings; heavy vertiginous head-ach; oppression at the præcordia; nausea; sighing; despondency; coma or quiet delirium; urine whey-like.

β. Gravior, putrid fever: countenance shrunk; eyes vague, suffused, and with a film of mucus; tongue chapped, dry, and very fordid; complexion brownish or slight pink; lips tremulous, sometimes muttering; position supine, limbs extended; respiration frequent and tremulous; little increase of heat; bowels irregularly affected; relaxation of the sphincter rectum, &c. usual duration from six to forty days.

3. *Enecia synochus*: compounded of cauma and typhus: in its commencement resembling the former; in its progress the latter. Here are four varieties.

α. Sudatorius: carried off by a critical sweat in an early stage of the disease.

β. Flavus: with yellowness of the skin, attended with a sense of burning heat. Nearly allied to Epanetus flavus, and E. ardens, varieties of E. malignus.

γ. Puerperarum, child-bed fever. See the article PARTURITION, vol. xviii. p. 674.

δ. Soporofus: accompanied with great drowsiness, or stupor.

Order II. PLOGOTICA, [from *πλεγο*, I set fire to, or burn.] Inflammations.

Having already stated in what mode the primary phenomena of inflammation were induced, and that the varieties of appearance this action exhibits were the result of changes in the secretory system rather than in the red-blood vessels; we shall now proceed to consider the latter part of the position in question, i. e. what changes the system of the white vessels undergoes in order to produce the varieties of inflammation.

The principal varieties inflammation exhibits on its first occurrence, are those of phlegmon, erysipelas, and a mixture of both. In each, heat, pain, redness, and swelling, are apparent; but erysipelas differs from phlegmon in this, that, while in the latter the degree of pain, redness, &c. gradually decreasing, clearly indicates, that the morbid change in the properties of vessels is most intense in the middle of the injured part, and that the natural action is gradually restored towards its circumference; in the former, heat, redness, &c. present an abrupt discontinuance, one line having all the characters of inflammation, but the next being perfectly pure from disease. The pain also is not of the same kind, nor the swelling so great, in erysipelas as in phlegmon.

The remarks made while treating on inflammation in general, as to its mode of production and its general effects on the constitution, are most particularly applicable to phlegmon. It remains, therefore, that we should now speak more particularly of erysipelatous inflammation. From various circumstances it seems pretty clear, that erysipelas is inflammation of the skin; but how it happens that the vessels of the skin should differ so materially from other parts in the phenomena they exhibit under the same action, is one of the unsolved problems of our science; nor, as far as we know, has its solution been ever attempted. According to Cullen, indeed, erysipelas depends "on a matter generated within the body, and thrown out, in consequence of fever, upon the surface of the body." Mr. Pearson represents it as the "critical termination of another disease, such as obstructed menstruation, quartan ague, suppressed suppuration, spasmodic and convulsive diseases." But these are merely vague conjectures as to remote causes, and have nothing to do with the question, why does inflammation in the cutaneous structure exhibit irregularity of swelling, and burning pain, &c. and why does inflammation in other parts manifest the phenomena of phlegmon? If it be said, that this depends on the peculiar structure of the skin, we must show that those authors have been deceived who have spoken of phlegmon attacking the skin, and of erysipelas attacking deep-seated parts. It is a remarkable fact, that those authors who have endeavoured to explain the phenomena of inflammation have for the most part confined their attention to phlegmon. It does not accord with the purpose of the present essay to speculate on this difficult subject; but we shall just lay the facts before our readers, whence they may draw their own conclusions.

In the first place, if erysipelas be not solely confined to the skin, it is in this structure that it is most frequently met with, and most suddenly, extensively, and clearly, manifested. It is much influenced by and dependent on the state of the nervous system, and of the primæ viæ, attacking for the most part intemperate livers; and, when it attacks that part of the skin in which the nervous system is most acute, it is developed with astonishing force and celerity. It is liable to be connected with phlegmon, in which case we should suppose phlegmon to be the affection of deep-seated erysipelas of the superficial parts of the body. It is intimately connected with the state of

the fecernent vessels; and one peculiar connexion between erysipelas and those vessels is shown in what is called oedematous erysipelas. It is also connected with a vast majority of that diseased action of the fecernents which are called cutaneous diseases. It is unattended with the throbbing which is experienced in the arteries of phlegmonous limbs. The following characteristics may be also added. When erysipelas is of an unmixed kind, it has not the dark red colour which common inflammations have, but a lighter red, with a yellow tinge, which is particularly observable towards the termination of the disorder. The swelling which occurs is unattended with any remarkable induration, and forms a very inconsiderable prominence. The skin of the inflamed part has a shining appearance, and, on being touched with the finger, turns white at the spot where the pressure is made; but the bright red colour immediately afterwards returns. The pain is usually of a burning shooting description; and the patient frequently complains of a sort of itching, which is found to be particularly annoying. The swelling, which happens in cases of erysipelas, is not only less hard and elevated than that of phlegmonous inflammation, but it is, at the same time, quite irregular. Another remarkable feature of erysipelas, is the manner in which this inflammation often changes its situation, by getting well on one side, while it is spreading in some other direction. The alteration which the skin undergoes in erysipelas consists in its feeling at the part affected less pliable than in the natural state, and a little thickened.

It will be recollected that we have objected to all further division of inflammation than this, into phlegmonous and erysipelatous; but many divisions have been founded on the terminations of inflammation. These we consider as dependent on the action of secreting vessels; and the latter action dependent on the plethoric state of the blood-vessels in inflammation, and the altered condition of their own nerves. We proceed therefore to speak of the *terminations* of inflammation.

The first termination is that in which, the capillaries recovering their powers, and the nerves losing their increased sensibility, the phenomena of inflammation ceases to exist, and the natural functions of the parts affected continue. This is the most favourable event that can happen; but, according to Dr. Parry, the least frequent. This is true of phlegmon, but by no means of erysipelas. Even in phlegmon, resolution often takes place before the *swelling* of the injured part has come on.

Now as to the connexion between inflammation and its products, it is to be noted, that the latter are produced in two ways: first, by simple increase of alteration in the action of the fecernents, as in extravasation of fluids on the nervous and serous membranes; the second, by the absolute accession of new properties in some of the inflamed vessels, or, by the actual growth of new vessels, as in adhesion, suppuration, and ulceration.

It was a favourite opinion of the late John Hunter, and one which has been very generally adopted, that not only inflammation, but each of the above-mentioned terminations, were instituted for the determinate purpose of curing disease; that, if the powers of a part were not competent to produce one action, they set up another, which required less power, and which might attain the object in view, though more slowly and less efficiently. There is something hypothetical in all this; yet whoever attentively considers the reparative processes of the body, cannot fail to conclude, that the laws to which they are subjected are framed in such a manner that their operation tends under ordinary circumstances to the sanity of our frame. As, however, the immediate agents concerned in their laws can have no choice of action or adaptation of means to ends; as they cannot vary with uncommon circumstances; so we frequently witness from their operation baneful effects; and hence it becomes our province to control their operations under

many circumstances, though upon the whole we must view them among the most beautiful phenomena which the animal economy presents.

The first division of the products of inflammation embraces the history of those arising from the simple increase of, and alteration in, the action of fecernent vessels. It is obvious that these products of inflammation can only be manifested in particular structures. Various divisions of these structures have been made by Bichat; but it is pretty generally allowed, that the divisions of membranous parts made by this author are too minute. The production of the first terminations of inflammation requires the presence of an apparatus furnished with exhalants or secretory vessels from the arterial or capillary system of the respective parts. This apparatus consists, either of some simple surface, as the skin and various parts of the mucous membrane; of some natural cavity, the internal surface of which is lined with similar membrane, as the stomach, bowels, bladder, &c. or of some discontinuity of substance, forming a virtual, though often not a real, cavity; into which either exhalants open immediately, as in the cellular system; or which is lined with membrane, capable, by means of similar exhalants, of furnishing its appropriate fluid, as the ventricles of the brain, medulla oblongata, and nerves; the intervals between the coverings or sheaths of the same parts, the duplicatures of the pleura and peritonæum, the pericardium, the synovial receptacles, &c. Or, lastly, this apparatus consists of some excretory duct or ducts communicating with the part, if glandular, as in the mammæ, liver, kidneys, salivary glands, &c. in which cases the duct answers the double purpose of providing during health a salutary fluid, and of evacuating the part, when affected with excessive momentum of blood.

It is observable also, that the several organs so supplied have, usually, the combination of two of these circumstances of structure, so as to acquire a double power of evacuation, either immediately from themselves, or from neighbouring portions of the same arterial branches. Thus the lungs have pleura without, and mucous membrane within; the liver, peritonæum without, and portaliarii from within, &c. To these may be added the cellular, parenchymatous, and other, substances, forming a proportion of the mass of various parts, and affording a third emunctory for the superfluous contents of blood-vessels, by means of exhalants and secretory capillaries, every where opening into them, as through the membranes before described. This is the case in the medulla of the brain, and in various other organs; in which we often find exhaled fluids, as well as between the membranes and in the ventricles of the former, and on the several surfaces of the latter.

The nature of the fluids effused in inflammation, and their effects on the several parts, vary considerably, according to the nature of the texture from which they originate, and to the degree of the malady which gives them birth. From each of these structures similar products are derived. In all of them the first operation of inflammation is generally to increase the natural secretions. Hence mucus is more copiously secreted in the alimentary and pulmonary expansions of the mucous membrane, in the uterus, and in the vagina. Serum is copiously effused in the cellular tissue, on the serous membranes; and the secretion of tears is increased from the eyes, &c. As the inflammation advances, or as it is more intense, the products vary: the mucous membrane pours forth coagulating serum, fibrine, pus, or blood; and the serous membrane similar products. Neither chemical analysis nor the known properties of these substances allow us to infer any material difference in them, whether they arise from the serous or mucous membranes.

All those parts which are secreting surfaces, and at the same time have outlets, as the mucous membranes, are not commonly subject to that process called *adhesion*; for the

the natural secretions of the part act perpetually so as to throw off the firmer accumulations, and to evacuate them from the body: while, on the other hand, increased secretion on the serous surfaces, when it becomes indurated, agglutinates the corresponding parts together, becomes organized, and thus are adhesions contracted. It is by this process occurring in artificial cavities, as wounds, &c. that reparation takes place. The same process may be considered as the origin of that cream-like substance deposited in the cavities of joints, in capsular ligaments, in the sheaths of tendons, &c. which, by the absorption of the thinner parts, becomes what is called *chalk-stone*, a well-known effect of highly-inflammatory gout, and consisting of uric acid. The same is deposited in the cellular space between the inner and fibrous coats of the larger arteries, becoming true bone, or phosphate of lime, and producing such distressing effects, resulting, according to some late observations, from an inflammatory affection of the *vasa vasorum*; and when on the coronary arteries of the heart, according to Parry, the proximate cause of syncope angens.

Though these various products are for the most part the result of inflammation, yet it is by no means clear that they are not sometimes present without the occurrence of this action. Copious mucous excretions are often habitual to old persons in whom we cannot infer increased vascular action; and the various depositions of the scrofulous diathesis seem generally to be causes rather than consequences of inflammation. On the other hand, as increased secretion may exist without inflammation, so the latter may occur without the former; nor does the peculiar modification which gives rise to this circumstance seem clearly ascertained. It would seem indeed, that the violence of the inflammation had some influence over the suspension of secretion; but this does not uniformly happen, since the violent inflammation we have mentioned as incidental to fevers of hot climates are often accompanied from the first with copious though morbid secretion. In the generality of cases, however, in which secretion is stopped, we believe it will be found, that the capillary system is less superficially and more violently inflamed than when this action is increased.

It is also to be noted, that on some occasions increased secretion brings on inflammation, though by no means so frequently as inflammation induces secretion. In these cases we observe slight and unimportant excesses in the secreting powers, after having continued some time, suddenly exhibit the regular phenomena of inflammation.

When inflammation terminates by the processes of adhesion, suppuration, or ulceration, we infer, that either new secreting vessels are formed, or that the sanguineous capillaries acquire the secreting faculty. Of adhesion we have before spoken. It is generally allowed to be produced by the formation of new vessels. We infer that suppuration and ulceration are processes which depend on the capillaries acquiring new faculties, because there is in each a loss of substance which could only be thus accounted for. The capillaries having acquired the above-mentioned property, and lost that of transmitting blood to the affected structure, must diminish from the deficiency of sanguineous supply, absorption being supposed to continue. Moreover, pus, the fluid secreted, is, according to recent experiments, but slightly removed in its nature from the blood itself. Hence it would naturally be the production of vessels which possessed the secreting power in the least perfect manner. We infer it also from the supposed inadequacy of the common secretions of those parts in which suppuration is often established to pour forth such copious supplies of pus; and lastly we infer it, because how, otherwise than on the supposition that a change takes place in the terminations of the capillaries, could we explain the fact, that healthy ulcers do not bleed?

The last and most fatal termination of inflammation is *gangrene*. This also exhibits somewhat different appear-

ances, as it affects the bones or flesh, or as it is produced from the surface of an ulcer, in which latter case the gangrened portion is called a *slough*. Gangrene is termed the death of a part; and is generally supposed to be the actual abolition of all vital powers and motions, and that the part actually returns to inert matter. The fact that gangrened parts look different from dead parts is readily explained by the supposition, that the former have entirely lost their contractility and elasticity, while the latter, as is well known, do not lose the first property for some hours, nor the second for some days, after what is commonly called death. See *Gangrene* in this article.

The natural connexions of philosophy would lead us in this place to an examination and history of local injuries followed by inflammation and the constitutional or febrile disturbances arising therefrom. As however the arbitrary diseases of Medicine and Surgery have separated the practical application of these rules, we must defer these subjects till we arrive at the article SURGERY. To that article we shall also refer the reader for an account of external injuries, or such as belong to manual treatment.

It may not be amiss, however, to observe, that the febrile state which supervenes on local injury does not differ from common fever, except that, being kept up by a certain irritating cause, it can only be cured by the removal of such cause; and hence that all treatment must be directed to the cure of the local disease. And farther, as the local injuries are intense, or the constitution morbid, the fever will assume inflammatory or hectic character, or a mixture of both.

This Order contains eleven Genera: To explain Dr. Good's arrangement of Inflammation, we shall copy part of a note subjoined to this order. He therein remarks, that "The whole of the observations of Mr. John Hunter upon this subject are worthy of being deeply studied; and will not a little elucidate the nature of the arrangement introduced into the present method. It may be sufficient to observe, that in treating on inflammation, he divides the body into two parts: 1, the circumscribed cavities, organs, and cellular membrane which connects them; and 2, the outlets of the body, commonly called mucous membranes, as the ducts of the glands, alimentary canal, &c. He distributes inflammatory affections into three kinds, adhesive, suppurative, and ulcerative. Adhesive inflammation belongs chiefly to the former of the above two parts of the body, where they are deeply seated; and appears intended to take place in order to prevent suppuration. It applies therefore peculiarly to the genus *Empresma* in the present order, except in gastritis, enteritis, and cystitis; in all which, however, we frequently meet with striking examples of the adhesive inflammation, or true *Empresma*; inasmuch that the affected organ becomes at times so closely united with some adjoining membrane or other organ, as to obtain a kind of artificial wall, or paries, and prevent the escape of its contents into another cavity, when ulcerated through the whole thickness of its substance. Suppurative inflammation belongs chiefly to the same division of parts, placed near the surface; and consequently applies peculiarly to the two genera of *Phlegmone* and *Phyma*. The ulcerative belongs chiefly to the second order of parts, as the mucous membranes and outlets; and hence principally applies to the genus *Erythema*, as it must also be allowed to do to that of *Phlysis*. Deep-seated suppurative inflammations and abscesses cannot well be placed in either of these genera; and have a claim to be considered by themselves; they are hence included in the genus *Apostema*, with which the order opens.

Genus I. *Apostema*, [*αποσθημι*, to recede from.] Deep-seated abscess. Generic characters—Large suppurative inflammation in a deep-seated organ; pus copious and confined. This genus contains five species.

1. *Apostema commune*, or simple abscess: inflammation

tion common to the fleshy parts; pain obtuse; tumour spreading externally; tender to the touch; pus laudable; readily incarning when opened. See SURGERY.

2. *Apostema psoaticum*, psoas abscess: pain and tension about the loins, shooting down the spine and thigh; difficulty of standing erect; fluctuating enlargement along the psoas muscle; apex of the tumour immediately below the groin. See SURGERY.

3. *Apostema hepaticum*, abscess of the liver: diffuse pulsating tumour in the region of the liver; preceded by pain, a yellow countenance, and shiverings.

This is by no means a common complaint in this country; but it is met with in hot climates, where indeed the medical practitioners are said to be remarkably expert in performing an external operation for its relief. We should take especial care to prevent suppuration from happening in this important organ, by active treatment during the inflammatory period of the complaint. Suppuration is prognosticated if inflammation continues in the liver several days; if the pain remits, and is followed by a pulsation in the same place, and if shiverings come on, with a countenance of a yellowish colour; soon after which a tumour and a sense of weight are perceived in the region of the liver: a hectic fever follows, with thirst, and extreme feebleness. Aretæus observes, that pain generally extends to the throat, and to the extremity of the shoulder; and a dry, but not very frequent, cough afflicts the patient. He further remarks, that this disorder is sometimes mistaken for a tumour of the peritonæum; but that the latter is more irregular, and is not circumscribed by the limits of the hypochondrium.

The favourable termination of this complaint depends on the manner in which the abscess bursts. If externally, we may entertain some hope; if internally, at the cavity of the abdomen, it is for the most part fatal. See HEPATITIS.

4. *Apostema empyema*, lodgment of matter in the chest: fixed pain in the chest; breathing laborious, but easiest in an erect position; difficult decumbiture on the sound side; fluctuating enlargement on the side affected; dry tickling cough. It is often brought on by diseased action in the pleura without ulceration. There is reason for believing that matter is contained in the cavity of the chest, when, after a pleurisy, or inflammation in the thorax, the patient has a difficulty of breathing, particularly on lying on the side opposite the affected one; and when an oedematous swelling is externally perceptible. The malady is sometimes relieved by the operation of paracentesis thoracis, (see SURGERY;) and cases are related in which the matter is said to have been absorbed.

5. *Apostema vomica*: deranged function of a thoracic or abdominal organ, succeeded by copious discharge of pus into some part of the alimentary channel, and its evacuation by the mouth or anus.

The term is here used in the large sense in which it is employed by Celsus, who applies it to a bursting of pus from the liver, or any other large internal organ, as well as from the lungs. "Si vero jecur vomica laborat, eadem facienda sunt, quæ in cæteris interioribus suppurationibus." Lib. iv. cap. 8. Sauvages follows him in this interpretation. Boerhaave and Cullen confine vomica to the lungs, and that in a more restrained sense than most writers; for they limit it to what has been called, though with no great accuracy, *occulat vomica* (*vomica clausa*). Linnæus and Vogel, on the contrary, while they confine the term to the lungs, explain it by *open vomica* (*vomica aperta*), in which the pus is thrown forth profusely and suddenly.

Genus II. *Phlegmone*, [from φλεγω, to inflame.] Phlegmon; abscess or tumour near the surface. Generic characters—Suppurative subcutaneous tumour; tense; glabrous; painful; at length fluctuating, and bursting spontaneously; the pus uniform and mature.

The treatment of phlegmon is to be conducted, as far as local treatment is regarded, by topical applications, which are generally either cold or warm lotions. Heat is well known to promote and increase all animal actions, and must therefore tend to keep up and augment the process of inflammation. Hence arises the indication to diminish the heat of the part affected, by making use of cold topical applications, and maintaining a continual evaporation from the inflamed surface. The common plan is to dip linen in the saturnine lotion, and, after folding it once or twice, lay it all over the part affected, taking care afterwards to keep it constantly wet with the application. In most instances cold water will answer every purpose; in others the aqua ammoniæ acetatæ, or lotions of the sulphate of zinc, alum, &c. may be employed. Poultices made with linseed-meal and water, or with bread and water, are the ordinary applications of this kind; and so great is the importance which ought to be attached to the circumstance of making them soft and unirritating, that a surgeon of the first eminence has not disdained to make their composition the subject of part of a lecture before the College of Surgeons. With poultices, fomentations are also frequently proper, as having in all severe cases a great effect in lessening the pain. Likewise, when suppuration is unavoidable, they accelerate the cure by promoting the formation of matter, and hastening its approach to the surface of the body. The common method is to dip flannels in a decoction of chamomile-flowers, or white poppy heads, wring them, and apply them very warm to the inflamed part; but warm water answers the purpose as well. In discriminating the cases which require cold applications from others to which warm ones are most serviceable, the practitioner should always bear in mind, that, when suppuration is inevitable, it is invariably most advantageous to discontinue cold astringents without delay. In general where the chance of the phlegmon being resolved is great, cold applications are best; but for the most part the choice of the topical remedies must be regulated by the patient's feelings. There are some patients who seem to derive most ease from hot applications; there are others who appear to experience most comfort from cold ones. The latter remedies ought perhaps rather to have the preference, when the prospect of preventing suppuration is fair and rational, and when at the same time they afford as much ease as poultices. There are seven species.

1. *Phlegmon communis*: tumour common to the surface; bright-red; hard; defined; hemispherical; polarized; gradually softening and bursting at the pole.

2. *Phlegmone parulis*, gum-boil: tumour seated on the gums; deep red; hardish; undefined; pain obtuse. Divided into two varieties.

α. *Simplex*: limited to the substance of the gums. β. *Cariofa*: connected with a caries of a tooth or socket. When the former variety happens, the part may be freely opened with the lancet, and the gum fomented. When the latter variety comes on, the offending tooth must be drawn.

3. *Phlegmone auris*, imposthume in the head: tumour seated within the ear; pain acute, throbbing; heat and redness spreading externally; hearing distressingly keen, or stunned with imaginary sounds; abscess bursting with the sense of a loud snap or explosion. In this complaint we should syringe the inside of the ear with soap and water, and apply a blister behind it. A roasted onion, though an anile prescription, will also be found useful: it is applied in the helix of the ear as a poultice.

4. *Phlegmon parotideæ*, phlegmon of the parotids: tumour seated under the ear: reddish; hard; pain obtuse; suppuration slow and difficult. Two varieties.

α. *Benigna*: incarnation and cicatrization regular and obstructed.

β. *Maligna*: pus illaudable, profuse, protracted; succeeded by foul sloughs. Dr. Parr gives the following account of this second variety. The malignant parotid swells



1. *Sycosis barbae.* 2. *S. capilli.*

J. Fass sc.

swells like the milder kind, and is at first scarcely distinguishable from it, but by its attacking in advanced life, and in females about the periodical change. It is not painful, and advances slowly to suppuration. If the latter can be prevented by leeches, cooling applications, &c. the inconvenience, for many years, is not considerable; but, when it suppurates, the pus is seldom laudable, and the patient soon sinks from the discharge. In this case, bark, hemlock, and the whole tribe of poisons, have been tried in vain. The wound enlarges, the sloughs become deeper, till the constitution is completely undermined, and gradually sinks. The scirrhus parotidis may be extirpated, (though this is one of the most difficult operations in surgery;) but the malignant sink deeper, and will not admit of the operation, which is always dangerous from the numerous large vessels in the neighbourhood.

5. Phlegmone mammæ, abscess of the breast: tumour seated in the breast; pale-red; hardish; in irregular clusters; pain pricking and acute; suppuration quick and copious. Here also we have two varieties.

α. Violens: from severe pressure or blow.

β. Lactantium, milk-abscess: from redundancy of milk. Both varieties are characterised by tumefaction, tension, heat, redness, and pain; sometimes in both breasts, but most commonly in one. Pyrexia generally attends the disease. It is sometimes very quickly formed, and in general without any thing preceding to show it; but now and then a slight shivering is the forerunner. This disease terminates either in resolution or suppuration. If left to itself, it generally terminates in suppuration. But it is often of long continuance; it is very painful, but seldom fatal, unless when absolutely neglected. The termination of the disease by gangrene is seldom to be apprehended; at least few, if any, have seen the disease terminate in this way.

As to the first variety, during the inflammatory stage, cold lotions, purging, &c. may be had recourse to. In the suppurating stage, the same treatment is required as in the var. β, or milk-abscess. This latter may in general be prevented by an immediate application of the infant to the breasts after delivery, or at least before they are turgid with milk. When pus is actually formed, a soft warm poultice, composed of bread and water, or of a decoction of poppies and linseed meal, should be constantly kept upon the part, and renewed every three or four hours; at the same time carefully suspending the enlarged breast, with an handkerchief spread under it, and tied behind the neck. It is very rarely proper to make any artificial opening in these abscesses: they should be permitted to burst of themselves, and be poulticed as long as the hardness or inflammation continues. During this painful period, the child must be suckled by the healthy breast; for it rarely happens that the milk is pure during a state of inflammation, or that the mother can bear her child's attempt to draw the nipple.

During the suppurating process, the dietetic regulations laid down under Dyspepsia must be rigorously enforced. The local application must vary with the appearance of the ulcer when it heals; and the administration of remedies will also be regulated by the same criterion. See PARTURITION, vol. xviii. p. 712, 13.

6. Phlegmone bubo: tumour seated in a conglobate gland; reddish; hard; diffuse; not easily suppurating; opening with a callous edge. Divided into,

α. Simplex: unconnected with any constitutional or foreign poison.

β. Virulentus: produced by specific virus, or connected with constitutional affection. The glands mostly infected are those of the inguen and axilla. This last variety is found chiefly in lues and pestis. Often cured by vomits after suppuration has advanced.

The first variety will require the same treatment during its inflammatory stage as phlegmon in other parts, and the same during the suppurating stage as common

abscess. The second variety, being symptomatic of other diseases, will properly be treated under those heads.

7. Phlegmone phimotica, phimosis and paraphimosis: tumour seated in the prepuce; diffuse; obtusely painful; imprisoning the glans, or strangling it by retraction.

α. Incarcerans: the prepuce protracted, and imprisoning the glans. Numerous subjects are born with a contraction of the aperture of the prepuce; and the case is then called a *natural* or *congenital* phimosis. Sometimes, in adults, and particularly in old persons, the prepuce contracts so much, without any evident cause, that its cavity becomes filled with urine during the act of making water, and great pain is the consequence. In cases where the opening is exceedingly small, and the disorder is either congenital, or has occurred without obvious inflammation, it is by no means an uncommon circumstance for calculi to be formed under the prepuce. These sometimes resemble in shape the glans, on which, as it were, they are moulded. When the phimosis is congenital, and has existed a long while, it frequently happens that, in consequence of inflammation, adhesions have taken place between the glans and the prepuce; and, in this event, it may not always be in the power of the surgeon to effect a cure. The possibility of doing so must depend, in a great measure, upon the extent and firmness of the adhesions. According to Richerand, it is seldom practicable to destroy them after the patient has attained the age of puberty.

No operation ought to be practised on children for the natural phimosis, unless pressing inconvenience should immediately arise from the malformation. The constriction generally goes off, as such subjects approach the adult state. For the mode of performing the operation when necessary, see SURGERY. For the treatment of the disease, and also the other variety, β, strangulans, or paraphimosis; in which the prepuce is retracted and strangling the glans, see *Lues* of this article.

Genus III. *Phyma*, [Gr. a tubercle, from *φωω*, to break or gush out.] Boil, carbuncle, &c. Generic characters—Imperfectly-suppurative, cutaneous or subcutaneous tumour; the abscess thickened, and indurated at the edge; often with a core in the middle. There are four species, though Dr. Good has numbered them as if one were omitted.

1. *Phyma hordeolum*, the sty: tumour seated in the verge of the eye-lid; granular, hard, reddish, sore to the touch; suppuration confined to the point. This is generally produced by indigestion. Plenck affirms that he knew a man who uniformly had a sty after drinking ardent spirit. He points out the following resemblance between a sty and a boil: "Est tuberculum inflammatorium, *parvo furunculo simile*, in margine palpebrarum." See SURGERY.

2. *Phyma farunculus*, the boil: tumour common to the surface; deep-red; hard, circumscribed, acutely tender to the touch; suppurating with a central core. See SURGERY.

3. *Phyma sycofis*: tumour excrecent, fleshy, fig-shaped, darkish-red, sprouting from the hairy part of the head or face; gregarious; often coalescing; discharge partial and sanious.

Dr. Bateman has described the Sycofis to consist of "an eruption of inflamed but not very hard tubercles, occurring on the bearded portion of the face and on the scalp, in adults, and usually clustering together in irregular patches." Some difference takes place in the appearance and progress of the eruption, when it is seated in the chin and in the scalp. Hence it is divided into two varieties.

α. *Sycofis barbæ*, (S. menti, *Bateman*.) The tumour hard, roundish, pea-sized; seated in the beard; commonly in clusters; occasionally confluent, and spreading from ear to ear; discharge small and gelatinous, beard matted. See Plate I. fig. 1.

According to Dr. Bateman, in this complaint the tubercles arise first on the under-lip, or on the prominent part of the chin, in an irregularly-circular cluster; but this is speedily followed by other clusters, and by distinct tubercles, which appear in succession along the lower part of the cheeks up to the ears, and under the jaw towards the neck, as far as the beard grows. The tubercles are red and smooth, and of a conoidal form, and nearly equal to a pea in magnitude. Many of them continue in this condition for three or four weeks, or even longer, having attained their full size in seven or eight days; but others suppurate very slowly and partially, discharging a small quantity of thick matter, by which the hairs of the beard are matted together, so that shaving becomes impracticable from the tender and irregular surface of the skin. This condition of the face, rendered rugged by tubercles from both ears round to the point of the chin, together with the partial ulceration, and scabbing, and the matting together of the unshaven beard, occasions a considerable degree of deformity; and it is accompanied also with a very troublesome itching.

Though this complaint occurs, of course, chiefly in men, women are not altogether exempt from it. But in them it is commonly slight, since it is not exposed to the same irritation as when it occurs in the male sex. Its duration is very uncertain; being sometimes removed in a fortnight; sometimes the suppuration goes on for many weeks; and sometimes the suppurating tubercles heal, and again begin to discharge. Occasionally the disease disappears for a season, and then recurs.

6. *Sycosis capilli*, (*S. capillitii*, *Bateman*.) Tumour soft, unequal, clustring: seated in and about the hair of the head; discharge ichorous, copious, and fetid, from a fungus surface. See Plate I. fig. 2.

The *Sycosis capilli* is seated chiefly about the margin of the hairy scalp, in the occiput, or round the forehead, and temples, and near the external ear, which is also liable to be included in the eruption. The tubercles rise in clusters, which affect the circular form; they are softer, and more acuminate, than those on the chin; and they all pass into suppuration in the course of eight or ten days, becoming confluent, and producing an elevated, unequal, ulcerated surface, which often appears granulated, so as to afford some resemblance to the internal pulp of a fig. The ulceration, as Celsus states, is generally humid; for there is a considerable discharge of a thin ichorous fluid, which emits an unpleasant rancid odour.

Dr. Bateman informs us that "the *Sycosis*, under its first-mentioned form, may be distinguished from *Acne indurata*, by its seat being exclusively on the bearded part of the face; by the softer, more numerous, and clustered, tubercles; and by the ulceration which they tend to produce. And, under its second form, in which it is somewhat assimilated to the eruption of favous pustules, or *Porrigo favosa*, affecting the face and the borders of the capillitium, it may be discriminated by the tuberculated and elevated base of the suppurating tumours; not to mention the adult age of the patient, and the absence of contagion."

As to the treatment of *Sycosis*, when the tubercles are numerous, inflamed, and confluent, and especially when the suppuration is either beginning or considerably advanced, the most speedy benefit is derived from the application of poultices, at night, of linseed powder, bread and milk, or other simple ingredients. In the less severe forms, warm ablutions or fomentations may be substituted. When the inflammatory symptoms are reduced, and in cases where they are from the first moderate, the healing process is much promoted, and the discharge moderated and refrained, by the application of the unguentum hydrargyri nitrati, diluted with three or four parts of simple ointment, or by the ung. hydrarg. præcipitat. united with an equal portion of the zinc

ointment, or the cerate of acetate of lead. At the same time it is useful to prescribe antimonials, with alterative doses of mercury, followed by cinchona, or serpentaria, and the fixed alkalis; or such other measures as may be required to re-establish the functions of the chylopoietic viscera, which are almost always disordered in *Sycosis*.

4. *Phyma anthrax*, (*Erythema anthrax*, *Cullen*.) Carbuncle: tumour common to the surface; flat; firm; burning; penetrant; livid and vesicular; or crusty above, with a fordid and gangrenous core below; imperfectly suppurative. There are two varieties.

α. *Pruna*, the escar carbuncle: crust black; oozing an erosive ichor, or sanies.

β. *Terminthus*, the berry or fungus carbuncle. See the article SURGERY.

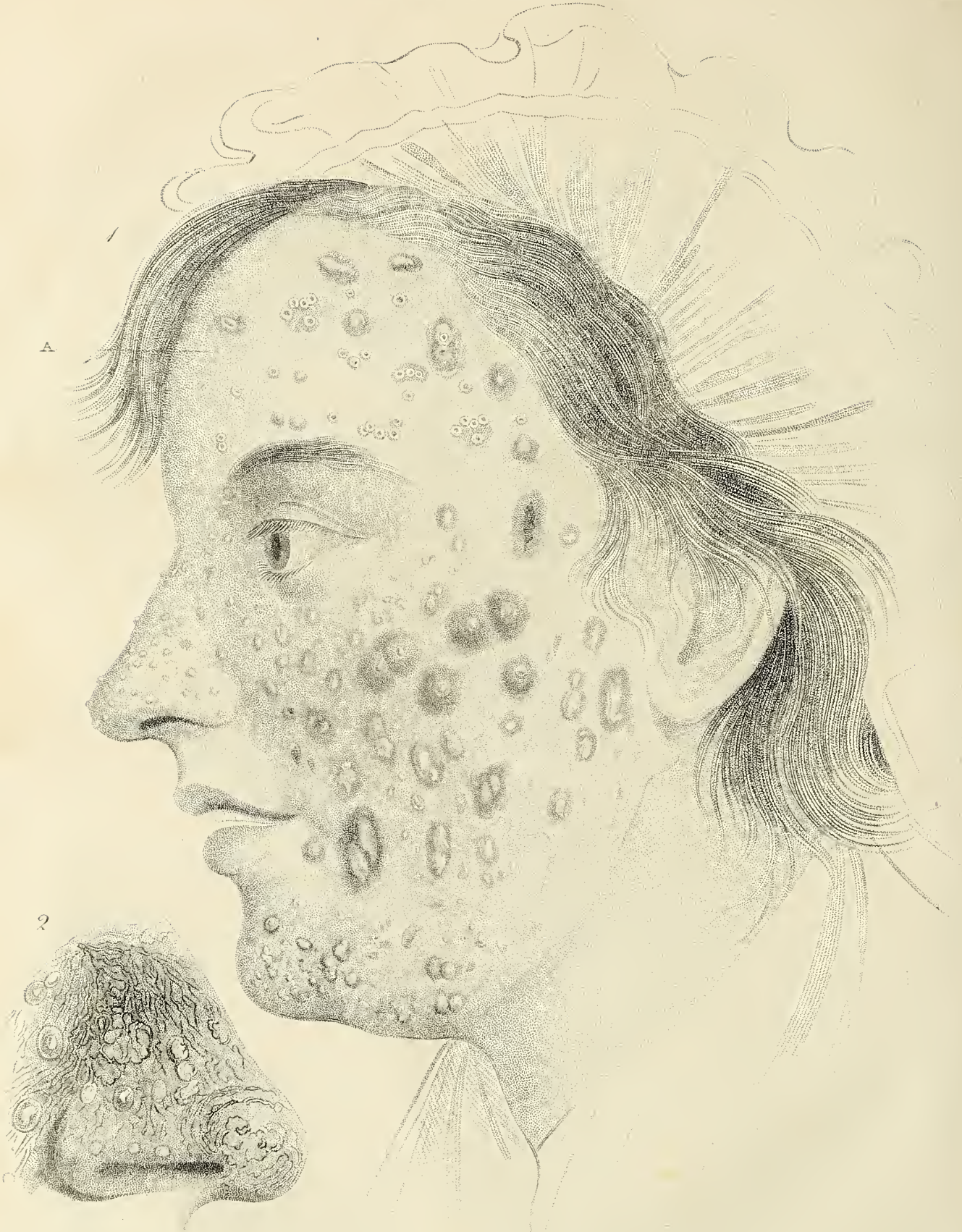
Genus IV. *Ionthus*, [Gr. a violet or purple eruption; from *ἰον*, purple; or from *ἰσθος*, filth.] Tubercles in the face. Generic characters—Unsuppurative tubercular tumour; stationary, and chiefly common to the face.

This genus (the *Acne* of Dr. Bateman) is characterised by an eruption of distinct, hard, inflamed, tubercles, which are sometimes permanent for a considerable length of time, and sometimes suppurate very slowly and partially. They usually appear on the face, especially on the forehead, temples, and chin, and sometimes also on the neck, shoulders, and upper part of the breast; but never descend to the lower parts of the trunk, or to the extremities. As the progress of each tubercle is slow, and they appear in succession, they are generally seen at the same time in the various stages of growth and decline; and, in the more violent cases, are intermixed likewise with the marks or vestiges of those which have subsided. There are two species.

1. *Ionthus varus*, the stone-pock: red, hard, pimply, distinct, gregarious; sore to the touch; sometimes oozing a little fluid at the tip. This species has two varieties.

α. *Simplex*, (*Acne indurata*, *Bateman*.) Broad-based; bright red, and solid. This variety is described as an eruption of small tubercles, which appear singly, and are not very numerous, nor accompanied by much inflammation, nor by any intermediate affection of the skin. When it has continued some time indeed, a little roughness of the face is produced, where the larger tubercles have disappeared, in consequence of a slight cracking or disposition to exfoliate in the new cuticle; but these marks are not permanent. Many of the tubercles do not proceed to suppuration; but gradually rise, become moderately inflamed, and again slowly subside in the course of eight or ten days, leaving a transient purplish-red mark behind. But others go on to a partial suppuration, the whole process of which occupies from a fortnight to three weeks. The tubercles are first felt in the skin, like a small hard seed, about the size of a pin's head, and enlarge for three or four days, when they begin to inflame: about the sixth or seventh day they attain their greatest magnitude, and are then prominent, red, smooth, and shining, and hard and painful to the touch. After two or three days more, a small speck of yellow matter appears on the apices of some of the tubercles; and, when these afterwards break, a thinner humour is secreted, which soon dries into a yellowish scab. The inflammation now gradually declines, the size and hardness of the tubercles diminish, and the small scab becomes loosened at the edges, and at length falls off about the third week. The individual tubercles, which rise and suppurate in succession, pass through a similar course.

This eruption recurs frequently, at short intervals, in some individuals, who have it partially; but in others, who are strongly predisposed to it, it is more extensive, and never wholly disappears, but is, at uncertain periods, more or less troublesome. It is generally worst after eating heartily, or drinking an unusual portion of wine, or after the occurrence of any other cause of indigestion; as well as after any inordinate excitement



1. *Scutinus varius.* 2. *S. corymbiferus.*

Engraved for the Encyclopædia Londinensis etc.

of the cutaneous circulation from violent exercise in hot weather or in heated rooms, especially when followed by a copious draught of cold liquor. This disease occasionally puts on a much feverish aspect. In the form to which the term *indurata* is more strictly applied by Bateman, hardness is a remarkable feature in the appearance of the tubercle, which is at the same time more permanent, and more apt to spread from the face to the neck and shoulders, than in the preceding form. The tubercles are occasionally acuminated, as if tending to immediate suppuration, being at the same time of a bright roseate hue: yet many of them continue in a hard and elevated state for a great length of time, without any disposition to suppurate. Others, however, pass on very slowly to suppuration, the matter not being completely formed in them for several weeks, and then only a small part of the tubercles are removed by that process. Sometimes two or three coalesce, forming a large irregular tubercle, which occasionally suppurates at the separate apices, and sometimes only at the largest. In whatever mode they proceed, their vivid hue gradually becomes more purple, or even livid; and their tenderness is then extreme. Slight crusts form upon the suppurating tubercles, which after some time fall off, leaving small scars surrounded by hard tumours of the same dark red colour; and these sometimes suppurate again at uncertain periods, and sometimes slowly subside and disappear, leaving a purple or livid discoloration, and occasionally a slight depression, which is long in wearing off.

The general treatment of this disorder will be conducted on the same principles as slight inflammatory complaints in all parts of the body, when these arise from internal irritation. The most frequent cause of this disease, as the sagacious Darwin remarked, is found in deranged action of the chylopoietic viscera. Dr. Bateman indeed does not seem to allow this; for he says that the patients of this complaint often enjoy good health, and that it is generally a local disease. But whoever considers the causes which, according to this author's account, aggravate varus, will have little hesitation in concluding that the same causes may often produce the complaint. According to the testimony of Dr. B. himself, the treatment of this complaint by repellent lotions often gives rise to vicarious disease in other parts; an occurrence which will never happen, we believe, if, previous to the use of those applications, we regulate by gentle purgative and abstinent diet the state of the stomach and bowels. The local applications to be used are weak stimuli of various kinds; as lotions of water with a small proportion of spirits of wine, or a few grains of oxymuriate of mercury, the strength of the latter being gradually increased (to a great degree when the tubercles are indurated) as the diseased part loses its inflammatory character.

6. *Punctatus*, the maggot-pimple: tipped with a black dot, discharging, on the pressure of the finger, a grub-like concretion of mucus. In other respects this is similar to the former variety. The indurated mucus may be extracted by the fingers, or by means of a small blunt curved forceps, and the little tumour treated as the first variety. In Plate II. fig. 1, we have given a representation of *Ionthus varus*; and at A are depicted a few of the black punctæ which give character to the second variety.

2. *Ionthus corymbifer*, (*Acne rosacea*, *Bateman*.) Rosy-drop, or whelk: confluent; corymbose; rosy mottled with purple; often disfiguring the nostrils with pendulous lobes; irritated by cordials or exposure to heat. See Plate II. fig. 2.

This complaint occurs from a greater intensity of the same cause that gives rise to the first species; being chiefly found in those that stimulate the mucous expansion of the stomach with spirits, and whose livers are deranged in consequence of the same habit. Its appearance differs in the following particulars from the preceding species.

In addition to an eruption of small suppurating tubercles, there is also a shining redness, and an irregular granulated appearance of the skin of that part of the face which is affected. The redness commonly appears first at the end of the nose, and afterwards spreads from both sides of the nose to the cheeks, the whole of which, however, it very seldom covers. In the commencement it is not uniformly vivid; but is paler in the morning, and readily increased to an intense red after dinner, or at any time if a glass of wine or spirits be taken, or the patient be heated by exercise, or by sitting near a fire. After some continuance in this state, the texture of the cuticle becomes gradually thickened, and its surface uneven or granulated, and variegated by reticulations of enlarged cutaneous veins, with smaller red lines stretching across the cheeks, and sometimes by the intermixture of small suppurating *vari*, or pimples, which successively arise on different parts of the face.

This species of *Ionthus* seldom occurs in early life, except where there is an hereditary predisposition to it; in general it does not appear before the age of forty; but it may be produced in any person by the constant immoderate use of wine and spirituous liquors. The greater part of the face, even the forehead and chin, are often affected in these cases; but the nose especially becomes tumid, and of a fiery red colour; and, in advanced life, it sometimes enlarges to an enormous size, the nostrils being distended and patulous, or the *alæ* fissured, as it were, and divided into several separate lobes. At that period of life too, the colour of the pimples becomes darker and more livid; and, if suppuration take place in any of them, they ulcerate unfavourably, and do not readily assume a healing disposition. In young persons, however, who are hereditarily predisposed to this complaint, irregular red patches not unfrequently appear in the face, which are often smooth and free from tubercles, and sometimes throw off slight exfoliations at intervals. These patches may be gradually extended, if great temperance both in food and drink be not observed, until the whole face assume a preternatural redness.

As this eruption is chiefly sympathetic of some derangement of the chylopoietic viscera, or of a peculiar irritability of the stomach, little advantage can be expected from local applications; and, in fact, the stimulants, which are beneficial under proper regulations, in the other forms of *Ionthus*, are generally prejudicial in this, and aggravate the complaint. We shall not enter into any particular directions for the treatment of this complaint. Since this is so obvious, the first object to be attained is to induce the patient to abstain from drinking, seldom an easy task; and, this being accomplished, an abstemious diet and mercurial alteratives will be the principal remedies to be depended on. Dr. Bateman says the symptoms may be sometimes palliated by the liquor potassæ, or other antacids, which seem also to have some influence in lessening inflammatory action in the skin. If the inflammation subsides, the gentlest restraints should be used externally to the patches of reticulated veins; such as very dilute spirituous or acetous lotions, with or without a small proportion of the acetate of lead, or simple ointments combined with alum, acetate of lead, &c. in small quantities.

Genus V. *Phlysis*, [from *φλυω*, to boil up, to bubble.] Whitlow. Generic characters—Ulcerative subcutaneous tumour; flat, tense, glabrous, diffused, hot, throbbing; at length fluctuating with an acrid ichor. There is but one species.

Phlysis paronychia: seated about the nails and ends of the fingers: pain acute and pricking; shooting up the hand. Three varieties.

α. *Cutanea*: the acrid effusion seated between the skin and parts immediately subjacent.

β. *Tendinis*: effusion seated between the tendons and the periosteum.

γ. *Periostitii*,

γ. Periostii, the malignant whitlow, or felon: effusion feated between the periosteum and the bone, which is often rendered carious.

Similar inflammations are occasionally to be found in the soles of the feet and palms of the hands; they break through the cuticle with difficulty from its thickness, and hence become diffused, and separate the cuticle from the skin beneath. The bite or poison of the Gordius aquaticus, or hair-worm, is said to have a peculiar tendency to produce this affection.

Genus VI. *Erythema*, [Gr. from *ερυθρος*, redness.] Inflammatory flush, improperly called Erysipelas. Generic characters—Red, glabrous, tumid, fulness of the integuments; disappearing on pressure; pain burning; inflammation ulcerative; terminating in cuticular scales or vesicles, occasionally in gangrene. There are six species.

1. *Erythema œdematosum*, œdematous inflammation: colour scarlet; spreading widely and deeply through the cellular membrane, which often imperfectly suppurates, sloughs, and becomes gangrenous.

2. *Erythema erysipelatosum*, erysipelatous inflammation: colour deepish-red; superficial; with a determined edge; migrating in a serpentine direction; the part which has passed through the action healing, as the part next attacked becomes affected.

3. *Erythema gangrænosum*, gangrenous inflammation: colour dusky-red; superficial; cuticle separated from the cutis by a bloody serum; the cutis, when denuded, exhibiting dark-brown spots, disposed to blister and slough; occurring chiefly in the extremities.

These three species are usually to be found in debilitated or relaxed constitutions: the former two often appear as sequels of atonic fevers; the third is common to old age, and early infancy. For the treatment, see the article SURGERY.

4. *Erythema vesiculare*, fiery inflammation: colour pale-red; surface roughish, and covered with crowding minute vesicles, filled with an acrid, often a reddish, fluid; progressively trailing into the neighbouring sound parts.

This is intended, as Dr. Good informs us, to delineate the *ignis facer* of the ancients, which has been seldom understood, and never hitherto allotted a clear methodic position. The common error has been in making it an exanthem, or eruptive fever, an Erysipelas or a Pestis, or a distinct disease approaching to the one or the other. There is no doubt that it has at times been an accompanying symptom in Pestis, and has consequently produced a variety in this fever which the reader will find noticed under the head Pestis by the distinguishing term *erythematica*, of which nature was the plague of Athens, so excellently described by Thucydides and Lucretius. But the *ignis facer*, in its genuine and simple state, instead of being a typhous eruptive fever, has often very little fever of any kind, never perhaps more than symptomatic fever; and by Celsus is described as being best cured by an ephemeral or other fever that may give increased action to the system. The varieties are,

α. Benignum: the redness and vesicles advancing without a breach of the cuticle, as the part that has passed through the action is healing.

β. Corrosivum: the vesicles breaking in the part first affected, and the erosive fluid producing tracks of sanious ulceration as the redness advances.

These subdivisions of *ignis facer* are taken from Celsus, and given, as nearly as may be, in his own words, to prevent all doubt. He describes it as a genus comprising two species, of which the former has two varieties. "Duzæ species sunt. Alterum est *subrubicundum*, aut *mistum rubore atque pallore*, *exasperatumque per pustulas* (*Φλυκταινας*) *continuas*, quarum nulla altera major est, sed plurimæ *perexigua*. In his semper fere *pus*, et sæpe *rubor cum calore* est." Then follow the two varieties as

described above: "α, *Serpitque id nonnunquam sanescente eo*, quod primum vitiatum est; β, *nonnunquam etiam exulcerato*, ubi *ruptis pustulis* (*Φλυκταινας*) *ulcus continuatur*, *humorque exit*." He then passes on to describe the second species, which answers to the character and almost to the words of our third species, *Erythema gangrænosum*. "Alterum, autem, in *summa cutis exulceratione*, sed *sine altitudine*, latum, *sublividum*, inæqualiter tamen; mediumque sanescit, extremis procedentibus; ac sæpe id, quod jam sanum videbatur, iterum exulceratur: at circa, proxima cutis, quæ vitium receptura est, tumidior et durior est, coloremque habet ex rubro subnigrum. Atque hoc quoque malo—in *cruribus maxime*." Lib. V. cap. xxviii. sect. 4.

Dr. Good has ventured to translate the *pustula* of Celsus in the present instance *Φλυκταινας*, vesicles; first, because he thus explains the term in sect. 15 of the same chapter; and secondly, because in the *ignis facer*, which, as we learn both from Thucydides and Lucretius, was a symptom in the plague of Athens, the former has given us this precise term. The following couplet is sufficient from Lucretius. De Rer. Nat. vi. 1164.

*Et simul, ulceribus quasi inuflis, omne rubere—
Corpus, ut est, per membra facer quum diditur ignis.*

Wide ting'd with purple dye, and brandish'd o'er
With trails of caustic ulcers, like the blaze
Strew'd by the holy fire.

In Thucydides the same symptoms are described; and in Seneca, who has closely copied from Lucretius, the phrase *facris ignis* is still preserved. See *Œdip.* 187.

The Eczema rubrum of Dr. Bateman seems to belong to this species, and may form a third variety. It is commonly denominated *Erythema mercuriale* or *hydrargyria*. This disease is preceded by a sense of stiffness, burning heat, and itching, on the part where it commences, which is most frequently the upper and inner surface of the thighs, and about the scrotum in men; but sometimes it appears first in the groins, axillæ, or in the bend of the arms, or about the wrists and hands, or in the neck. These sensations are soon followed by an appearance of redness, and the surface is somewhat rough to the touch. This, however, is not a simple efflorescence; for, on examining it minutely between the light and the eye, or with a convex glass, the roughness is found to be occasioned by innumerable minute and pellucid vesicles, which have been mistaken for *papula*. In two or three days, these vesicles, if they are not ruptured, attain the size of a pin's head; and, the included serum then becoming somewhat opaque and milky, the character of the eruption is obvious. It soon extends itself over the body and limbs in successive large patches; and is accompanied by a considerable swelling of the integuments, such as is seen in smallpox and other eruptive fevers, and by great tenderness of the skin, and much itching. When the vesicles begin to lose their transparency, they generally burst, and discharge, from numerous points, a thin acrid fluid, which seems to irritate the surface over which it passes, and leaves it in a painful, inflamed, and excoriated, condition. The quantity of this ichorous discharge is very considerable; and it gradually becomes thicker and more adhesive, stiffening the linen which absorbs it, and which thus becomes a new source of irritation; it emits also a very fetid odour. This process takes place in the successive patches of the eruption, until the whole surface of the body, from head to foot, is sometimes in a state of painful excoriation, with deep fissures in the bends of the joints, and in the folds of the skin of the trunk; and with partial scaly incrustations, of a yellowish hue, produced by the drying of the humour, by which also the irritation is augmented. The extreme pain arising from the pressure of the weight of the body upon an extensive portion of such a raw surface, is sufficient to give rise to an acceleration of the pulse, and white tongue; but

but the functions of the stomach and of the sensorium commune are not evidently disturbed by this disease. The duration of this excoriation and discharge is uncertain and irregular: when only a small part of the body is affected, it may terminate in ten days; but, when the disorder has been universal, the patient seldom completely recovers in less than six weeks, and is often afflicted to the end of eight or ten weeks. By so severe an inflammation the whole epidermis is destroyed in its organization; and, when the discharge ceases, it lies loose, assuming a pale brown colour, which changes almost to black before it falls off in large flakes. As in other superficial inflammations, however, the new red cuticle that is left is liable to desquamate again, even to the third or fourth time, but in smaller branny scales, of a white colour; and a roughness sometimes remains for a considerable period, like a slight degree of Psoriasis. In some instances, not only the cuticle, but the hair and nails, are also observed to fall off; and the latter, when renewed, are incurvated, thickened, and furrowed.

In some cases this disease is limited to a small space; and then the discharge is slight, and its whole duration short. Similar local attacks of it occur in irritable constitutions, especially in hot weather, affecting the hands and wrists, the neck and external ear, and other parts, but without any constitutional disorder. Successive crops of the vesicles arise in irregular patches, with a red blush around them, which produce partial incrustations, as the ichor that issues is dried: and by these vesications and desiccations of the matter the affection is kept up for some weeks.

The treatment of this species of Erythema may be comprised in few words; for it is principally palliative. But, although medicine may not possess the power of shortening the period of its duration; yet the omission of the palliative measures will allow an extreme aggravation of the sufferings of the patient to take place, and probably prolong it beyond its natural course, as well as contribute to wear out the vigour of his constitution. The misery and exhaustion, resulting from the excessively tender and irritated state of the skin, may be greatly alleviated by frequent abluion or fomentation with warm gruel, or strained bran and water; or by the frequent use of the warm bath, which has the advantage of cleansing the surface without occasioning any abrasion by friction. A constant application of poultices has produced considerable ease to the patient, when the affection was confined to the extremities. Where the cuticle has exfoliated, Mr. Pearson recommends the application of a mild cerate, consisting of litharge plaster, wax, and oil, spread thickly on linen rollers, and renewed twice a-day. With the same view of diminishing the irritation of the surface, the bed and body linen of the patient, which becomes hard and stiff as the discharge dries upon it, should be frequently changed. Every additional irritation from stimulating food and drink should be avoided; the bowels should be kept open by the administration of occasional laxatives; and opiates may be given for the purpose of soothing the sensations of the patient. The sulphuric acid is grateful and refreshing; and, in the decline of the swelling and discharge, it may be combined advantageously with the exhibition of sarsaparilla.

5. Erythema pernio, chilblain: colour crimson suffused with blue; obstinately itching; chiefly affecting the extremities during winter. Two varieties.

a. Simplex: the cuticle remaining unbroken.

6. Exulceratus; accompanied with ulceration.

Intense cold produces the same effect, in exciting inflammation, as intense heat. Hence chilblains are best treated on the same principles as burns or scalds. In the first variety, cold spirituous applications are to be used; and the patient should avoid the extremes and alternations of heat and cold; consequently should not put his feet near the fire on coming out of the cold. The second variety is to be treated by poultices. Terrible examples

of this chilblain occurred among the French soldiers on their retreat from Moscow. On this occasion Baron Larrey, in his circular to the French surgeons, speaking of the effects of intense cold, observes, that, in general, frost-bitten sores (plaies de congelation) present the same phenomena as burns. In both cases a gangrenous eschar, more or less extensive, is formed, the separation of which must be promoted by topical applications which excite the surrounding sound parts. The most simple and effectual dressing was unguentum de styrace, spread on linen or lint. Alcoholic embrocations and decoctions of cinchona counteracted the process employed by nature in the cure. The eschars separated, the wounds are to be considered as simple, and treated accordingly. When chilblains sphacelate, they are to be treated as gangrene in general.

6. Erythema intertrigo, erosion of the skin: colour bright red; cuticle eroded; the exposed cutis oozing a limpid and acrimonious fluid. This arises from peculiar acrimony in the matter of perspiration, or acrid substances intermixing with its natural secretion; it occurs mostly in children, in the folds or duplications of the skin, as the groins, armpits, and behind the ears. Tepid abluion, and certain absorbent powders well known to mothers and nurses, e.g. fuller's earth, comprehend all that is required for the cure of this erosion. The bowels should be opened if costiveness is present.

Genus VII. *Empresima*, [from $\epsilon\mu\pi\rho\sigma\iota\omega$, I flame or burn within.] Internal Inflammations. Generic characters—Deranged function of a visceral organ, membranaceous or parenchymatous, with local pain; fever mostly a cauma; inflammation mostly adhesive.

Hitherto we have spoken only of those inflammations which, obvious to the sight and touch, cannot be mistaken for complaints of a different kind. But the genus upon which we are now entering presents a vast number of the most serious diseases which we are afflicted with; and which are difficult to recognise, not only from their hidden situation, not only from the similarity which the symptoms of each species hold to those of another, and from the occasional resemblance which they all bear to irritative or sympathetic disorders. It is in every case a matter of great moment to distinguish whether a disease be inflammatory or otherwise; since, this grand distinction once established, we know whether it is absolutely necessary to act decisively and at once, or whether we may be allowed to wait and watch the full development of the disease. We may rest more fully contented when we have made this distinction, because the first treatment of all internal inflammation is nearly similar. So strongly was this truth impressed on the mind of the accurate Celsus, that, before he discriminates any diseases by name, he marks certain symptoms or signs which require or authorize blood-letting, purging, and similar active measures. In urging the importance of this general distinction, we are by no means unconscious how necessary it often is to distinguish at an early period the precise situation of Phlogosis; and in many instances it is practicable to do so. But that it is not so in all is one of the most firmly established facts in medical science. Cases have occurred even in the brain, an organ above all others disposed to take on inflammation from irritation, which so closely imitated Phrenitis, that the most accurate practitioners have been deceived by it; yet, on dissection, no inflammatory action has been discovered. This circumstance is the more lamentable, because irritation and inflammatory disease require to be differently treated. It may be borne in mind, however, that the wrong treatment of irritation is seldom so fatal as the wrong treatment of inflammation.

The marks which distinguish inflammation from violent spasm are too obvious to be mistaken by the most superficial observer. In the present instance, therefore, we shall confine our diagnosis to those insidious approaches

of inflammation which simulate the actions in which suspension of the functions of a part takes place with some uneasy sensations; but without actual disease. The more obvious marks of inflammation are derived from its *approach*, which is generally slow, except indeed in violent cases; but in these no danger or mistake can arise; the other phenomena of inflammation being most strongly marked: by its *progression*, which is generally constant and unremitting, except indeed that the disease is greater towards evening: by the increased *sensibility* in the affected part, pressure being invariably found to aggravate inflammation, and common stimuli, which in health were unfelt, producing the same effect: by the derangement of the *functions* of the inflamed organ, particularly of its secreting function: by its effect on the *nervous system* of the brain, which is to induce in the first stage exaltation, in the second diminution or irregularity in the manifestations of the intellect by its effects on the nervous system, as shown in the *voice*, the patient expressing his distress by low or gentle moanings (except the brain be much affected), and not by those hasty, clamorous, and impatient, expressions, so common in those who suffer from diseases of irritation: by the sympathetic action it excites in the capillary system, inducing an increase of the general *temperature*: by its action on the heart and arteries, which is characterized by an increase in the fullness and frequency of the pulse, but more especially by its hardness, a condition which must be particularly attended to; (see our directions for ascertaining these particulars at p. 93, 4.) for, in all insidious inflammations, though the pulse be not fuller nor more frequent than common, it will invariably be found *harder*. Each of these marks of disturbance, taken separately, would fail in guiding us with accuracy in recognising inflammation: it is by the conjunction of several or all of them that we must be directed.

To prevent the frequent repetition of the same direction, we shall now give a general account of the therapeutical indications belonging to Empresma. Of the mode of action by which bleeding reduces inflammation, we have already spoken at p. 209, 10. and here we must repeat our conviction that much error arises from measuring the degree to which it is proper to carry this evacuation by the mere number of ounces. If we have clearly ascertained that the disease is inflammatory, and that the symptoms before us are kept up by inflammation, we must bleed till relief is obtained: we must be guided solely by the *effects* of our practice.

Next to the agency of bleeding in reducing inflammation are to be mentioned that class of medicines which (somewhat differently from the common acceptance of the term) we have named SEDATIVES. Of these the most established is the *Digitalis*. Many drugs are known however which possess the faculty of diminishing the contractility of the arteries in an eminent degree; but these, from their uncertainty or accidental ill effects, we forbear to notice, not doubting, however, that a few years will see the remedies in question in full use in the medicinal world; among which the Prussic acid will, under some form or preparation, probably hold a distinguished rank. It will be in vain attempted to exercise the operation of sedatives in intense Phlogoses, unless evacuations have been premised. Thus we see the Italians, as before reverted to, giving medicines of this class in the most excessive doses, without lowering the pulse, because they had neglected to bleed their patients freely before their exhibition; hence in acute diseases we should always use bleeding first. In the class of sedatives we should not forget nauseating medicines, though these act through the medium of the nerves. Antimony is the most common drug adapted to this purpose: it should be so managed as to procure nausea without vomiting, especially in cephalitis.

Stimulation is resorted to in inflammation two ways. In the first, which is constituted for the purposes of pro-

moting the secretions of the diseased part, we exhibit medicines which possess an exclusive action on it; as purgatives in bowel-complaints, expectorants in bronchitis, &c. The use however of these remedies is seldom admissible in the early stage of inflammation; and they are upon the whole very limited in their application. The next and more important mode of stimulation is instituted on the assumption that a loss of balance exists between inflamed parts and the rest of the system; and consists therefore in irritating sound structures for the purpose of relieving the diseased ones. Many of the medicines having this effect operate also by inducing secretion, and thereby relieving plethora. In this double manner do purgatives act.

We also may make use of our knowledge of *sympathy* to relieve inflammation. We throw cold water on the head in Cephalitis, because, on account of the sympathy between the external and internal parts of the head, by constricting the vessels of the skin we also constrict the vessels of the brain, the dilatation of which is the chief condition of the inflammation. The great difficulty consists in properly timing and discriminating the necessity for each of these measures. For one practitioner throws cold water on the head, and his patient recovers of Cephalitis: another blisters the scalp on one suffering under the same malady, and a like happy result ensues: yet these remedies are directly opposite, and the time or the attendant phenomena will explain why different treatment was necessary in diseases nominally the same. The genus Empresma contains seventeen species.

1. Empresma cephalitis, phrensy, or brain-fever: acute pain in the head; intolerance of light and sound; face flushed; eyes red; cauma; watchfulness and delirium.

For a long period medical practitioners have been struck with the remarkable anomalies which exist in the symptoms of cranial inflammation. It has been attempted to account for the principal appearances that inflammation exhibits by the supposition that symptoms would vary as the brain itself or its investing membranes were attacked. Many practical authors, on the other hand, have denied that the distinction in question can be made. Among these it may be sufficient to mention Cullen and Frank, and more recently the illustrious Portal; and indeed it must be confessed, that, till the present time, the distinctions were by no means clear, and even now it is well ascertained that in all severe membranous inflammation the invested parts will suffer the like disease. This is particularly remarkable in inflammation of the investments of the brain, in which few cases are seen without derangement of the intellect, an occurrence which can only be explained on the supposition that the brain is inflamed. The French say that it is only in inflammation of the brain that the faculties are deranged; but that, in inflammation of the membranes, they are merely *exalted*; yet will they say that the mere membrane can have any thing to do with the elevation of thought, except as the blood flows faster through the brain? and will they say that the excitement which follows drinking is membranous not cerebral excitement? certainly not.

In our introduction we have mentioned the important addition Drs. Martinet and Parent-Duchatelet had made to the progress of pathological science by their excellent descriptions of inflammation of the arachnoid membrane. (see p. 47.) This complaint is commonly called *arachnitis*, but more properly *arachnoiditis*, which term we shall use. It may not be amiss to observe, that the arachnoid is a delicate transparent membrane, closely in contact with the pia mater, and reflected over the internal surface of the dura mater. It forms a lining for all the ventricles of the cerebrum and cerebellum. It is constantly lubricated by a fine rosy exhalation; and is decidedly a serous membrane, performing the same functions in the head as the membranes investing the heart, lungs, and abdominal viscera, perform in their respective situations. Like them, it is insensible to touch or torture

torment when in a healthy state; and, like them, when inflamed, it acquires a high degree of morbid sensibility. To this we attribute the head-ache, more or less violent, which invariably attends on arachnoiditis. This membrane is inflamed by the same causes which inflame other serous membranes; and, like them, frequently throws out aqueous collections, or forms adhesions where the surfaces were before free; or, like those substances, it forces out a whitish or sero-albuminous fluid, sometimes forming layers of false membrane.

The primary and most frequent causes of the disease, are percussions of the head, exposure to the sun, organic lesions of the brain itself, apoplectic disposition, and depressing passions. Among the secondary causes, in point of frequency or importance, are metastases of different kinds, suppression of habitual discharges, the use of strong drinks, and the common causes of other internal phlegmasiæ, as of pleuritis, gastritis, &c.

The first stage of arachnoiditis is marked by an increase of the sensibility, and by head-ache, one of the most constant characters of the disease. A tendency to sopor is sometimes manifested, especially when the disease is seated at the base of the brain. The stomach also is sympathetically affected with nausea or vomiting. A febrile movement is generally established in the system, varying according to the age of the subject, the sensibility of the constitution, and the degree of the inflammation. In some rare cases, especially of metastasis, coma sets in from the beginning, and all the symptoms of the third period or stage (described hereafter) commence at once, and are quickly followed by death. The duration of this first stage is usually from a few hours to three or four days.

The second stage or period, which is that of re-action, is accompanied with disturbance in the locomotive powers, corresponding with that of the brain itself. It is in this stage that we observe convulsions, delirium, restlessness, oscillations or commencing dilatation of the pupils, and other phenomena of cerebral inflammation. In this stage the pain in the head is less constant than in the first stage, the sensorium appearing less sensible of impressions, as well internal as external. This stage varies in duration, from two, three, or four, days, to one or even two weeks. It exhibits some difference in symptoms according to the principal seat of the disease. When the latter is at the base of the brain or in the ventricles, coma is almost essential, and is combined with convulsions, agitation, affection of the eyes, &c. whereas, if the arachnitis be on the convexity of the hemispheres, delirium is the early and regular and characteristic phenomenon.

The third stage is that of the shortest duration, varying from a few hours to three or four days, and rarely passing that period. This is the stage of collapse; the abolition of sense, loss of motive power, paralysis, local or general, and coma, being the characteristic symptoms. In this stage, however, the features of various cerebral affections are combined, and consequently all distinctions between arachnoiditis and inflammations of other parts of the brain confounded.

The collapse so characteristic of the third period or stage, and the excitement which distinguishes the second, have this peculiarity, that, while one part of the body shall present the phenomena of one of these stages, another part shall present those of the other. For example, in the face, we shall often see the muscles of the eye-lids paralytic, while those about the mouth are convulsed. It is principally when the arachnoiditis exists about the base of the brain, near the decussation of the optic nerves, that this medley of symptoms belonging to two different stages is observed. It is almost needless to say, that a return to health from any of these stages (this is rarely the case from the third) is marked by a diminution of intensity in the symptoms, and a

final cessation of them. At the same time it is often difficult to distinguish the transition from one stage into another, especially of the first into the second, and the second into the third. No single symptom can be depended on for this discrimination; the whole must be taken in connexion.

The symptom of the greatest importance in the invasion of this disease is head-ache. It is often intense, but varies considerably according to its seat. Cephalalgia then, occurring suddenly, and especially when violent, should always excite suspicion of arachnoiditis, whether it takes place in a person previously well, or labouring under some other disease.

As far as regards the expression of the countenance in arachnoiditis, a general character of surprise and stupor is observed, which it is impossible to describe, but which cannot easily be mistaken, after being once seen. Moreover the pupils are dilated or contracted, or alternately in each state. The globe of the eye presents a greater or less degree of redness in the conjunctiva; squinting on one or both sides; constant rolling of the organ, its reversion upwards, and finally paralysis of the upper eyelid. Few cases occur without some affection of the pupils.

The muscular actions of the face are sometimes deranged; and trismus is by no means a very unfrequent attendant on this complaint. It seldom occurs till after the first stage is past. Grinding of the teeth, and foaming at the mouth, are generally seen only among children; and in the second and third stages of the disease. Spasmodic or convulsive movements of the facial muscles are not very frequent, and never seen but in the advanced stages. Generally speaking, the face is coloured and animated in arachnoiditis; sometimes, however, it is pale and void of expression.

Delirium frequently affects adults, who are most disposed to arachnoiditis of the convexity of the brain. It is generally of the tranquil kind, or a muttering of half-articulated words between the teeth. It is seldom so intense but that the patient can be roused to answer distinctly at times. These remarks appertain to the first and second stages. In the third, there is generally an annihilation of the intellectual faculties. The commencement of delirium may, for the most part, be considered as the sign of transition from the first to the second stage, and forms the most characteristic feature of arachnoiditis of the convexity of the hemispheres. Where there is no delirium, there is generally either dulness, moroseness, irascibility, or preternatural excitement. and an unusual exhilaration. In almost all cases, however, we see a marked diminution of the cerebral faculties, or an impossibility, as it were, of bringing them into action; so much so, that many patients can only be induced to utter monosyllables.

Somnolency is one of the most frequent of all the phenomena of arachnoiditis. When the disease pursues its ordinary course, this symptom does not appear till the end of the first or beginning of the second stage. In a very few cases it has been observed from the very commencement. Head-ache is almost inseparable from the first and part of the second stage of the disease. It is highly probable that it continues to the last, though not complained of by the patients, who are overwhelmed by the force of the disease, and incapable of distinguishing any particular symptom. They generally characterize the pain as heavy, numb, or shooting, usually occupying the whole, but sometimes only half, of the head. The apparent seat of the pain is not always the seat of the disease. Stupor, characterized by a kind of self abandonment, loss of all energy, and countenance of surprise, is common to every stage of the disease, but especially the two first. In a very few cases there has been obstinate pervigilium, instead of somnolency; and in a still fewer (showing that there is no rule without exception),

the

the patients have retained their intellectual faculties until the last.

The muscular system exhibits various deviations from the healthy state, viz. general or local rigidity, or contraction, local or general palsy, local or general convulsions; to which we may add a third state, that of agitation. This last symptom is seldom seen except in the first and second stages. It is not of much importance as an aid in the diagnosis; but not so *convulsions*. These, with paralysis, are one of the most characteristic signs of arachnoiditis. General convulsions are most common in children; and are principally seen in the second and beginning of the third stage; more in the upper than in the lower extremities. Rigid contractions of the muscles are seen (in order of frequency) in those of the lower jaw, posterior of the neck, superior and inferior extremities. They belong to the second stage, and early part of the third; sometimes constant, but generally showing intervals of relaxation.

The temperature of the skin is generally elevated, and equally diffused over the whole surface of the body, being highest in the second stage of the disease, diminishing and greatly varying towards the termination of the third stage. The skin is generally dry during the first stage; in the second, sometimes moist, or even covered with an abundant perspiration, especially about the face. Drs. Martinet and Parent-Duchatelet take notice of a disagreeable odour which patients labouring under this disease exale about the end of the second stage, and which they can compare to nothing but the smell of mice. They assert that it always proved a very unfavourable symptom. We have met with this symptom in other complaints, where indeed no trace of arachnoiditis could be found.

The organic lesions discoverable on the *necrotomy* (a new and expressive word, as confining dissection to the dead subject) of patients who have died of arachnoiditis are—a simple blush or redness of the arachnoid membrane; thickening, and loss of transparency, in the said membrane; a purulent, sero-purulent, or sero-gelatinous, exudation on its surface; the formation of false membranes; and a serous effusion into the ventricles, between the laminæ of the arachnoid, or into the cellular tissue which unites the said membrane to the pia mater.

The treatment of this complaint is similar to that of Cephalitis in general, as far as regards bleeding, purging, and the exhibition of sedatives. Bleeding, however, does not do so much good in the advanced stages of Arachnoiditis as in the advanced stages of Cephalitis. It should therefore be used early in this complaint: local bleeding is also highly beneficial: the French surgeons, in addition to these measures, order counter-irritants, by means of sinapisms and blisters to the feet and legs. A blister on the head has occasionally been productive of the most striking relief. General cold affusion is particularly recommended, as also the application of cold water to the head alone. Compression of the carotid arteries may also be used to repress the too great momentum of blood to the head. These remedies, according to Martinet and his colleague, will often deceive the practitioner; and upon the whole they give a lamentable account of the usual termination of this malady. The practice of the English in this complaint, though few of them make any distinction between Arachnitis and Cephalitis, is tolerably successful; and for this reason, that the system of bleeding in inflammation is carried to a greater extent in this country, and purging with drastic cathartics is more in vogue. But we should observe, that the arachnoiditis of this country is not often so violent as in France.

This account has been introduced here from a firm conviction in the mind of the writer of this article, that the division of cerebral and arachnoid inflammation has a foundation in nature. Before he read the work of Martinet, or even a review of it, his note-book con-

tained a history of certain anomalous cases of head-affections which he by no means understood the nature of. Their history perfectly coincided, at least in all essential points, with the details given by the authors before mentioned. Since reading the work in question, and during the late hot weather, (June 1822.) several cases have occurred to him. It may be worth while to notice, that, in one of the best marked of these, the subject of which was a child four years old, after the most active bleeding and purging, and after the cold affusion of the head had been used with mere mitigation of the symptoms, at the end of the third day the exhibition of a scruple of calomel combined with two grains of opium in four doses completely and most rapidly cured the patient. For excellent details of cases and dissections we refer to the work itself, or to a very good analysis of it in the eighth number of Johnson's Journal, which we have made some use of in our history of arachnoiditis.

In the above history of the symptoms of Arachnoiditis, the following are the most remarkable variations which occur from the symptoms of simple Cephalitis. The contracted state of the features, the extreme irritability of some of the muscles, sometimes the integrity of the reasoning powers, the easiness of respiration; the symptoms observing certain changes as the pain is situated on the top or base of the brain; the peculiar rotation, *gritty sensation*, or turning-up, of the eyes; and lastly, the disposition of the disease to affect the spine. We cannot help in this place remarking, that, in the work of Duchatelet and his colleague, the distinction of spinal and cerebral arachnitis is by no means so unfounded as some of our countrymen have supposed. A case occurred some time since to the writer of this article in which the attending practitioner cured a patient (as he thought) of Peritonitis by a small bleeding and a purge. The patient suddenly became affected with the primary symptoms of spinal arachnoiditis with little cerebral disturbance. The latter however increased; and the patient, without exhibiting any very violent derangement of the pulse or mental faculties, died in the course of ten days. On dissection of the head at the base of the cranium, the arachnoid tunic was found thickened, studded with depositions, and adherent to the surrounding parts. The same was still more remarkable in the small portion of the spine which was cut up through the foramen ovale. A slight effusion was found in the ventricles. A species of arachnoiditis very common in this country is *Hydrocephalus*, which see.

The following account of Cephalitis will probably require much alteration when the precise difference which characterises the inflammation of the investing or the invested parts of the cranium shall be known.

Cephalitis often makes its attack with a sense of fullness in the head, flushing of the countenance, and redness of the eyes; the pulse being full, but in other respects natural. As these symptoms increase, the patient becomes restless; his sleep is disturbed, or wholly forsakes him. Sometimes it comes on with tremors of the limbs, and intolerable pains of the hands, feet, and legs; sometimes with stupor and rigidity of the whole body; and sometimes with anxiety, and a sense of tension in the breast, which is often accompanied with palpitation of the heart. Sometimes, again, the stomach is affected; and nausea, and a painful sense of weight in that viscus, sometimes heart-burn and vomiting, are among the earliest symptoms. The pain in the head soon becomes considerable, and sometimes very acute. The seat of it is various: it generally seems to occupy the whole head; it is deep-seated and ill defined; and, in other cases, it is felt principally in the forehead or occiput. The redness of the face and eyes generally increases with the pain, and there is often a sense of heat and throbbing in the head, the countenance acquiring a peculiar fierceness. These symptoms, for the most part, do not last long before the patient begins to talk incoherently, and to show

other marks of delirium: sometimes, however, delirium does not come on till the fifth, sixth, or seventh, day. It gradually increases till it often arrives at a state of phrenesy. The face becomes turgid, the eyes stare, and seem as if starting from their sockets; tears, and (according to some) even blood, flowing from them; and the patient sometimes resembles a furious maniac, from whom he is principally distinguished by the shorter duration of his complaint.

We should, *a priori*, expect in phrenitis considerable derangement in the different organs of sense, which so immediately depend upon the state of the brain; and such is the fact. The eyes are incapable of bearing the light; and false vision, particularly that termed *muscæ volitantes*, or floating motes and flashes of light seeming to dart before the eyes, are frequent symptoms. The hearing is often so acute, that the least noise is intolerable: sometimes, on the other hand, the patient becomes deaf; and it has been even observed, that the deafness and morbid acuteness of hearing sometimes alternate. Affections of the smell, taste, and touch, are less observable.

The *respiration* is generally deep and slow, sometimes difficult, now and then interrupted with hiccup, seldom humid and frequent, which last is a very unfavourable symptom. The deglutition is often difficult, sometimes convulsive. The liver is often affected; and complete jaundice, the urine and skin being tinged yellow, sometimes supervenes. Instead of a superabundance of bile, however, there is sometimes a deficiency of it, which affords a bad prognosis. The fæces being of a white colour, and a black cloud in the urine, have been regarded as fatal symptoms. The black cloud in the urine is owing to an admixture of blood; when unmixed with blood, the urine is generally pale.

Among the most unfavourable symptoms of cephalitis the following may be enumerated; namely, tremors of the joints, convulsions of the muscles of the face, grinding of the teeth, sudden changes of the colour of the face from florid to pale, involuntary tears, a mucous discharge from the nose, the urine being of a dark-red colour, or yellow, or black, or covered with a pellicle; the fæces being either bilious or white, and very fetid; profuse sweat of the head, neck, and shoulders; paralysis of the tongue, general convulsions, much derangement of the internal functions, and the supervention of the symptoms of other visceral inflammations, particularly of peripneumony. If the delirium changes to coma, and the pulse at the same time becomes weak and the deglutition difficult, the approach of death may be generally expected.

With respect to the *causes* of cephalitis, we have already observed that it is a rare disease in our temperate climate, but is more frequently observed in warm latitudes. The predisposition seems to consist in the irritability of youth and of the sanguine temperament, as well as in a passionate temper of mind. The exciting causes are such circumstances, internal and external, as tend to produce an accumulation of blood in the head; among which are the direct influence of a vertical sun in tropical climates, or long exposure to it in hot weather in more moderate heats, especially under great bodily exertions; violent fits of anger; intoxication; concussion, fracture of the skull, or other mechanical violence; long and intense exertion of the mind; certain narcotic poisons, miasmata, and perhaps contagion.

The *cure* of cephalitis must be conducted upon the same general principles as that of other acute visceral inflammations; and, from the particular importance of the organ inflamed, the antiphlogistic and evacuant plan must be pursued with the utmost vigour and expedition. Blood-letting is to be considered as the principal dependence of the practitioner, and the more early it is employed, the more efficacious in general it will prove. It fortunately happens, that in this complaint, the advantages of general and local blood-letting may be combined;

inasmuch as a large quantity of blood can usually be produced from the vessels immediately connected with the inflamed organ. When this advantage can be obtained, it should never be overlooked. It is advisable, therefore, to open the temporal artery, or the jugular vein, and to take a large quantity of blood, according to the violence of the symptoms, and to the age and strength of the patient. The blood-letting should be carried to the extent of producing syncope or fainting; and, when that effect follows, the relief is more often complete.

We need pay very little attention to the *admeasured* quantity of blood we take. We must bleed till the violence of the delirium is much abated, and till the pulse is materially lowered. The effects of the blood-letting, in diminishing the morbid determination of blood to the head, should be seconded by all other means in our power. The application of *cold* to the scalp, such as washing it, after shaving, with cold water, vinegar and water, or spirits, is often exceedingly beneficial. To assist in lessening the flow of blood to the head, the patient should be kept as near the erect posture as can be borne. At the same time he must be kept in bed, because the muscular exertion required to sit or stand accelerates the pulse; but the head and chest must be supported by pillows, or by other contrivances. And at this time, every irritation, especially those of light and noise, of which the inflamed sensorium becomes peculiarly susceptible, should be carefully withdrawn.

When the action of the heart is somewhat diminished, and the brain still continues oppressed, we shall find great benefit from blistering the lower extremities; but this should not be done on the first invasion of the malady. In addition to these direct means of diminishing the inflammatory action in the head, the indirect effect, which is produced by copious evacuations from the bowels, obtained by the use of *purgatives*, is of great importance, and should be carefully attended to. Even syncope itself has been produced by profuse evacuations from the intestines, which implies the complete influence over the circulation in the brain, which such operations produce. The free use of elaterium, scammony, gamboge, &c. therefore, should be resorted to in all cases of phrenitis; and, if a spontaneous diarrhoea should supervene, the practitioner will be careful not to check it. As in all other cases of inflammatory fever, every external source of excitement should be carefully excluded; the apartment should be cool and well ventilated; the bed-clothes light; the drink aqueous, cold, and acidulated.

It seems scarcely necessary to add, that nauseating doses of antimony, and the frequent exhibition of infusion of digitalis, are very appropriate auxiliaries to the treatment of Cephalitis.

2. *Empresma otitis*, (*Otalgia*, *Cullen*.) Ear-ache: severe pain in the ear; tenderness upon pressure; deafness or confusion of sounds. This complaint is accompanied by a sense of weight or tension in the internal ear, with some slight degree of fever. The treatment is the same as *Phlegmon auris*, (which see p. 230.) except that, when it is accompanied with much fever, we should bleed, lest the violence of the inflammation should disorganize the ear. Otitis is often a consequence of inflammation affecting the throat and eustachian tube; in which case we must use measures which might be considered somewhat active as compared with the small extent of the disease, that we may prevent the closure of the eustachian tube; an accident productive of serious inconvenience.

3. *Empresma parotidis*, (*Cynanche parotidea*, *Cull*. Branks, *Scottice*. Mumps, *Anglice*.) Painful suppurative tumour of the parotid glands, often extending to the maxillary; conspicuous externally; often accompanied with swelling of the testes in males, and of the mammæ in females. This complaint, which is said to have proved both epidemic and contagious, comes on with the usual symptoms of fever, which are soon after attended with a considerable tumour of the external

fauces and neck. This appears first as a glandular moveable tumour at the corner of the lower jaw; but the swelling soon becomes uniformly diffused over a great part of the neck, sometimes on one side only, but more commonly on both. The swelling continues to increase till the fourth day; but, from that period it declines, and in a few days more passes off entirely. As the swelling of the fauces recedes, some tumour affects the testicles in the male sex, or the breasts in the female. These tumours are sometimes large, hard, and somewhat painful; but, in this climate, are seldom either very painful or of long continuance. The fever attending this disease is commonly slight, and recedes with the swelling of the fauces; but sometimes, when the swelling of the testicle does not succeed to that of the fauces, or when the one or the other has been suddenly repressed, the fever becomes more considerable, is often attended with delirium, and has sometimes proved fatal. As this disease commonly runs its course without either dangerous or troublesome symptoms, so it hardly requires any remedies. An antiphlogistic regimen, and avoiding cold, are all that will be commonly necessary. But when, upon the receding of the swelling of the testicles in males, or of the breasts in females, the fever comes to be considerable and threatens an affection of the brain, it will be proper, by warm fomentations, to bring back the swelling; and, by vomiting, bleeding, or blistering, to obviate the consequences of its absence.

4. *Empresma paristhmitis*, (*Cynanche*, *Cull. Angina*, *Auct. Lat.*) Squinancy, or quinsy. Redness and swelling of the fauces with painful and impeded deglutition. This species contains three varieties.

a. *P. tonsillaris*, or common quinsy. It is an inflammation of the mucous membrane lining the throat, and affecting especially the tonsils, and spreading from thence along the velum and uvula. The disease is marked by a redness of the parts, accompanied by swelling, which is sometimes considerable, so as to render the act of swallowing painful and difficult, or even to impede it almost entirely. There is also a troublesome clamminess of the mouth and throat, with a frequent but difficult excretion of mucus; there is often a pain shooting into the ear: the voice is altered, and articulation rendered indistinct. A degree of fever is generally present. This kind of quinsy is not contagious. It terminates frequently by resolution, sometimes by suppuration, but hardly ever by gangrene. The progress of the inflammation to suppuration, is sometimes, indeed, very rapid; at other times there are several small abscesses, which break one after another, and the disease is tedious. Occasionally the tonsils become enlarged and hard after this inflammation, and remain so for years. When a large imposthume breaks, there is generally sudden relief from the pain, difficulty of breathing, swallowing, and speaking; although often no matter is thrown up, but passes down the œsophagus.

The disease is commonly traced to exposure to cold. It affects the young and sanguine, and is very liable to return, in some constitutions, upon the application of cold to any part of the body, so as to become almost habitual. It occurs, especially in spring and autumn, when vicissitudes of heat and cold frequently take place. The inflammation and swelling often begin most violently in one tonsil, and afterwards, abating in that, increase in the other. The remedies for inflammation, and the antiphlogistic regimen, are to be employed for the cure of this complaint. It is greatly aggravated by heating diet and stimulating medicines. General blood-letting is seldom necessary; but leeches to the neck and external fauces are very useful. Blisters, when early applied to the same parts, are also highly beneficial, and have often had the effect of curing by resolution a violent inflammation of the throat. When suppuration is begun, they can be of little use. Purgatives, repeated occasionally, are of essential benefit. The inflammation is often relieved by

topical refrigerants, particularly acids; hence the use of gargles containing vinegar, lemon-juice, or the mineral acids, and rendered palatable by means of honey or syrup. These acids moreover coagulate the mucus which adheres about the parts, and cleanse the passages. In many cases, however, no application has afforded more relief than the vapour of warm water received into the fauces by means of Mudge's inhaler.

β. *P. maligna*: crimson redness of the mucous membrane of the fauces and tonsils; ulcerations covered with mucous and spreading sloughs, of an ash or whitish hue; fever a typhus. This disease is of great danger and importance. We give the following account of its nature on the authority of Dr. Parr. It attacks like a slight inflammatory sore throat, though sometimes only a languor insidiously creeps on, with a little difficulty of swallowing; and, in the worst cases, even this is absent. The strength, however, rapidly sinks, the features fall, a ghastly paleness comes on, and death quickly follows. In slighter kinds, the course is not very different from that of the inflammatory species, though seemingly slight, with alternate chills and heats, pain in the head, &c. till the debility appears, when every other bad symptom immediately follows. Every sore throat should, therefore, be carefully examined.

In the most active inflammations of the throat, white specks will sometimes appear on the velum pendulum or tonsils. If the inflammation is florid, the constitution robust, and the pulse firm, these spots may be disregarded. On the contrary, in some instances of the most malignant kind, no sloughs can be observed. The distinction must be taken from the colour of the inflammation. In the true malignant sore throat, the colour approaches rather to the crimson and the pink than the red; and sometimes a shade of brown, not far distant from the cinnamon, is mixed. The pain in swallowing is slight in proportion to the degree of inflammation; languor, listlessness, and indifference, are very conspicuous; and the features display the same want of fulness and tone: the eyes are red and watery. At this time the pulse will be sometimes apparently strong, but a slight attention shows that the strength of the stroke is apparent only: it throbs with a kind of convulsive weakness, rather than beats with a steady firmness. The tongue grows brown, the breath offensive; and delirium, at night, comes on; by day, a wandering is only observable. When there are sloughs on the throat, the edges are of a dark pink red; they are observed to cover, and sometimes they conceal, a considerable loss of substance: they enlarge, become deeper, and the edges black. An ichor, or a thin acrid matter, is discharged from the nose or ears; the stools are thin and highly offensive. The fever is said to remit in the morning, but the remission is inconsiderable, and will never assist in the distinction, though it will sometimes lead to an insidious security. Sometimes, from the beginning, exanthemata appear; and the putrid sore throat is frequently, if not constantly, an attendant on Scarlatina: these soon assume a darker hue, and appear livid. The breath in the earlier periods is not affected, but a wheezing noise supervenes if neglected; and this, in the worst kinds, is succeeded by a shrill barking sound. It evidently arises from the erysipelatous inflammation extending to the larynx, and is generally a fatal symptom. The eruptions have been erroneously described as favourable and critical. In a disease which runs its course generally in less than five, always in seven days, no prognostic is to be depended on but a more florid appearance in the throat, and a more healthy aspect of the edges of the sores.

The disease is epidemic, and attacks the active and robust as well as the infirm. The treatment must in its early stages be strictly antiphlogistic; but it is said that, when the sloughs are formed, such measures are injurious. It seems to us, however, that in this respect we should be guided by the state of the pulse, &c. rather than adopt a line

a line of practice founded on the name of the disease. In fact, as we shall show when speaking of Gangrene in general, we must sometimes stimulate by bark and wine, and sometimes act the reverse by bleeding and purgatives, when we want to produce the expulsion of sloughs. Towards the latter end of the malady, when stimulation is required, we certainly meet with much success by following the practice thus detailed by Parr. After laxatives, the bark is to be given in active doses, with aromatics. Half a dram of the bark, with ten grains of aromatic spices, should be exhibited every two hours. If it seems to produce strictures on the skin, and rigour, five or six grains of camphor, and three or four of James's powder, combined with a little opium, should be added to each dose. These may be washed down with a strong decoction of bark, sharply acidulated with either of the mineral acids. Dr. Parr however remarks, that in this disease the bark seldom disagrees. The action of these remedies is greatly assisted by diet and gargles. Port-wine should be given freely; it should indeed enter into every part of the food, and be drunk alone, cold. Even sleep is less necessary than bark and port-wine; and, should it continue above three hours, the patient must be awakened, for the loss of time cannot be regained. The quantity of the medicine and the wine must be regulated by the effect. If we gain nothing in the first thirty-six hours, we may depend on a fatal event: if we lose ground in twenty-four, our hopes will be inconsiderable. We have known women unaccustomed to wine drink two bottles within twenty-four hours, for more than a fortnight. The gargles should be of a strong decoction of bark, very sharply acidulated with mineral acids or with the strongest Cayenne vinegar, or some Cayenne in substance should be added; and they should be frequently used, or, as the patient is languid, injected with a syringe. Pepper-corns constantly bitten, and the saliva swallowed, we have often found highly useful.

"These are the appearances, and such the practice, in the more violent attacks of the complaint; and we have never seen an instance of it, when taken early and treated in this manner, in a constitution moderately strong, proving fatal. The same plan, less actively pursued, is adapted to the milder kinds. But even the mildest should not be treated with indifference."

7. P. pharyngea: redness florid, and especially at the lower part of the fauces; deglutition extremely difficult and painful; fever a cauma. This appears to be the same disease as the first variety, except that it is seated lower down in the throat.

5. Empressma bronchitis, (Cynanche trachealis, Cull.) Croup. Breathing sonorous and suffocative, voice harsh; ringing cough; fever a cauma. The term *bronchitis* is by Dr. Good confined to that peculiar and violent inflammation which is most appropriately termed by medical men in general *laryngitis*, as the latter term expresses the seat of the affection much better than bronchitis; and, as bronchitis is now properly used to designate those complaints which will be detailed under the genus Catarrh, we shall use the term *laryngitis* in the following description.

Laryngitis, then, is an inflammation of the superior part of the trachea or larynx, to which parts, however, it is seldom confined, but extends downwards through the ramifications of the bronchiæ. It affects persons of all ages, but is most formidable when it occurs to children, in whom it is said, from the narrowness of the aerial aperture, the internal thickening of the parietes of the tube soon produces suffocation. It seems however, from the firmness of the coagulum thrown out, that the inflammation in croup is of the most excessive kind, so that death might be accounted for independently of the smallness of the glottis.

The complaint sometimes runs its course in twenty-four, thirty-six, or forty-eight, hours; more commonly it continues a few days. Occasionally the peculiar noise

which is the pathognomonic sign of croup, attends on slight inflammations of the bronchiæ and larynx, but the complaint is then of a somewhat prolonged duration.

Laryngitis is often a consequence of the spreading of true bronchial inflammation; and sometimes the one alternates with the other. The croup generally begins with a short dry cough, wheezing, and other catarrhal symptoms. Soon the wheezing becomes more observable, the cough more troublesome, and marked by a peculiar shrill sound; the respiration is performed with a wheezing or croaking noise, and at length grows very distressing and laborious. At the beginning, or in slighter cases, the sound of inspiration resembled the passing of air through a piece of muslin; afterwards it was as if the noise came from a brazen tube. The cough was attended with a peculiar shrill sound, even at an early period of the disease, as well as the voice, where there was not a perfect hoarseness. Dr. Home describes it "vox instar cantus galli." It has been compared to the noise which a fowl makes when caught in the hand. This peculiarity, however, is not easily expressed by words, but a knowledge of it is readily acquired by observation.

By the end of the second, or on the third day, sometimes sooner, symptoms of affection of the system take place, as white tongue, thirst, increased heat, and frequent pulse: and the disease advances rapidly, not merely from violent general affection, but from the influence which it has upon the organs of respiration; the difficulty of breathing becoming now very distressing, the countenance being often flushed, and great inquietude and a continual inclination to change from place to place supervening. The child at the same time eagerly puts its fingers into its mouth, as if to pull away something which sticks in the passage. All the symptoms are increased during the night, throughout the disease.

A change now takes place; and, the inflammation terminating in effusion, the passage of the air becomes obstructed by viscid matter in the trachea, some of which is occasionally thrown up by coughing or retching. Occasionally also, portions of a film or membrane, of a whitish colour, are thrown up by the same painful exertions; and the efforts made to dislodge it are often so distressing, that the child appears to be almost in a state of strangulation. This is succeeded by an abatement of all the symptoms, until a fresh quantity of the same substance is formed, when the distress recurs as before. In many cases, the difficulty of breathing and appearance of suffocation are increased by paroxysms, so as to occasion extreme anxiety and inquietude. And in other cases the disease, after continuing some time, appears suddenly alleviated: the breathing is free; cheerfulness, appetite, and a disposition to amusement, take place. But a change for the worse comes on as suddenly, and death ensues; the livid and swelled face, and convulsive struggles, giving the little patient every appearance of one actually strangled. When the internal fauces are viewed, as Dr. Cullen has observed, they are sometimes without any appearance of inflammation; but frequently a redness and swelling appear. But it is commonly remarked that most of the cases which occur in the winter are attended with inflammation and swelling of the tonsils, uvula, and velum pendulum palati; and frequently large films of a white substance are formed on the tonsils.

Croup most commonly attacks children during the three first years after weaning. It rarely occurs before three months, or after ten years. It is often insidious in its approach; the child having only a slight cough or hoarseness, with little fever or ill feeling.

The treatment of croup is that of inflammation in its most acute and violent form, and in a situation where its continuance threatens speedy death. On this account, the inflammation must be subdued at all risks; and no fear of the consequences should arrest the vigour of the practitioner. A very large general bleeding, followed by

by the application of a great number of leeches to the edges of the lower jaw and to the sides of the neck, carefully avoiding the trachea, are the first means to be used. The knowledge of the powerful efficacy which mercury possesses of checking in some cases the deposition of coagulating lymph (though we cannot explain its *modus operandi*), furnishes us with another remedy of scarcely less importance. Calomel may be given in doses of four or five grains every hour, combined with just so much opium as will prevent it from passing off by the bowels. These doses are applied to children of three or four years of age; they may be greatly increased when required. Along with these measures the common means of counter-irritation may be advantageously used, as for instance the hot-bath and blistering remote parts. Blisters on the neck seem to us to be attended with very bad effects in the early period of the disease.

When suffocation is threatened, or perhaps in some remarkable cases after it has occurred, we may perform the operation of tracheotomy.

6. *Empresma pneumonitis*, (*Pneumonia perineumonia*, *Cull.*) Peripneumony, or inflammation of the lungs: obtuse pain in the chest; constant difficulty of respiration, alleviated by an erect position; tumid purple face or lips; cough, generally moist, often bloody; pulse usually soft. Dr. Good makes three varieties of *Pneumonitis*.

α. *Pn. vera*: the fever a cauma; pain severe, little expectoration in the beginning.

β. *Pn. maligna*: fever a synochus or typhus. The debility so extreme from an early stage of the disease, that the pulse ceases on the pressure of the finger; and the vascular action is too weak to accomplish expectoration. Often epidemic.

γ. *Pn. notha*: great secretion and expectoration, with a mild cauma. Probably in many instances a catarrhal affection: chiefly occurring in advanced life, or in those who have weakened their constitutions by excesses.

We shall treat the first two varieties together, as the latter appears to be merely a consequence of the former, and to stand to it in the same relation as typhus does to inflammatory fever; i. e. merely as the effect of previous inflammatory action. The third variety, which is properly bronchitis, is referred to *Catarrhus*.

Inflammation of the parenchyma of the lungs, to which for the present we confine our attention, is seldom a solitary affection, the pleura being in general affected along with it: and it is occasionally accompanied with *catarrhus*.

Pneumonitis comes on with an obtuse pain in the chest or side, great difficulty of breathing, particularly in a recumbent position, or when lying on the side affected, together with a cough, dryness of the skin, heat, anxiety, and thirst. At the first commencement of the disease the pulse is usually full, strong, hard, and frequent; but in a more advanced stage it is commonly weak, soft, and often irregular. In the beginning, the cough is frequently dry and without expectoration; but in some cases it is moist even from the first, and the matter spit up is various both in colour and consistence, and is often streaked with blood. The countenance is generally flushed; the nostrils are much dilated before each respiration; the patient usually breathes with the diaphragm principally, but not so exclusively as in *Pleuritis*. In the more severe *Pneumonites*, the difficulty of breathing, at all times the most dangerous symptom, becomes increased, and is often attended with more or less general, deep, livid, or even dark, suffusion of the countenance, with some degree of tumidity, but little heat. There is also great anxiety in the expression. The nostrils are widely dilated, and sharply depressed above their lobes, just before and during inspiration. The patient is often obliged to sit up in bed. There are vertigo and pain of the head. The respiration is attended with great labour, oppression, and generally with a rattling noise: on inspiration, the

bottom part of the sternum is often drawn forcibly and quickly towards the spine, the upper ribs raised, and the abdomen protruded; on expiration, these movements are reversed. Sometimes the *pomum adami* descends on inspiration; sometimes the shoulders are much elevated. Speaking is very difficult. The cough occurs in painful oppressive fits, and raises various expectoration; this is however generally copious and mucous, sometimes tinged with blood. The hands are cool, and livid, and the pulse frequent.

If the actual inflammation or engorgement of the lungs does not cause death, a favourable termination is effected by the occurrence of copious secretion, both from the nervous lining and the serous investment of the lungs; though it must be confessed that inflammation of the lungs often subsides by mere resolution, where bleeding is actually employed. And moreover the establishment of each of these secretions, when in excess, produces other and fatal diseases, as *empyema* and chronic *catarrh*. Another termination of *Pneumonitis*, is suppuration of its substance, or *Apostema vomica*.

Before we speak of the treatment of *pneumonitis*, we shall detail the symptoms of the next species.

7. *Empresma pleuritis*, or *pleurisy*: acute pain in the chest; increased during inspiration; difficulty of lying on one side; hard pulse; short distressing cough. Dr. Good gives three varieties.

α. *Pl. vera*: fever a cauma; pain felt chiefly on one side. The inflammation, in this case, commences in that side of the membrane which lines the ribs; though often communicated to the contiguous portion which covers the lungs.

β. *Pl. mediastina*: heavy pain in the middle of the sternum, descending towards its ensiform cartilage; with great anxiety.

γ. *Pl. diaphragmatica*: painful constriction around the *præcordia*; small, quick, and laborious, breathing.

Pleurisy comes on with an acute pain in the side, which is much increased by making a full inspiration, and is accompanied by flushing in the face, increased heat over the whole body, rigors, difficulty of lying on the side affected, together with a cough and nausea; and the pulse is hard, strong, and frequent, and vibrates under the finger when pressed upon, not unlike the tense string of a musical instrument. The blood exhibits the thick sily or buffy coat on its surface in a high degree.

We see in this complaint an expression of suffering on the countenance, and a state of general contraction of the features. The nostrils are acute and drawn a little upwards, and are surrounded by a ring of a pearly white. They are moved rapidly by the alternate acts of respiration, being dilated quickly just before each inspiration. There is often a circumscribed or partial flush of the cheeks, which generally terminates abruptly, especially towards the nose. The patient cannot, in general, lie on the pained side or part; and he chooses a particular position, which is preserved unchanged; any motion of the body seems to aggravate the pain of the chest. The respiration is frequent, quick, and short, and often performed *exclusively by the diaphragm, the chest being motionless*. If a deep inspiration be attempted, it induces sharp pain, and is, with the calling out from this pain, immediately checked and suppressed by the patient. The cough is also checked, and is, at first, short and dry, and attended with sharp pain. The patient speaks in a low tone, and in short sentences. The pulse is rather frequent and sharp, sometimes less affected than might be expected. The pain is situated in various parts of the chest; generally on one side, or under the sternum; sometimes under the scapula, or at the back.

Pleuritis terminates fatally by implicating in inflammatory action the viscera it invests, by spreading to other serous membranes, or by effusion, adhesion, &c. the consequence of inflammation when it attacks serous membranes. Adhesions are very frequently formed without

out material inconvenience to the patient; and no doubt increased effusion sometimes occurs without any ill effect. The lungs, the pericardium, and heart, commonly become involved in the morbid action, when death occurs in pleuritic complaints.

The treatment of inflammation, whether seated in the parenchyma of the lungs or the pleura, is similar. The remedy chiefly to be depended upon is *blood-letting*, freely and early employed. The quantity of blood drawn must of course be regulated by the violence of the disease, and the strength of the patient's constitution, and ought generally to be as large as this last circumstance will allow. The remission of the pain and the relief of the respiration, during the flowing of the blood, may limit the quantity to be then drawn; but, if these symptoms of relief do not appear, the bleeding should be continued until some degree of sickness and faintness, the signs of approaching syncope, come on. This direction is as old as the writings of Hippocrates. It will often happen, that one bleeding, however copious, will not prove a cure for the disease: for, although the pain and difficulty of breathing may be much relieved by the first bleeding, these symptoms very frequently recur after a short interval, and often with as much violence as before. In the event of such recurrence, the bleeding must be repeated, even in the course of the same day, and perhaps to the same quantity as before. Sometimes the second bleeding may be larger than the first. There are persons who are constitutionally liable to faint even upon a small bleeding; and, in such persons, this may prevent the drawing of so much blood at first as a pneumonic inflammation may require; but, as the same persons are frequently found to bear subsequent bleedings better than the first, these may be carried to the extent which the symptoms of the disease seem to demand. For it is according to the state of the symptoms, that the bleedings must be determined to be repeated; and they will be more effectual, when employed in the course of the first three days, than afterwards: but they are not to be omitted, although four or five days may have elapsed before the physician is called in; nay, if there be a recurrence of the urgent symptoms, as described above, the bleeding should be repeated at any period of the disease, especially within the first fortnight, and even afterwards, if a tendency to suppuration be not evident, or if, after an apparent solution, the disease shall have again returned.

There is in peripneumony, as in some other acute inflammations, a state of pulse occasionally recurring, which, to an inexperienced practitioner, appears to contra-indicate the use of the lancet; it is soft, and small, or what has been called an oppressed pulse; but it rises, and becomes fuller and larger, after blood-letting. Under such circumstances, the propriety of the blood-letting is to be determined by the urgency of the other symptoms, especially of the *difficulty of breathing*. In a similar manner, a pulse that is irregular, and beats with considerable intermissions, in peripneumony, will become regular after the relief of blood-letting; and such a state of pulse, therefore, when the pneumonic symptoms are urgent, is not to be considered as contra-indicating, but as more strongly demanding, the use of the lancet.

When a large quantity of blood has been taken from the arm, some blood may be still taken locally, by means of cupping. This local blood-letting will be particularly proper, when the continuance or recurrence of pain, rather than the difficulty of breathing, becomes the urgent symptom. After this, a large blister should be applied over the thorax or side, according to the seat of the pain, and the abstinent and cooling regimen rigorously enforced.

Some practitioners, apparently upon theoretical grounds, have objected to the use of *purgatives*, upon the supposition that the evacuation which they occasion may tend to suppress the expectoration: but, in the vigour of the

patient and of the disease, such an apprehension is absolutely groundless. On the contrary, the free evacuation of the bowels, by cooling purgatives, conduces, like the blood-letting, to diminish the local and general inflammatory action. In the turgid and loaded state of the lungs, the straining of *vomiting* is likely to be productive of mischief, and can answer no useful purpose; but the practice of exhibiting *nauseating* medicines is highly proper. Of these, antimony and ipecacuanha, combined with digitalis, are the most common. The last medicine is also used with advantage in the earliest stages of the disease, to repress the frequency of the pulse.

Though it has not been our custom, in the compilation of this article, to enter particularly into necrotomy, because we wished to be the more full on the actions and disorders which lead to fatal diseases, rather than to detail irremediable conditions; yet we cannot avoid transcribing from the judicious Laennec, his account of the appearance on dissection which the inflamed pleura exhibits. The minutiae of pathological anatomy are sufficiently important in regard to the obscure diseases of the chest, to warrant this deviation from the general tenor of our labours.

The anatomical character of acute pleurisy, like that of the inflammation of all serous membranes, is redness of the part affected. This redness is in some sort punctuated, and looks as if one had traced with a pencil upon the pleura an infinity of small bloody spots of very irregular figure, and very close to one another. These red points occupy the whole thickness of the membrane, and leave small intermediate portions retaining the natural white colour. This punctuated appearance is unquestionably a character of the inflammation, and not at all attributable, as some have supposed, to the partial disappearance of the redness after death. Besides this particular redness, and even in those instances where it is very inconsiderable, we always find the superficial blood-vessels of the pleura redder, more distinct, and more distended, than in the natural state.

M. Laennec never could clearly make out a distinct thickening of the pleura in these cases. Such supposed thickening, he thinks, has been either an extensive congeries of miliary tubercles on the outer or inner surface of the pleura; or a cartilaginous incrustation on the parts covered by it; or, lastly, false membranes, more or less dense, adherent to its internal surface.

Inflammation of the pleura is always accompanied by an extravasation on its internal surface, and which may be considered as the species of suppuration proper to serous membranes. This extravasation appears to commence with the inflammation itself. It consists of two very different matters. The one, of a firmer semi-concrete consistence, is usually termed *false membrane*, or coagulable lymph; the other, very thin and watery, is called, *serosity*, or sero-purulent effusion. Both of these exhibit great variation of character. The *false membrane* consists of a yellowish-white, opaque, or semi-transparent, matter, varying from the consistence of thick pus to that of boiled white of egg, or of the buffy coat of the blood. This substance forms a complete incrustation (where the inflammation is general) over the pleura costalis and pleura pulmonalis. These two sheets of pleura are sometimes united by bands of the same membrane, extending from the one to the other, through the serous fluid effused into the cavity. These membranous exudations vary in thickness, from half a line to two lines; sometimes exhibiting a kind of reticulated structure; at others, appearing studded or granulated with small irregular tubercles. These membranes are sometimes detached and found floating in the serosity. The *serous effusion* is commonly of a lemon, or light-yellow, colour, transparent or slightly flocculent, resembling unstrained whey; an effusion common to all the serous membranes in the body. In some cases, this effusion is of a very deep tawny colour, ruddy, and evidently mixed with blood; sometimes, in-

deed, quite bloody. The portions of pleura situated beneath false membranes, when this is the case, are much redder than in the most acute recent inflammation, owing, as Laennec thinks, to a secondary inflammation supervening at a later period than the formation of the false membranes. The effused fluid is generally without taste or smell in acute pleurisy. The relative proportions between the effused serum and albuminous concretions, is not at all fixed. Generally speaking, the more violent the inflammation, the more extensive and thick is the membranous exudation. In weak leuco-phlegmatic subjects, on the contrary, we find a great quantity of limpid serum, with a small portion of thin membrane often floating in it. In such cases, the pleurisy seems to pass insensibly into hydrothorax, as we shall see more particularly hereafter. It is an exceedingly rare case, M. Laennec observes, to find the contiguous surfaces of the pleura united, without previous effusion of fluid, since the absorption of the fluid is the first step in the sanative process. We may therefore conclude, on finding those old adhesions of the lungs to the sides, that there existed, in the acute stage of the disease, an effused fluid; for, when patients happen to die in that stage, we almost invariably find an effusion. The following passage will convey a clear idea of the sanative process in pleurisy, and the organization of the extravasated substances.

“It is the character of the *false membranes* produced in pleurisy to be changed into cellular substance, or rather into a true serous tissue like that of the pleura; and this is the natural progress of the process when left quite undisturbed. This change is produced in the following manner: The *serous effusion* which accompanied the membranous exudation is absorbed, the compressed lung expands, and the false membranes investing it and the costal pleura become united into one substance. By and by, this substance becomes divided into layers pretty thick and opaque, which are separated by a very small portion of serosity. About this time blood-vessels begin to make their appearance in it, the first rudiments of which have the aspect of irregular lines of blood, much larger than the vessels which are to take their place. The blood seems as if it had been forced into the substance of the false membrane by a strong injection; and we find the corresponding portions of the pleura redder than elsewhere, and as it were spotted with blood. After a time, the pseudo-membranous layers become thinner and less opaque; the lines of blood assume a cylindrical shape, and ramify in the manner of blood-vessels, but still preserving their augmented diameter. On minutely examining these at this stage, we find their external coat consisting of blood scarcely yet congealed, and very red; within this there is a sort of mould, or rounded substance, whitish and fibrous, and formed evidently of congealed fibrine, perforated in its centre, already permeable to the blood, and evidently containing it. Eventually, the layers of the false membrane become quite transparent, and nearly as thin as those of the ordinary cellular tissue, and the blood-vessels resemble in every respect those which ramify on the inner surface of the pleura. It wants, however, the firmness of the natural cellular substance, being easily torn in our attempts to examine it, and its vessels still retain the large diameter indicative of their recent formation: and it requires some considerable time for them to attain the perfect character of the original tissues of the body.” These organizations having taken place, the health remains unaffected, and the respiration, except in some particular cases, does not suffer from their presence.

In simple pleurisy, we find no sign whatever of inflammation of the pulmonary parenchyma, even in the vicinity of the most inflamed portions of pleura. We find the substance of the lungs in such cases more dense and less crepitous, owing to the compression of the effused fluids. If the extravasation has been very great, the lung becomes flattened, ceases to contain air, and con-

sequently to crepitate; its vessels are compressed and contain little blood, and the bronchia, with the exception of the larger trunks, are evidently rendered smaller. Sometimes, however, we observe certain portions of the lungs possessing a redness like that of muscle; and a compact homogeneous texture, in which no trace of air-cell can be detected. This has been termed *carnification* or *hepatization* of the lungs. Laennec considers it a product of inflammation. For some further interesting particulars as to Empyema, and the products of chronic pleuritis, we refer the reader to Laennec's work “De l'Auscultation mediate, &c.”

Some authors have asserted the existence of chronic pleurisy as giving rise to Empyema, and a variety of morbid products within the bags of the pleura. These symptoms are very insidious; and we do not find them altogether clearly detailed in any author. A slight pain in the side with dry cough (which latter brings on a stitch in the side), together with a pulse rather hard, are the only circumstances which occur to our recollection. The disease is seldom recognized till effusion or adhesion has taken place, when, according to Laennec, some information may be derived from the use of the *stethoscope*, of which instrument we shall presently have occasion to speak.

8. *Empyema corditis*, inflammation of the heart: pain in the region of the heart, often pungent; anxiety; palpitation; irregular pulse.

The diseases of the heart are confessedly the most difficult to recognize in the whole range of human maladies. When we consider the complicated actions which the heart is the agent of, and the irregularities those actions are subjected to by alterations in the surrounding organs which are associated in its movements, it will be sufficiently obvious, that the same disease of the structure of the heart will, as it affects one or other of its parts, give rise to various and dissimilar phenomena. To illustrate this by a very simple fact: if the capillaries of the lungs be obstructed, increased propulsive power must be exerted by the right ventricle; and, the structure of this portion obeying the general laws of all muscular parts, its increased exercise will be followed by correspondent diminution of power, and debility will ensue. To trace the effect of the above irregular impulse on the powers and functions of the heart would lead to a wide and undefined department of medical science; to wit, an account of the mode of production of the various morbid growths found in the cavities of the heart. The circumstance is merely mentioned to show, that, because the heart is composed of four cavities, each subject to similar alteration from different causes, and vice versa, we cannot but expect to find very anomalous symptoms in its diseases. Thus, in *carditis*, the most unsatisfactory accounts have been given, because, till the present time, authors overlooked the fact, the palpable fact, that inflammation must be different as it was situated in one or another portion of the heart; and that in a violent degree it might actually be directly opposite in its symptoms to its milder forms.

The symptoms usually ascribed to *carditis* were fever, pain in the situation of the heart, palpitations, an irregular pulse, cough, difficulty of breathing, and often syncope. It is obvious that the symptoms here enumerated are merely the common symptoms of *peripneumony*, or pleurisy, with the addition of palpitation, irregularity of pulse, and syncope, or fainting. But it is observed by Senac, that these symptoms are extremely uncertain; and with regard to palpitation, although its presence may lead us to suspect that the heart is affected, yet it is probably an hypothetical opinion, since, in that inflammation which arises from wounds of the heart, palpitation does not occur. (*Traité du Cœur*, tom. ii. chap. 7.) With respect to the other two symptoms, it has been remarked, that the presence of an irregular pulse, and the occurrence of syncope, together with the symptoms of pneu-

monia (or inflammation of the lungs), can only lead to a probable suspicion of an affection of the heart; since they are by no means constant attendants on carditis; and the former very frequently attends other cases of pneumonia. (Wilson on Febrile Diseases, vol. iv.) Upon the same grounds Dr. Cullen accords with the observations of Vogel, that "the symptoms of carditis are nearly the same with those of peripneumony, but in general more severe." In this perplexity as to the most important of cardiac diseases, it must be highly gratifying to have an addition to our usual modes of diagnosis. This has been attempted, as our readers are probably aware, by Laennec. This author perceived that many of the movements of the thoracic viscera were *audible*, and conceived the design of rendering this circumstance useful to his profession. Finding the application of the ear to the chest inefficient to give very accurate information on the subject, and acting on the established knowledge of the increase of sound when passing through tubes, the author invented an instrument which he called, from its use, a *stethoscope*. It is merely a cylindrical piece of dense wood, about one foot in length and four inches in circumference, having a hole drilled longitudinally through it of about three lines in diameter. The lower end of the instrument is placed on the thorax of the patient, the upper to the ear of the physician; and through this perforation the rushing of the air into the air-cells in inspiration, &c. is heard. We pass over this however for the same reason that we did when speaking of pulmonary complaints, because we cannot ourselves discover the phenomena Laennec describes, though we are willing to admit this may be the result of want of tact. As far as regards the motions of the heart, the stethoscope seems entitled to more credit; and by its use, and by means of the important discussion now going on, we may hope soon to fix the diagnosis of diseases of the heart on the firmest grounds.

Before entering on Carditis, it will be necessary to speak of the motions which are heard through the medium of this cylinder during health. We speak first of the extent at which the beating of the heart is heard. The beating of the heart is heard most distinctly when the cylinder is applied to the left side, between the fifth and seventh ribs, or to the lower part of the sternum, the action of the left side of the heart being best heard in the first situation, the action of the right in the second. It is also heard in a less degree over the right side. It is more distinct during exertion, &c. and in thin people, the beating being less perceptible and less diffused in fat persons. In the former, indeed, we sometimes hear the beating of the heart all over the sternum, on the left side as far as the clavicle, and sometimes in the same situation on the right side. When the beating of the heart is heard beyond these limits, or even within them, if the patient has slight dyspnoea, is unable to take much exercise on account of shortness of breath, palpitation supervening to slight emotions, &c. we may suspect disease of the heart, though these symptoms may continue for years without any further changes. It seems that, when the parietes of the heart are thin, and consequently weak, the beating of the heart is heard over the greater part of the thorax; and that the reverse happens when those parts are thickened. It should be remarked, however, that the increase in the general size of the heart causes its beating to be externally heard.

The next point to be attended to in the use of the stethoscope, is the degree of impulse which the beating of the heart gives to the chest. Laennec calls this the *shock*. It must not however be confounded with the movements of respiration, which, when short and frequent, as in fevers, &c. may be mistaken for it. It seems that this shock is audible through the cylinder when it cannot be felt by the hand. It is rather indistinct in healthy and fat persons; and is generally in a direct ratio to the thickness of the walls of the ventricle, conse-

quently in an inverse ratio to the extent of the beating of the heart. It is only heard during the contraction of the ventricles; or at least the contraction of the auricles, when audible, produces a more distant and indistinct sound. The *shock* is scarcely heard at all when the parietes of the ventricles are morbidly thin. The increased force of this shock is viewed, therefore, as presumptive evidence of thickening of the parietes of the ventricles, while its absence seems to indicate dilatation of the ventricles. Laennec endeavours to point out the phenomena developed by the stethoscope when both the latter states of disease are present; but these are by no means satisfactory. The *shock* is heard over the fifth and seventh ribs on the left side, over the lower half of the sternum, or, when that bone is short, over the epigastrium. Coinciding with the shock above-mentioned, and coinciding also with the pulse, we hear, by means of the cylinder, an obtuse sound which lasts about two seconds: this is produced by the contraction of the ventricles. Immediately afterwards we hear the contraction of the auricles announced by a short acute noise, which Laennec has compared to the sound produced by the lapping of a dog or from the valve of a bellows. He denominates it *claquement*, a word well translated by our English *clacking*. This clacking, the sign of the contraction of the auricles, is followed by the perfect inaction of the heart for a short space of time. Then the obtuse noise, and rising or *shock* of the ventricles, is again heard; which is instantly followed by the *clacking*; and so on. The proportion of these motions is nearly as follows: of the time occupied by all the motions of the heart, one fourth is taken up by the *clacking*, or contraction of the auricles; one fourth by absolute rest; and one half by the contraction of the ventricles. Having thus explained, in a certain degree, the application of this new instrument, we return to Carditis.

As between inflammation of the brain and arachnoid membrane, as between that of the pleura and of the lungs, the symptoms vary, so also do we find them varying as the muscular substance of the heart, or its investment, the pericardium, is the seat of this action. This opinion is of course to be received with some distrust, because our knowledge of the diseases of the heart is very limited. We rest it chiefly on the authority of Laennec, than whom no one has performed more important service in elucidating the nature of the disease we are treating of.

The principal divisions of diseases of the heart are made with reference to the morbid products or alterations of structure found on dissection. Though we propose to mention cursorily the chief of these, it is by no means our intention to treat of them fully. We shall rather confine ourselves to a minute and laboured detail of the forms and diagnostics of inflammation as it affects the various parts or structures of the prime mover of animal life. We do this, because it seems to us, that morbid anatomy is of no use unless it leads to a discovery of the mode of action by which diseased structures are built up; for that, in the majority of cases, when once formed, all endeavours to remove them by medical skill are unavailing, is a truth but too well known.

Inflammation of the investing membrane of the heart, or *pericarditis*, has been usually held to be undistinguishable from inflammation of the heart itself; and, when acute, this must necessarily be true of all but the first periods of the disease, because its connection with its inclosed vessels will of course bring on actual Carditis. The symptoms of acute pericarditis are simple acceleration of the movements of the heart; viz. quick and hard pulse, redness of the capillary system as manifested in the skin, added to the usual symptoms of phlogosis of serous membranes. The acceleration alluded to is evidently an effect of irritation of the muscular fibres of the heart; and, this being uniformly exerted over the whole of the heart,

heart, we should naturally expect to find more increase in the quickness and force of its motions: for, to more rapid circulation through the pulmonary circles we refer redness of the skin; to the same increase through the aortal system, arising from quickened action of the ventricles, we refer the quick pulse; and to these united, the increased heat. The same symptoms belong also to that early stage of carditis which has not passed the bound named *excitement*, and to inflammation of the membrane which lines the heart and arteries. From this it follows, that the primary symptoms of inflammation, in whatever structure of the heart it may be situated, produces the same symptoms while it is within certain limits as to violence; but this is by no means true of those grave phlogoses which attack particular spots of the heart, or attack it generally in a violent manner. Nor is it true of the severest forms of pericarditis or arteritis, (the term by which we designate phlogosis of the inner membrane of the heart and arteries.) In these, the symptoms betray the following variations. Most authors have asserted, that between acute pericarditis and actual carditis there is no difference. Indeed Dr. Baillie and others have stated that they are never found separate on dissection. Laennec, however, denies this. In carditis, in common with other thoracic inflammations, we have difficulty of breathing, febrile heat, and thirst. From the peculiar sensibility of the nerves with which the heart is connected, extreme anxiety and oppression are met with, the countenance betraying the deepest distress. From the increased sensibility of the nerves, the motions of the heart are felt by the patient: this constitutes what is termed *palpitation*. Palpitation is more generally felt, however, from arterial increase in the motions of the heart. It is sometimes so great, that it is felt even in the carotids and the head. One side or cavity of the heart, acting more rapidly than its correspondent one, naturally induces irregularity of pulse; it likewise induces an accumulation of blood in one cavity to so great a degree, as to suspend its action: hence arises syncope. Pain is likewise present: it is usually described as of a sharp and gnawing kind, situated under the sternum, and is highly aggravated by muscular motion. The recumbent posture is often uneasy, the patient feeling easiest when the body is bent forwards.

That inflammation of the heart has existed without all these symptoms is no objection to the account here offered, for pain is often absent in other phlogoses commonly characterised by it. It may happen that irregular action of the muscular fibres of the heart may not occur, in the same way that spasmodic contraction of the muscular coats of the bowels does not always attend phlogosis of the internal membrane, though it does so commonly. And, if the latter proposition be admitted, we shall have no difficulty in accounting for the absence of syncope and irregularity of pulse. It is to be noticed, that inflammation of the muscular substance of the heart is a disease of rare occurrence. Laennec doubts if a case has appeared in which inflammation occupied the whole of the structure in question. Phlogosis of particular portions, ending in abscess or ulceration, are more common; but still the majority of cardites seem to be membranous affections.

The following are the symptoms of acute pericarditis, as described by Laennec. "Les contractions des ventricules du cœur donnent une impulsion forte, et quelquefois un bruit plus marqué que dans l'état naturel; à des intervalles plus ou moins longs surviennent des pulsations plus faibles et plus courtes, qui correspondent à des intermissions du pouls, dont la petiteesse contraste extraordinairement avec la force des battemens du cœur; quelquefois il peut à peine être senti. Lorsque ces signes surviennent tout-à-coup chez un homme qui n'avait jamais éprouvé de symptômes de maladie du cœur, il y a une grande probabilité qu'il est attaqué de péricardite. Avez ordinairement le malade éprouve une

dyspnée plus ou moins grande, des angoisses, une anxiété inexprimable; il ne peut faire quelques pas, ou se remuer un peu brusquement dans son lit, sans éprouver des syncopes. Le sentiment de douleur, de chaleur, ou de poids à la région du cœur, est un symptôme beaucoup plus rare, mais qui se rencontre cependant quelquefois. Dans quelques cas, la région du cœur rend un son mat; mais le plus souvent ce signe n'est pas bien évident."

When the membrane which lines the cavities of the heart and large arteries is inflamed, constituting *arteritis*, we observe the following circumstances. The complaint sometimes arises spontaneously, but more frequently as a consequence of severe febrile affections, small-pox, measles, or rheumatism. When it comes on vicariously with the latter disease, all the phenomena of carditis are uncommonly severe except syncope, which is often not present.

This disease has also supervened on extensive surgical operations. It sometimes begins as phlebitis, or inflammation of the viscus; sometimes as arteritis, or inflammation of the arteries; occasionally it produces death, while confined to one or other of these vessels, but more frequently the lining of the heart becomes implicated before the fatal event. The symptoms of the complaint are—general redness of the skin; increased pulsation of the arteries, so great as to be visible at the distance of some paces from the patient; and the usual symptoms of carditis soon follow. Early in the disease, if its development is not sudden, the patient is restless, impatient, watchful, irritable: he experiences partial flushings, which gradually increase both in frequency and extent: his bowels are inactive, but his pulse is imperceptibly affected. By and bye, he complains of a deep-seated pain in some part of the abdominal or thoracic regions, and seldom fails to describe it as being hot, lancinating, spasmodic, and increased by slight exertion. Disturbance of the vascular system now comes on: respiration is accelerated, and the breath feels offensive from its heat. The mouth, however, remains humid, the tongue red, the lips moist and natural. Rigors at last are felt; and, as the disease advances, the internal pain becomes more diffused. The original flushings give place to a true febrile state of the cutaneous surface; and the disquietude is succeeded by head-ache, nausea, languor, and depression. Inappetency and quenchless thirst prevail. The bowels are more obstinate; the mouth tastes bitter. The pulse, in some instances, is hard, strong, and tumultuous; in others, wiry and irregular. If transient sleep is obtained, it is unrefreshing and interrupted by startings and frightful dreams. About this time cough begins. This sometimes is dry, frequent, teasing; sometimes it recurs in violent and tedious paroxysms, and is accompanied with expectoration of fetid mucus, the clots of which are occasionally streaked with florid blood. When the disease has, at length, acquired a formidable ascendancy, all its previous symptoms, and the symptomatic fever (which is generally the inflammatory), are greatly aggravated. The patient's countenance suddenly shrinks, becomes pallid, haggard, cadaverous. His strength sinks; his emaciation is extreme. His lips are crimson or livid; his tongue red, smooth, moist. At the same time his breathing is rapid, difficult, irregular; the head-ache intense; the pulse hard, labouring, intermittent, accelerated to 110—130. Consecutive to the former deep internal pain, a distressful sense of constriction, most frequently in the cardiac, præcordial, or epigastric region, is established. Spasms not unlike those of tetanus, in many cases, occur under the xyphoid cartilage, and in the line of the diaphragm. The countenance and extremities grow œdematous. forcible palpitations of the heart, and, in some instances, of the abdominal aorta, so as to be distinctly felt through the integuments, now predominate. The arteries pulsate with alarming and painful violence, and the action of the more superficial is quite visible: that of

the carotids is audible by the patient himself, often by his attendants. Syncope is frequent; the paroxysms of dyspnoea protracted and agonizing. The anasarcaous effusion extends and becomes general. In many cases ascites supervenes; in others, hydrothorax: in some, the extravasation of serum is universal and profuse. Dyspnoea succeeds, and the patient is confined to a sitting posture. The least motion excites cough, and a sense of instant suffocation. Wheals and ecchymosed patches arise in different parts of the body. Violent convulsions ensue; and, in one of these, exhausted already and moribund, he struggles and expires.

The appearances on dissection are a general and deep redness of the internal coats of the arteries, veins, and heart: sometimes this last presents a spotted appearance: it is to be observed, however, that both purple and scarlet redness of the internal membrane of the heart and large arteries, has been noticed by Hodgson and Laennec in subjects who had not suffered inflammation. We shall not detain our readers long on the necrotomy of this disease further than to observe, that inflammation of the arteries, whether chronic or acute, renders the vessels liable to the deposition of organizable lymph on their internal surface; to obliteration, dilatation, and aneurysm; to a cartilaginous and steatomatous thickening of their inner coat; to the deposition of osseous and other matters in any part of their structure; and to become scirrhous, cancerous, fungous, ulcerated, or sphacelated.

The reader will perceive the difficulty of distinguishing arteritis from simple inflammatory fever; but the mistake is not of much consequence, since the treatment is in each disease the same. A very close analogy is also perceptible between the symptoms of this complaint and the form of inflammation described before it. As to the duration of these diseases, they are various. What we have hitherto stated with regard to carditis applies to its most violent form, to that form indeed which runs its course in from two to seven days. Another form of carditis is now and then found which is called the subacute: this variety is characterized by symptoms analogous to those of the acute, only somewhat more moderate. There is less severe pain and sensation of burning in the situation of the heart; but which are generally preceded by shivering, and attended with great heat and thirst, and a quick, hard, and sometimes irregular, pulse. The countenance of the patient, at the commencement of the attack, is usually suffused, but after a lapse of a few days becomes hollow and dejected, and has a peculiar irritable look. There is a constant state of agitation and great anxiety. The palpitations of the heart are not so vehement; and the faintings, if they occur, are usually of an incomplete description. If the disease run on to a fatal termination, the hippocratic look of the face, an abatement of pain, slight rigors, extreme anxiety, sense of suffocation, slight faintings, and occasionally cedematous swellings, take place a short time prior to that event.

Sub-acute inflammation of the heart is sometimes complicated with Pneumonia, Pleuritis diaphragmitis, and organic obstructions in the great vessels. It has also been connected with the symptoms of Catarrhus suffocativus and croup, though the usual seat of those affections betrayed no inflamed appearance on dissection.

The treatment of carditis under each of these forms is simple, but too often ineffectual. Bleeding is every thing in it. We have urged the necessity of very active blood-letting in most of the species of this genus we have at present passed through. It will be sufficient therefore to observe, that carditis calls for more active depletion than any other of the Phlogotica: for, not only must we bleed to reduce inflammatory action, as in other structures, but we must also bleed with the view of setting the heart at rest; this operation being the only one by which rest can be procured. In addition to these measures, it is proper to excite the capillaries by all sorts of irritants; as by drastic purges, brisk diuretics, diaphoretics, blis-

ters, or frictions with tartarized antimony on the chest, or, if in a rheumatic patient, on the legs. It must not be concealed, however, that, except the bleeding and purging, little dependance can be placed on these measures. Should they be so fortunate as to produce a remission of symptoms, we should salivate the patients without loss of time by mercurial inunction, and by scrupledoses of calomel combined with opium. Local bleeding seems next to useless in Carditis. In Arteritis, very large doses of digitalis may be given with advantage.

A no-less formidable disease, and one still more difficult to recognize, is *chronic carditis*. It proceeds so insidiously, that it often becomes incurably established before a suspicion of its true nature has occurred. It frequently subsists unattended by any pain in the region of the heart itself. On the contrary, it is apt to induce pain, and to resemble affections, in *distant parts*, as the epigastrium, the hypogastrium, &c. It is at length ascertained to have existed, by the symptoms of deranged circulation, the effects of organic change superinduced; or perhaps its existence is not suspected during life. The symptoms which have been most frequently observed are—some degree of febrile affection; a small, quick, and irregular, pulse; and a peculiar jarring sensation communicated to the hand when placed over the situation of the heart. Palpitation of this organ is generally absent; but, when it does occur, it is inconsiderable in point of extent. There is usually no pain, though we sometimes meet with a little uneasiness in the region of the heart: at other times a slight degree of obtuse fugitive pain may be present. When pain is seated in the hypogastric region, it is oftentimes attended with suppression of urine. Sometimes there is a sense of beating in the head. The pulsation frequently takes place in the epigastric region, which has, in some degree, the appearance as if it arose from a throbbing tumour. Obstinate vomiting is occasionally present. At length dropical affections supervene, as œdema of the face and extremities, and effusion into the cavity of the thorax; the breathing then becomes more difficult and laborious; the countenance assumes an anxious and bloated aspect; delirium not infrequently comes on; and the patient after much suffering, of longer or shorter duration, sinks into dissolution. Chronic inflammation is not uncommonly superadded to dilatation or enlargement, and also to other organic affections, of the heart.

M. Corvisart describes a variety of Pericarditis, which he denominates sub-acute. It is less rapid in its course, and less obscurely marked, than acute inflammation of this organ, but nevertheless more marked and rapid than the form of disease just detailed. "L'invasion de la pericardite sub-aiguë, est bien rarement marquée par des symptômes vifs qui puissent faire regarder la maladie comme devant être promptement funeste. La pleurésie est la phlegmasie avec laquelle cette péricardite commence à le plus de traits de ressemblance. Comme dans cette affection, le malade éprouve d'abord un sentiment de chaleur générale dans tout le côté malade de la poitrine; peu après, cette chaleur se concentre vers la région du cœur; là se fait sentir une douleur vive et brûlante. La respiration devient promptement haute et gênée; le pouls est fréquent, dur, et rarement irrégulier; les deux pommettes, et particulièrement la gauche, sont colorées d'un rouge vif; tels sont les phénomènes de l'invasion: mais au troisième ou quatrième jour, l'altération particulière des traits, la figure grippée, sur laquelle on voit l'expression d'un abattement profond et pourtant d'une forte d'irritation, une anxiété constante et exprimable, une agitation continuelle, la respiration haute, pénible, entrecoupée, les palpitations légères, les défaillances incomplètes, d'autant plus éloignées l'une de l'autre que la marche de la maladie est plus lente; enfin, le pouls petit, fréquent, dur, serré, concentré, souvent irrégulier, ne laissent que peu de doutes sur le siège positif de l'inflammation. Les symptômes plus graves, qui, vers

le troisième jour, remplacent ceux de l'invasion, ne restent les mêmes que pendant peu de temps, après lequel le visage s'altère davantage, la face prend tous les traits de celle si bien dépeinte par Hippocrate; la douleur cesse en tout ou en partie; il y a des frissons fugaces, des défaillances longues et incomplètes, des suffocations, une anxiété insupportable; une infiltration générale survient: le malade meurt enfin, le plus souvent à l'improviste, soit en voulant se lever, soit en buvant, soit en changeant de position."

The treatment of chronic carditis, and the above-mentioned form of pericarditis, consists in keeping the heart in a state of comparative rest by occasional bleeding, and a diet of the most sparing kind; in counter-irritating the skin by blistering, or by a seton, and by the gradual introduction of mercurial remedies. In the mean time the action of the bowels, of the skin, of the kidneys, and indeed of all parts of the secretory system over which medicine has any controul, should be gently excited.

Acute carditis, i. e. of the muscular substance, terminates in abscess, ulceration, gangrene, or rupture. Gangrene must be of rare occurrence, since the rupture would most probably take place before the former accident could occur. We have no means of knowing, during life, that abscess or ulceration exists. The former may exist without symptoms; for Benivenius gives a case of a criminal, who, before his execution, seemed perfectly well, in whose heart, however, an abscess was discovered on dissection.

From the cases hitherto recorded, it seems that abscess is more rare on the internal than on the external surface of the heart. On the contrary, ulcers are most common on the inside of the heart. Ruptures are the frequent mode of termination of ulcers in the heart. Rupture may occur, however, from violent and sudden exertion; but these cases are few in number. It is remarkable that ruptures of the right ventricle are less frequent than ruptures of the left; and that, in the latter case, the rupture seldom happens at the thinnest part of the muscular substance. It is needless to add, that these ruptures must be followed by instant death. A rupture of the *cardæ tendinæ* may occur, however, without this sudden fatality. On dissection of rupture of the heart, the pericardium is invariably found full of coagulated blood.

Increase of substance of the heart, or hypertrophy, and diminution, or atrophy, morbid dilatation, and contraction, are all affections which may arise from chronic irritation of the muscular substance of the heart. This is only, however, a surmise: it is certain that the above-mentioned state may come on without any affection of the heart's substance, but from obstruction or disease in contiguous viscera. The cause of morbid hardness or softness of the heart is supposed to be possibly chronic inflammation; but nothing is known precisely on that head.

Pericarditis terminates in an effusion of water, in tubercles, granulation of various kinds, and more commonly in adhesions. When *effusion* takes place in the pericardium, and the case is unattended with organic diseases of the heart, we have, in addition to the symptom of deranged function exhibited in carditis, a deep livid colour of the lips; sometimes a cough; a constant sense of weight in the region of the heart; frightful dreams, the subject of which is generally impending suffocation. The weight at the chest is generally aggravated by the recumbent position; the easiest posture being a gentle inclination forwards, the hands resting on the knees.

These are all the symptoms observable in hydrops pericardii of small dimensions; that is to say, when one pound or so of water is effused: but, when the complaint is more excessive, (for the effusion is said to have reached the extent of eight pounds,) we have, as some authors say, much more marked symptoms. Senac avers, that he has seen the fluctuation of the fluid contained

within the pericardium, between the third, fourth, and fifth, ribs; and Corvisart mentions that he once felt it. Pulsations, moreover, are sometimes felt a little on the right of the sternum, and also a little higher or lower on the left side than where the heart's pulsation is commonly recognized; these arise from the water being impelled, by the action of the heart, with some degree of force, against the parieties of the thorax at different points.

It is reasonable to suppose, that with the *stethoscope* we should experience a sound of fluctuation; and that, if the pleura contained fluid, we should meet with this at some distance from the heart, and isochronous with its pulsations. Laennec heard a very distinct fluctuation in a case in which *air* was contained in the pericardium.

We should not pronounce, on dissection, that a patient had laboured under this disease merely because we found a small quantity of water in the pericardium, since a few ounces may be poured forth after death. The effused fluid is generally limpid, and tinged with yellow or red. It has been proposed to cure this malady by puncturing the pericardium, some advising this to be done through the ribs, others by trephining the sternum.

We have not space to detail the other various products found in the pericardium: they are indeed the same as in all other serous membranes. We have a few words, however, to say on adhesion of the pericardium to the heart. Many authors have described formidable symptoms as attached to this malady: but it is remarkable that more recent investigation has shown, that the symptoms described are as uncertain as in any other disease of the heart. We quote from Laennec the following remarkable account. He says, "Avant que la conversion des fausses membranes en tissu cellulaire fût bien connue, l'adhérence du péricarde au cœur a été regardée par divers auteurs comme la cause de plusieurs accidens graves. Lancisi et Vieussens pensent qu'elle produit constamment des palpitations; Meckel, qu'elle rend le pouls habituellement petit; Senac, qu'elle détermine des syncopes fréquentes. M. Corvisart lui-même est tombé à cet égard dans plusieurs erreurs. Il admet trois espèces d'adhérences: dans la première, l'adhésion du péricarde au cœur a lieu au moyen d'une matière albumineuse demi-concrète; et c'est la seule qu'il reconnoisse comme une suite de la péricardite. La seconde est l'adhérence intime ou par un tissu cellulaire très-court: il pense qu'elle est l'effet d'une affection rhumatismale ou gouteuse. La troisième est celle qui a lieu au moyen d'un tissu cellulaire plus ou moins long: la cause de celle-ci lui est inconnue. Il ne pense pas, au reste, qu'on puisse vivre et vivre *suin* avec une adhérence complète et immédiate du cœur au péricarde ou des poumons à la plèvre. Je puis assurer que j'ai ouvert un grand nombre de sujets qui ne s'étaient jamais plaint d'aucun trouble dans la respiration ou la circulation, et qui n'en avaient présenté aucun signe dans leur maladie mortelle, quoiqu'il y eût adhérence intime et totale des poumons ou du cœur; et, pour ce qui regarde ce dernier organe en particulier, je suis très-porté à croire, d'après le nombre de cas de ce genre que j'ai rencontrés, que l'adhérence du cœur au péricarde ne trouble souvent rien l'exercice de ses fonctions. Il m'a paru seulement que la contraction des oreillettes devenait beaucoup plus obscure quand elles sont adhérentes au feuillet fibreux du péricarde."

The membrane which lines the heart and larger arteries is subject, independently of the two kinds of redness before mentioned, to ossification and cartilaginous indurations of certain parts of it; and to many other anomalous products, varying from simple coagulation of blood to polypi, tubercles, cysts, and even hydatids. We must refer the reader, who wishes to be familiarly acquainted with their appearances when he meets with them on dissection, to Laennec's work, in which he will find a most ample account of them. But we shall quote his account of the symptoms of the ossification and cartilaginous

laminous incrustations which affect the valves of the heart, because those symptoms differ as they are situated on one or other of these parts.

The symptoms of the ossification of the mitral valve will be found to vary in some degree from those which token ossification in the sigmoid valves. The chief token of ossification in the mitral valve is, according to M. Corvisart, "a peculiar rustling, difficult to describe, felt by the hand when applied on the precordial region." But, though hard to describe, it is (as Laennec observes) easy to recognize after it has once been observed, and Laennec compares it to the trembling of a cat when stroked. Corvisart adds, that the pulse is also very peculiarly fluttering; it is moreover weak, without hardness or fulness, and less irregular than in ossification of the aortic sigmoids, but more so than in the straitening of the orifices of the right cavities." To these symptoms are often added those which announce hypertrophy and dilatation of the left auricle and right cavities, because the obstacle which the blood meets with in passing from the auricle to the left ventricle must necessarily, after a certain time, produce these effects.

Laennec, however, was never able to detect this peculiar character of the pulse, even in those cases where the rustling or trembling in the precordial region was most evident; neither was the latter symptom evident to the touch except where the narrowing of the affected orifice was very considerable; for Laennec had often met with cases of extensive ossifications of the aortic and mitral valves, in which none of that rustling could be perceived.

In the ossification of the sigmoid valves, the pulse, says M. Corvisart, "may preserve a certain degree of hardness and stiffness, but never much of fulness nor of regularity." There will be strong and frequent palpitations; besides "that peculiar species of undulation, rustling, or purring," which has been already noticed in ossification of the mitral valve. We see, then, says Laennec, that "these symptoms are at length reduced to that peculiar sensation which is felt by the hand applied over the region of the heart, and which I call *frémissement cataire*; for the greater or less irregularity of the pulse cannot be considered as a pathognomonic symptom, such irregularity being met with, in every possible degree, in pericarditis, in the paroxysms of all diseases of the heart, even when no ossification is present, and also in diseases of the lungs where the heart is not affected.

"Since I began my observations with stethoscope, I have met with but three cases wherein the ossification of the mitral valve was so considerable as to constrict the orifice of the left ventricle to a degree sufficient to produce the *frémissement cataire*; and, as these patients did not die, I had not an opportunity of verifying the diagnostic by inspection. Nor have I met with that affection above three or four times, and that in a slight degree, in the aortic sigmoids. The rustling could not be discerned in these cases, which however were decided cases of ossification, and all verified by necrotomy. On a comparison of the few observations just given with those which I had previously made without the help of the stethoscope, I think I may present the following results as exact, or very nearly so.

"The ossification of the mitral and sigmoid valves does not produce irregularity in the circulation, nor can it be discovered by examination of the pulse or by applying the hand over the region of the heart, until it has reached such a degree as to have considerably narrowed the orifices of the left ventricle. The ossification of the mitral valve does not produce the rustling noise unless it is very considerable; and I never observed it in ossification of the sigmoids, though I have often found them so ossified as to have reduced the orifice of the aorta to one half or even one third of its natural size.

"A moderate degree of ossification in the mitral valve may be detected by the cylinder (the stethoscope), by the following symptoms: the sound which accompanies the

contraction of the auricle is more prolonged, more dull, yet somewhat rough like the stroke of a file upon wood; sometimes the sound resembles a blow or flap, but this when the induration is rather cartilaginous than bony. This peculiar sound, of a file or of a blow, is very evident even in those cases where the *frémissement* is not sensible to the touch; but it is more so when the latter is present, and has a degree of strength in proportion with it. The ossification of the aortic sigmoids may be detected by a similar sound during the contraction of the ventricle.

"A slight degree of ossification in the sigmoid and mitral valves produces neither of the sounds we have mentioned; but it may be detected, or suspected, from a sensation of hardness, roughness, or harshness, in the contraction of the ventricle or the auricle; and this sensation is clearly independent of the force of impulsion in these organs. The same symptoms would probably occur in slight ossification of the tricuspid valve and the pulmonary sigmoids. In these cases, as in dilatation and hypertrophy of the heart, an examination made (with the cylinder) alternately under the lower part of the sternum and between the cartilages of the sixth and seventh ribs, noticing also the state of the external jugular veins, will be always sufficient to decide in what part of the heart the disease is forming."

The arrangement of Dr. Good not giving us an opportunity of fixing the remaining diseases of the heart with nosological accuracy in their proper places, we shall treat of them here, even though they do not exactly tally with the generic characters of Empresma.

Like all other muscles, the heart increases, in regard both to the number and force of its fibres, during unusual exertion. It is thus that thickening and general enlargement of the heart follows extraordinary and long-continued exercise. We may remark, however, that an unusual volume of the heart is sometimes congenital. Exercise operates in a similar manner on one cavity of the heart: thus, if obstruction exist in the lungs, the increase of power acquired by the right ventricle requires also increased size of its contractile structure; and the same arises in the left ventricle from obstruction in the aorta. This increase of substance may be connected with particular circumstances which may alter its symptoms; that is to say, there is a difference in hypertrophy of one or that of both cavities. The symptoms of this disease are taken chiefly from Laennec. There is a difference between hypertrophy with diminution of the cavity, and hypertrophy with increased calibre, and so on. The varieties and symptoms of hypertrophy which follow are chiefly extracted from the work of Laennec, wherein he continually examines the opinions and definitions of Corvisart.

By *hypertrophy*, or "increase of nourishment," of the heart, we are to understand an increase of thickness in its muscular substance, and consequently of the sides of its ventricles, at the same time that these cavities are not increased in the same proportion; most commonly, indeed the cavities are diminished. This disease, which is not very common, seems to have eluded the researches of Monf. Corvisart; for he constantly supposes a thickening of the sides of the heart to be accompanied with a proportionate dilatation of its cavities. The thickening, in this case, is always accompanied by considerable increase in the consistence of the substance of that organ, unless the hypertrophy is combined with an affection described under the designation of "softening of the heart."

Hypertrophy may exist in one of the ventricles only, or in both at the same time. The auricles may be affected at the same time and in a similar manner; but most frequently they remain as thin as in their natural state, even when the corresponding ventricle has acquired an enormous thickness. In some few cases, the auricles alone may be affected with hypertrophy.

When the left ventricle is attacked with hypertrophy,

the sides of this ventricle become thicker than in the natural or healthy state. "I have sometimes," says Laennec, "found the thickness to be full an inch at the base of the ventricle, which is double that of the healthy state: this thickness in general diminishes insensibly from the base to the apex of the ventricle, where it becomes almost nothing; but in other cases the apex partakes in the affection, and I have sometimes found it from two to four lines in thickness, which may be estimated at twice or four times its natural thickness." The fleshy columns and supporters of the valves acquire a thickness proportioned to the degree of hypertrophy. The interventricular partition, which in the present case seems to appertain to the left ventricle much more than to the right, participates greatly in the disease, though it never acquires a thickness equal to that of the rest of the sides of the ventricle. The muscular substance of the diseased ventricle becomes sometimes twice as hard as in the natural state, and of a more intense red colour. The cavity of the ventricle appears to have lost in capacity what the sides have gained in thickness. In a heart twice as large as the patient's fist, this cavity has been so small, that an almond with its shell could scarcely be squeezed into it. The right ventricle, now diminished in proportion as the left is enlarged, lies flat along the interventricular partition, and does not reach so low as the point of the heart: in these severe cases, it seems as if were imbedded in the substance of the sides of the left ventricle.

The following are the anatomical characters of hypertrophy of the right ventricle. The sides of this ventricle are thicker and harder than in the natural state: they sink or give way but little under the knife; their thickness is more uniform than that of the left ventricle, being indeed nearly the same throughout the whole length of the ventricle; it is, however, always rather more marked about the triglochin valve, and in that portion of the ventricle which forms the origin of the pulmonary artery. The fleshy columns and pillars are considerably increased in dimensions; and this circumstance, which is more evident than in hypertrophy of the left ventricle, is, together with the extraordinary hardness of the substance of the heart, most remarkable and decisive of an hypertrophy of the right ventricle, and most easy to detect on a first examination; for the absolute thickness of the sides of this ventricle is never very considerable; never, says Laennec, more than four or five lines.

Hypertrophy of the Left Ventricle.—This is the affection which appears to be described by M. Corvisart under the name of "active aneurism of the heart." The symptoms arising from a thickening of the left ventricle, besides those of diseases of the heart in general, are—a strong pulse, the beats being very perceptible to the patient, as well as to physician, by applying his hand over the region of the heart; the absence or diminution of the sound arising from percussion on the region of the heart; and the red, rather than blue, colour in the face. But these symptoms are not constant; and it is not uncommon for a considerable hypertrophy of the left ventricle to exist where scarcely any of them are present. The pulse, in particular, is a very deceitful guide; and it is perhaps as common to find it weak as strong, even in patients afflicted with a high degree of hypertrophy. Percussion, and the application of the hand over the region of the heart, are also fruitless modes of examination if the patient happens to be fat or dropsical. The use of the stethoscope, however, is here of more decided importance. The instrument being fixed between the cartilages of the fifth and sixth ribs of the sternum, the contraction of the left ventricle will produce a strong impulse, and a sound duller than ordinary; and the more considerable the disease, the more this sound is prolonged. The contraction of the auricle is very short, little sonorous, and therefore scarcely sensible in severe cases. The beatings of the heart are heard through a small extent only; most frequently they are scarcely audible under the left cla-

vicle and the top of the sternum; sometimes they are heard only where they may be felt, namely, between the cartilages of the fifth and seventh ribs. In this disorder, more than any other, the patient feels the beating of the heart almost continually; but he is not very subject to violent attacks of palpitation, unless from some extrinsic causes, as disturbance of the mind or violent exercise. Irregularities and intermittences of the palpitation are not common; and they are characterized by an increase in the impulse of the ventricles rather than by the noise they make.

Hypertrophy of the Right Ventricle.—The symptoms in this case, according to M. Corvisart, differ from those of the preceding section chiefly by a greater difficulty of breathing and a darker colour of the face. He adds, "the beating of the heart being more evident on the right side of the breast may be considered as a symptom of the dilatation of the right ventricle; but this symptom, unless accompanied by others, is not much to be depended upon."

Lancisi had noted as a symptom of the aneurism of the right ventricle, the swelling of the external jugular veins, accompanied with pulsations analogous and isochronous to those of an artery. M. Corvisart rejects this symptom, relying upon what has, he says, "been observed in cases where the left cavities have been found dilated;" and moreover, "because such pulsation may be confounded with that of the carotids." But the observation of M. Laennec gave him a result which does not agree with the opinion of M. Corvisart. He says, "I constantly found this symptom in all the cases of hypertrophy of the right ventricle which came under my notice; and I never observed it in persons attacked with hypertrophy of the left ventricle, unless the same persons had a similar affection in the right also; and I think that person must have been a careless observer, or one who had never met with these jugular pulsations, who could confound them with the rising produced by the beatings of the carotids. These pulsations, moreover, are confined to the lower part of the jugular veins; and are scarcely sensible, or much less so, towards the middle of the neck, where the external jugular vein approaches the carotid, from which indeed it is separated only by the sterno-mastoid muscle. Sometimes, however, the reflux of the blood extends farther, and even beyond the jugular veins: Hunaldus had found it to extend, most decidedly, to the superficial veins of the arm. We may therefore consider this symptom, whenever it is present, as a good reason to suspect at least an hypertrophy of the right ventricle."

The contractions of the heart in hypertrophy of the right, as heard through the stethoscope, are of the same kind as in hypertrophy of the left ventricle, except that the sound from the contractions of the affected ventricle is less dull. But in hypertrophy of the right ventricle, the heart gives a stronger impulse under the lower part of the sternum than between the cartilages of the fifth and seventh ribs; while the contrary takes place, as we have seen, when the left ventricle is affected. In the generality of persons, the pulsations of the heart are equally audible in each of those places; but in others, who however have no appearance of disease of the heart, they are heard more clearly under the sternum than between the cartilages of the ribs; "and it has appeared to me," says Laennec, "that such a symptom has always coincided with, or denoted, a decided predisposition to hypertrophy or dilatation of the right ventricle."

Hypertrophy of both Ventricles.—When both ventricles are at once attacked with hypertrophy, they both descend to the point of the heart; and the symptoms consist of an union of those proper to the hypertrophy of each ventricle, but with almost-constant predominance of those which indicate the hypertrophy of the right ventricle.

Dilatation of the Ventricles.—A dilatation of the ventricles of the heart, which M. Corvisart denominates "passive

“passive aneurism,” is distinguished by the following anatomical characters—enlargement of the cavities of the ventricles, the sides becoming thinner. These marks are commonly attended with a softening of their muscular substance, a colour sometimes bluer than natural, at other times more pale, inclining to yellow. The sides are sometimes softened to such a degree, especially those of the left ventricle, as to yield to the pressure of the fingers; and they become so thin as not to exceed (in the left ventricle) two lines in the thickest part, and at the extremity scarcely half a line. The extremity of the right ventricle is sometimes thinner still, appearing to consist only of a little fat and a strip of the internal or serous membrane of the pericardium which covers the heart. The fleshy columns, particularly those of the left ventricle, are manifestly more distant from each other than in the natural state. The interventricular partition loses less of its thickness and consistence from the effect of the dilatation than the rest of the parietes of the heart.

The dilatation may affect one ventricle only; but it is more common to find them both affected at the same time; which is the more remarkable, as in hypertrophy the contrary takes place. When one ventricle only is affected, its extremity reaches lower than the other, but this disproportion is not so great as in hypertrophy; and the enlargement of the dilated cavity appears rather to be in its diameter than longitudinally; inasmuch that a heart which has both its ventricles dilated, becomes rounded, and very near as large at the apex as at the base; and in shape it will appear like a pouch, rather than of the conic form which is natural to it.

As to the cause of dilatation of the heart, some difference of opinion is found amongst the best authors. Corvisart conceived, that, when the system was in a state of plethora, or the heart, from other causes, kept much in a state of congestion, it had a tendency to dilate in one or more of its cavities. With the dilatation of the auricles he almost invariably found a corresponding increased tenuity of the parietes. In the right ventricle too, the walls generally became thinner as its capacity increased; but in the left ventricle the contrary. He considered the cause to be pressure on the parietes from the fulness of the cavities, which in their dilatation became attenuated or thickened, not from superadded disease, but from the inherent and original diversity of structure. He conceived the symptoms would be found to correspond with this explanation: That in active aneurism the powers of the heart would be found to be increased; its concussion on the chest great, and the pulse proportionably strong.

M. Roftan arrived, after a very laborious investigation of the subject, at somewhat different conclusions. He convinced himself that dilatations, with increased thickness, were not to be ascribed simply to the effect of internal impulse, modified by the original character of the cavity, but that invariably some extrinsic causes could be found; that the current of the circulation was opposed either at the valves, or at some remoter distance; that the heart endeavoured to overcome this resistance; that in this effort its parietes were often increased in thickness, and its powers in strength. Patient examination declared the obstruction sometimes to exist at a distance from the centre of circulation, which had not previously been contemplated, deep in the substance of the lungs, or far in the course of the aorta. He conceived the disease to occur more frequently in the right ventricle than M. Corvisart had done. Claiming then the merit of ascertaining for this cause the consequence it bore, one which seemed so satisfactorily to account for the appearances, he upon the whole agreed with his fellow-labourer in the same field, that where there was increased thickness there was increased power. He very clearly, however, demonstrated how all this might exist without its manifesting itself by those symptoms of increased strength and power on which M. Corvisart had dwelt. The heart was mak-

ing its effort to overcome some resistance, and the full effect of its impulse could be felt only to the point of obstruction. Hence you could no longer depend on mere strength of pulse as a distinguished sign of dilatation with increased thickness of parietes. Imagining that he had thus ascertained, more satisfactorily than had previously been done, the key-stone on which much learned lore had been built, the cause of that class of disease generally denominated *active dilatation*, M. Roftan's investigations disclosed another truth. The cause of obstruction sometimes acted so long, and the thickening increased to such an extent, that it encroached upon the capacity of the cavity. Seeing how this could be readily explained, that it was but a further effect of the same cause, he very naturally allowed it to remain in the class to which it was most allied. In several cases he found the cavity so small, that it would hardly contain a walnut.

But the conclusions both of Corvisart and Roftan betray too ready a tendency to draw general conclusions; for it now seems pretty clearly ascertained, that the disease which M. Roftan attributes uniformly to some obstruction in the course of the circulation, may sometimes arise independently of this or any other very apparent cause. M. Laennec properly considers, that it is occasionally an idiopathic affection of the heart, though not of frequent occurrence.

The signs of a dilatation of the *left ventricle*, according to M. Corvisart, are—“pulse soft and feeble; palpitations weak, dull, sinking; the hand seems to feel a soft substance which raises the ribs, not striking them briskly; and pressure seems to render the beats more feeble. Very little sound proceeds from the region of the heart.” But the only certain evidence of a dilatation of the left ventricle, according to Laennec, is that produced by the stethoscope; namely, the rustling roaring sound of the contractions of the heart heard between the cartilages of the fifth and seventh ribs of the sternum. The loudness of the sound, and its extent, show the extent of the dilatation. Thus, if the sound of the contraction of the *ventricle* is as loud as that of the contraction of the *auricle*, and the beatings of the heart are at the same time evident on the right side of the back, the dilatation is very considerable.

Dilatation of the *right ventricle*, according to M. Corvisart, is accompanied with nearly the same symptoms, as to the state of the pulse and the beating of the heart, which however are rather more evident, of course, on the right side, that is, near the sternum and towards the epigastrium, than in the region of the heart properly so called. He, however, places not much reliance on this symptom, nor on that of Lancisi, namely, the swelling or puffing-up of the external jugular veins. The symptoms he thinks most to be depended upon are—greater difficulty of breathing than in the affections of the left ventricle; a more decided serous diathesis; more frequent hemoptysis; a more dark lividity in the countenance, sometimes even the darkest blue.

“These observations,” says Laennec, “are in general correct; but I cannot entirely concur with my celebrated master (Corvisart) as to the importance of two of these symptoms—the swelling of the jugulars, and the extent of the absence of sound in the region of the heart. An habitual puffing-up of the external jugular veins, but without sensible pulsations, has appeared to me the most constant (doubtful) symptom of dilatation of the right cavities of the heart. As to the absence of sound, I have often found the right cavities much dilated in cases where the breast emitted a considerable sound in the precordial region and under the sternum; and in general it has appeared to me, that the disease of the heart which produced most frequently the suppression of sound, was not this, but “hypertrophy combined with dilatation,” of which we shall presently speak. As to M. Corvisart's remark of the more intense lividity of the countenance in dilata-

tation of the heart, it may perhaps be more dark in dilatation of the right than of the left cavities, and the same thing may be said of the lividity of the extremities; but I have often seen the countenance very pale and yellowish, and even the lips discoloured, in patients attacked with dilatation of the heart; and, on the other hand, hypertrophy with dilatation of the right cavities, has appeared to me to be the disease most frequently attended by intense lividity of the face and of the extremities, great stuffing, frequent or considerable hæmoptysis, and a very considerable pouring-out of serous matter."

The only constant pathognomonic symptom of dilatation of the right ventricle, is the rushing noise of the heart to be heard under the lower part of the sternum, or in the space between the cartilages of the fifth and seventh ribs on the right side. The degree of dilatation is measured by the extent of the heart along which the sound can be heard, and according to a kind of progressive scale for which we must refer to Laennec, § 599.

The palpitations, in dilatation of the heart, consist chiefly in the frequency and noise of the contractions, not in the increase of their force, which indeed is often less than when the patient is in health. The irregularities of strength and of frequency, and the intermittingness of the pulse, are not very common, though perhaps rather more so in these cases than in hypertrophy.

Dilatation combined with Hypertrophy of the Ventricles of the Heart.—The union of these affections is very common. It may exist in one of the ventricles, or in both together. In the latter case, the heart may become prodigiously enlarged, even to thrice the size of the patient's fist. This increase of size arises from the thickening of the parietes of the ventricles, together with a proportionable increase of their cavities; their muscular substance also becomes harder.

The symptoms of this affection are, of course, a combination of those of hypertrophy and of dilatation. The contractions of the ventricles are attended with great force, and a considerable noise; those of the auricles are sonorous also. The pulsations may be heard through a great extent; and sometimes, especially in thin people and in children, the impulsion is felt equally under the clavicles, in the ribs, and even a little in the left part of the back. "I once (says Laennec) heard and felt the contraction of the ventricles in the lower and posterior right part of the breast of a woman attacked with this malady; and, though she was a little woman, and not strong, the impulse and the sound were more intense in that place than I have met with them in the precordial region of a stout man."

The contractions of the ventricles, in this disease, may be readily felt on applying the hand over the region of the heart; for here, particularly during the moments of palpitation, the beats will be found quick, dry, strong, and sensibly resisting the hand. If we attentively notice the patient when he is most calm and undisturbed, it will be seen that his head, his limbs, and even the bed-clothes, are really shaken at every contraction of the heart. The beatings of the carotids, of the radials, and other superficial arteries, are often visible. If we press the region of the heart, that organ, according to the expression of M. Corvisart, "seems to be angry at the pressure, and to re-act more violently." These violent beatings, says he, when the disorder affects the left ventricle, are accompanied with a pulse which is frequent, strong, hard, vibrating, and hard to be stopped. "This character of the pulse is observed, indeed," says M. Laennec, "very frequently in hypertrophy with dilatation, as well as in simple hypertrophy of the left ventricle: but I cannot agree with M. Corvisart in regarding it as a symptom of active aneurism of the left ventricle; for, as I have elsewhere observed, we find very often a pulse small and weak, though otherwise regular, in men whose heart is very large and habitually beats with great violence, and vice versa.

"The palpitations which take place in the disease we are treating of, when examined by the help of the stethoscope, present the same characters with the habitual contractions described above, but with greater intensity; and they are seldom accompanied with irregularities, unless when death is near, and they become weaker. In these palpitations we sometimes observe, besides the impulse which the heart seems to give through a large surface, a stroke more dry, more sonorous, shorter though isochronous, and which appears to strike the parietes of the breast along a much smaller surface: this stroke is evidently produced by a quick and strong rising of the apex of the heart."

If the beatings of the heart are examined alternately right and left, i. e. under the lower part of the sternum and between the cartilages of the fifth and seventh ribs, on the left side, we may exactly know which is the affected ventricle, if only one, or whether both are affected, as most commonly happens. It will be useless to repeat the symptoms which have already been sufficiently detailed. Dilatation with hypertrophy of the ventricles of the heart being, of all affections of the heart, that in which it attains the largest size, it is also that wherein the absence of sound in the region of the heart is observed most frequently and to the greatest extent.

Dilatation of one ventricle with hypertrophy of the other, is a species of complication not very uncommon, though more so than the preceding. The symptoms are still a mixture of those of hypertrophy with those of dilatation, the one set predominating over the other according as the former affection is more or less intense than the latter.

Dilatation of the Auricles of the Heart.—This variety of disease very rarely occurs, and we shall therefore be brief in detailing the symptoms. Laennec says, that, whenever the auricles were considerably enlarged, whether from actual dilatation or from distention arising in extreme pain, he found that their contractions, instead of the brisk sound they produce in the natural state, which has been compared to opening and shutting of a valve, give out only a dull obtuse sound like a bad pair of bellows. He never could clearly discover that the contractions of the auricles gave any impulse, even when the thickness of their parietes was greatly increased.

Here Laennec recalls our attention to a negative symptom which he had already noticed in analysing the beatings of the heart; namely, that, "in many cases of hypertrophy of the ventricles, the contraction of the auricles can scarcely be distinguished by examination over the region of the heart; but if, instead of this, the cylinder be applied over the sternum or under the clavicles, the contractions may then be clearly distinguished, and often the sound is very considerable. This symptom, as I have before observed, seems to point out, that the affections of the auricles and those of the ventricles are totally distinct from each other; i. e. that the auricles are not affected by the maladies of the ventricles."

Softening of the heart, fatty conversions, atrophy, and cartilaginous and bony indurations, do not betray clear symptoms of their existence during life; or at least we are not sufficiently acquainted with these symptoms. A general cachectic habit is usually observed in most of these morbid states, which of course require the long continuance of disorder before they are established.

The treatment of hypertrophy or dilatation is seldom attended with success. The little that is to be done is comprised in a few words. The circulation must be kept below par, by repeated small bleedings, when the substance of the heart is any-where thickened; by a very low diet, when it is diminished or morbid. We should somewhat modify the latter rule, because it is often an object to nourish and support the body in a state of actual deprivation of some of the sanguineous elements. Occasionally counter-irritants, and a regular use of medicines acting mildly on the capillary system, are also proper. Perhaps much of
the

the ill success which has attended this plan may be referred to the difficulty we have to make patients persevere in this very abstemious regimen, and the prejudices we have to encounter against the innumerable bleedings which it is necessary to perform.

We cannot dismiss the subject of cardiac disease without reminding the practitioner of the occasional similarity which nervous irritations display to organic diseases of the heart. We refer the reader, for one source of this irritation, to *Dyspepsia*; but nervous excitement in other organs besides the stomach gives rise to syncope and palpitation; as for instance, in hysteria, pregnancy, palpitation in the epigastrium, &c. The diagnosis is founded on the permanency of organic malady, in contradistinction to the paroxysmal attack of irritative palpitation; for though, in the former case, the patient is better and worse, he is seldom wholly free from disease. The increase in the symptoms of organic disease when muscular exercise (particularly running up stairs) is used, furnishes another point of difference between this and nervous disorder. Some further and obvious indications of diagnosis are drawn from the appearance of the tongue, skin, general state of the pulse, &c.

9. *Empresma peritonitis*, inflammation of the peritoneum: pain and tenderness of the abdomen, especially in an erect posture; with little affection of the subjacent viscera, or abdominal walls. Dr. Good gives three varieties.

α. *P. propria*: the inflammation taking the general range of the peritoneum; pain extreme, often pungent, with little or no relief from stools.

β. *P. omentalis*: with a more sensible swelling in the region of the omentum.

γ. *P. mesenterica*: pain deeper seated, and more immediately in the mesenteric region; external tenderness less than in the preceding varieties.

Instead of these distinctions, we shall adopt the more common ones of acute and chronic peritonitis.

Acute Peritonitis generally commences, like other visceral inflammations, with chills and shiverings, though these are sometimes slight, and occasionally absent altogether. This cold stage has been known to continue two or three days before the re-action took place. After this, the pulse becomes quick and frequent; there is considerable thirst; and the general affection, called fever, ensues. These symptoms are attended from the very beginning with a sense of heat and pain in the abdomen, at first generally confined to some one part, though sometimes diffused over the whole of its surface. This pain is much increased by pressure; or, in other words, there is a great tenderness or soreness of the belly, and most invincible costiveness. The pulse is at least one hundred in a minute, and small; yet the tongue is not much altered at first from its natural appearance.

As it is of much importance to distinguish the tenderness on pressure, we should carefully watch the countenance of the patient while we press on the belly. In doing this, we should put both hands on the sides of the belly, and draw them as it were to the centre; this mode of pressure producing more pain than that which is made directly downwards. In the course of twenty-four hours the pain and tenderness on pressure increase, so that even the weight of the bed-clothes sometimes becomes intolerable, and the pulse rises to a hundred and twenty or thirty in a minute: at this time the tongue begins to be covered with a cream-coloured mucus, and, though it is moist, there is great thirst. A considerable degree of tension and swelling now takes place over the whole abdomen; and the patient finds most relief from pain by remaining motionless upon the back, with the knees in a small degree elevated. This position, while it throws the weight of the intestines to the spine, and therefore removes the pressure of them from the inflamed membrane, at the same time relaxes the abdominal muscles, and prevents any stricture over the outer surface of

the inflamed part. As these muscles are called into action by any attempt to rise or even to turn, so such a motion necessarily aggravates the acute pain; whence absolute rest, as just stated, is most easy to the patient. The patient, for the same reason, generally breathes by the intercostals, and very little by the diaphragm. The tension of the belly continues to increase to the sixth, seventh, or tenth, day; on one of which days, unless proper measures have been taken to remove the disease, the patient most commonly expires. Previous to death, the pain often suddenly ceases, and the inexperienced may conceive that this is an indication of amendment in the disease: but, if the symptoms be minutely examined, it is found that, at the same time, the pulse is sinking in strength and increasing in rapidity, that the strength of the patient is also sensibly diminished; the countenance collapses, cold clammy sweats break out, the extremities lose their vital warmth, and at length a laborious respiration manifests the concluding struggle of life.

But the symptoms above enumerated are often modified by age, constitution, season, and other circumstances. Thus, in some subjects, of feeble constitution and advanced age, peritonitis will creep on without fever, or even local pain—and yet the disorder will go on to complete disorganization of the peritoneum, or such an effusion of serous fluid as gives the complaint the character of ascites. In some subjects, the thickness of the muscles and parietes of the abdomen renders the pain of pressure scarcely perceptible. A favourable prognosis, however, is to be deduced from a gradual cessation of the pain, especially when it is accompanied by a diminution of tension and soreness, and when at the same time the pulse becomes fuller and less frequent, the skin less parched, soft, and moist, the respiration less laborious, and the countenance more open and expressive of ease.

Inflammation of the peritoneum may be distinguished from *colic* by the permanency of the pain, and the frequency of the pulse, as well as by the tenderness on pressure, even before any tension of the abdomen has taken place; and by the absence of any inclination to go to stool when the pain is severe, as well as by the undiminished suffering when an evacuation of the bowels is effected, either spontaneously or by medicine. It is not so easily distinguished from inflammation of the bowels, or *enteritis*. In this latter disease, however, there is obstinate constipation, and the pain is more acute, and not so much aggravated by external pressure; the stomach is also commonly affected with vomiting.

But these distinctions are by no means to be depended on; for, though we have the authority of Hunter on considering peritonitis a distinct affection, (Hunter on the Blood, 244.) yet it cannot be disputed that many cases do occur in which the organs invested by the peritoneum become implicated in its inflammatory disease; and, according as the peritoneum is inflamed, over the stomach or over the bowels, so enteritis or gastritis will ensue.

The predisposing causes of peritoneal inflammation are involved in obscurity. The exciting causes are various: compression of the abdominal viscera; blows or falls on that region; internal friction or pressure, as of the gravid uterus, extra-uterine conceptions, enlarged ovaries, or other morbid growths within the abdomen; violent and long-continued corporeal exertions, violent and repeated contractions of the abdominal muscles in vomiting; irregular circulations of the blood in the cold stages of intermittents, and strictures of the colon or rectum producing unnatural contortions and friction of the intestines on one another, are all causes of peritoneal inflammation.

But the grand causes are to be sought in the action of a cold atmosphere on the surface of the body; the application of wet or cold, especially to the feet, when the person is in a state of corporeal inaction; the neglect of changing wet clothes, the drinking of cold liquids when

the body is heated, and whatever suddenly interrupts certain functions of the system, as the suppression of perspiration, the lochia, and the menstrual discharge.

Over the causes which produce epidemic dispensations of this disease, the same veil of mystery hangs, that conceals from our view the etiology of other epidemics. M. Broussais saw the disease epidemic, and apparently contagious, among the French armies, in various parts of the continent; in Germany, Holland, and Italy. We have all seen puerperal peritonitis epidemic in our own country. The translation of rheumatic, arthritic, or erysipelatous, inflammations, from the joints or surface of the body to the interior tissues, is not to be overlooked.

Bayle, Broussais, and others, have noted the following morbid appearances after acute peritonitis. 1. Redness, thickenings, and even eschars, which penetrated to the mucous membrane of the peritoneum. 2. Solid exudations, in form of false membranes, lining the serous surface of the peritoneum, but without organization. 3. A liquid exudation, sometimes turbid, sometimes limpid or reddish: more or less of serous and purulent fluid was always found in the abdominal cavity, bathing the surface of the intestines. 4. M. Broussais also found red clots, sometimes thin, sometimes thick, spread over, in form of membrane, the peritoneum, which was reddened and thickened underneath. Blood itself has been found effused from the peritoneal lining of the abdomen, without any apparent breach of vessel or substance. Sphacelations were sometimes found.

In most cases where acute peritonitis has been cured, and the patient soon afterwards died of other diseases, adhesions were found, similar to those occasioned by pleurisy.

The nature of the disease being once ascertained, the method of cure will be obvious. As in all other acute inflammations, *blood-letting* from the system at large is the remedy to be principally depended upon, and should be resorted to at as early a period as possible. And this evacuation should be large, frequent, and early; for, if the inflammation be not mitigated in the space of twenty-four hours of active treatment, the event will generally be fatal. The chief guide in directing this operation must be the degree of pain expressed by the patient, particularly under the action of pressure: and even if this be much diminished, it may still be right to apply from ten to fifty leeches to the abdomen; and, as soon as these have done their office, its whole surface should be covered with a blister. It is to be distinctly understood, however, that neither leeches nor blistering should be trusted to, until some diminution of pain has actually been produced by the general bleeding. And farther, if it should happen that the pain is not diminished after the second bleeding, this operation must be repeated even to the fourth or fifth time, after intervals of three or four hours each. If it should be unequivocally manifest at any one of these bleedings, that the strength of the patient is inadequate to the loss of sixteen ounces, a smaller quantity may be taken away, and we may resort, at the same time, to the topical application of leeches and blisters. It seems, however, preferable to delay the application of a blister till the constitutional effects occasioned by the local inflammation are partly removed by the general bleeding, and till the disorder is thus reduced to a state more nearly approaching to a simple topical affection. For, by proceeding thus, the double advantage will be obtained, of applying the topical remedies at a period when their influence will be exerted with the greatest effect, and the practitioner moreover will not be deprived of the only means of ascertaining the variations of the disorder; namely, by pressure on the abdomen. The first symptom on which we may pronounce the recovery of the patient, is the ability of remaining in a sitting posture, after he had previously been confined to the back: this position of the body proves

that the inflamed peritoneum is now able to bear the weight of the bowels, which perhaps never takes place where the patient does not recover.

With respect to internal medicine, it is of secondary importance. Nevertheless it is necessary that the bowels should be kept open, and this should be effected with as little irritation as possible. For this purpose, castor-oil, or small doses of the sulphate of magnesia, may be administered with advantage; and emollient clysters may be injected, which, at the same time that they procure stools, will act as internal fomentations. Fomentations may be also applied externally to the abdomen, when the tenderness is sufficiently removed to admit of the pressure. It is scarcely necessary to add, that the strictest antiphlogistic system must be adopted, both in respect to diet and medicine.

It may be right to mention an irregularity in the complaint, which is apt to mislead the practitioner, and to deter him from resorting to those vigorous measures so essential to counteract the magnitude of the danger. There is now and then, at the very first attack, so great a degree of prostration of strength, accompanied likewise by a pulse scarcely perceptible at the wrist, as might induce us to consider the patient at the point of death, and unequal to undergo the treatment above recommended. There is also a spasmodic attack of pain, which remits. These appearances, however, seem to arise wholly from the inflammation extending to the peritoneal coat of the stomach and intestines. Here, as in different circumstances, the pain on pressure must be the criterion to determine our practice; and, if the pain should be found exquisite, no accidental symptom should lead us from trusting for relief chiefly to the lancet. Such a decision will soon be justified by a freedom in the action of the arterial system, the pulse becoming fuller and stronger, by an abatement of the languor and prostration of strength, and by a diminution of pain.

Among other powerful but unestablished measures we have to mention the injection of tobacco per ano, cold lotions to the belly, and the exhibition of oil of turpentine. Whether any further good can be attributed to the last medicine than what results from its purgative operation is not yet known.

The attack of the *chronic* inflammation of the peritoneum is very different from that of the acute species. It advances by degrees, manifesting itself only by occasional superficial pricking pains over the abdomen, without producing any inclination to go to stool: the pulse is somewhat accelerated, and the tongue (particularly in the morning) is slightly covered with white fur. There is also considerable thirst; yet there is no exacerbation of fever in the evening, nor any hectic flushes on the cheeks: on the contrary, the countenance is full of languor, and the face is pale and doughy.

In the early stages of the disease, the patient is capable of performing his ordinary avocations, and only complains, after fatigue, of a certain degree of tightness and pricking soreness across the abdomen, from one *os ilium* to the other. This state will continue, with little variation, for many months, during which the operations of the bowels will sometimes proceed naturally, though more commonly the patient is costive. There is no tension of the skin of the abdomen, as in the acute species; on the contrary, the skin and abdominal muscles are sometimes observed to sit loosely upon the peritonæum, which gives a sensation to the touch, as of a tight bandage underneath, over which the skin and muscles may be said (as it were) to play. The patient always complains more of the *tightness* than of the *pain*; and, as this tightness is much increased by any congestion in the intestines, the relief which he experiences from evacuating their contents, leads him to attribute his sensations to an habitual costiveness, for the removal of which evil all his endeavours are usually directed.

The progress of the affection is as follows: The bowels

els become more and more irregular in their action; the tenderness and swelling increase; the appetite fails; the pulse acquires greater velocity; the features look sharp and contracted; the countenance becomes pale or fallow; the lips parched and skinny; the tongue, sometimes of a bright colour, resembling what is seen in diabetes, at other times it is covered with a thick whitish mucus. The flesh and strength decay rapidly; and great emaciation takes place. The skin, except towards the last stage, is for the most part dry and scaly; the urine small in quantity, occasionally clear, more frequently otherwise. If a cough has not existed from the beginning, it is very apt to occur about this time; but this is by no means to be considered as a diagnostic symptom; its existence depending upon the spreading of the disease to the pleura, and the thoracic viscera. The feet sometimes swell towards the conclusion of the disease, but the swelling is often confined to one leg and thigh. At this period, if the examination of the abdomen be made with due care, it will be found to communicate to the touch the feeling occasioned by a solid tumour; the integuments and muscles not rolling upon the contained parts as in the first stage. But in some cases, where effusion is conjoined with the original and more important disease, a sense of fluctuation may be discovered. Very frequently the patients complain of a distressing feel of what they call a "broiling heat" at the stomach, the discharge of a tough ropy phlegm from the mouth, constant nausea, with violent retching and vomiting; and, in two cases, the matter brought up during several days before death was stercoraceous.

In the course of the complaint, the appetite is for the most part very bad; but the desire for liquids is insatiable, even though a consciousness exists that a large quantity cannot be swallowed without occasioning very great distress. When a feeling of sinking and emptiness prevails, the patient eagerly thinks of many articles that might allay his uneasiness; but the sight of them seldom fails to excite loathing and disgust. Should any sustenance be taken, it is either speedily rejected by vomiting, or it causes indescribable uneasiness. The patient rolls about in all directions, in vain seeking for some point where he may repose. Every action of the stomach or intestines comes to be performed with great pain. The passage of flatus upwards or downwards, the movements which take place before the evacuation of the bowels, all give rise to suffering. At times the pain is sharp and transient; at others heavy and obtuse. But a sense of weight is seldom absent; and it is more felt after vomiting or purging than before. One patient, (an infant,) in allusion to this symptom, used to put its hand on the abdomen, and exclaim piteously, "Oh! so heavy." Another said, that his bowels felt as if they were "tied up in a napkin." At another time he said, "they seemed to be in a mass;" and at a third, he declared, that if he had "a shot attached to every convolution of his intestines, he could not suffer more than he did."

The above description, which is chiefly taken from Drs. Pemberton and Baron, is not applicable to all cases. Chronic peritonitis sometimes comes on so insidiously, that not the slightest suspicion could be entertained of its existence. We should therefore be careful, since this disease is often the sequel of acute peritonitis, not to remit too soon in our endeavours for the cure of the latter disease.

Exceptions to the symptom of constipation are more frequent in chronic than in acute peritonitis. In some cases, too, the appetite is preserved, and the digestion but little deranged; in which cases we may conclude, that the peritoneum reflected over the stomach is not very deeply involved in the disease. At other times, however, there is vomiting; but this is not to be considered a pathognomonic symptom of chronic peritonitis. Broussais mentions a sensation, as though a ball were rolling about in the abdomen, and sometimes approaching the throat;

this he attributes to the agglutination of the intestines, which form, with the gorged mesenteric glands, a round and mobile mass in the belly, often without any effused fluid.

In chronic peritonitis, the peritoneum acquires a greater degree of morbid thickening, and the inflammation appears to have penetrated to the different structures of the subjacent organs. The effusion is serous, limpid, or greenish, or reddish, with white purulent-looking filaments floating about. Occasionally we find spread over the whole extent of the peritoneum, or over some of the envelopes which it lends to various organs, a crop of granulations, piffiform, white, and not unlike certain military eruptions of the skin. Bayle, who examined these granulations very minutely, observes that, in a subject who presented them to a great extent, he could scrape them off very easily with the scalpel in many places, and that *there* the peritoneum underneath appeared perfectly sound. In other parts, however, they could not be raised from the membrane without tearing it. Broussais has also related numerous cases where the peritoneum was larded, and immensely thickened, with crops of tubercles. "I have also (says the same author) seen a species of vesicles, similar to hydatids, formed of the most limpid serum, under a transparent sheet of membrane which had been elevated thereby."

Broussais observed, that thin men, of a lymphatic temperament, and who had been weakened by any disease, particularly by protracted intermittents, were the most subject to these tuberculated disorganizations of the peritoneum. The subjects opened by M. Laennec presented the following morbid appearances in the abdomen. On perforating the peritoneum, a quantity of gas rushed out, which had the odour of sulphurated hydrogen. The intestinal canal was found singularly conglomerated, and agglutinated into one mass, and partly covered by thickened and adherent epiploon. In some cases the intestines were entangled and twisted upon each other, and glued together by false membranes. The peritoneum itself was thickened, disorganized, and tuberculated, in the manner already described, with effusions of various kinds in the cavity of the abdomen. It is evident that these chronic disorganizations of the peritoneum cannot long exist without affecting the structure, and consequently the functions, of the various abdominal viscera. Hence the digestion, chylication, biliary secretion, &c. all become deranged, and present a complication of distressing phenomena. But not only is the disease propagated to the organs over which the peritoneum is spread; it is not seldom extended to the serous tissues of other cavities than that of the abdomen.

Before we proceed further, it will be right to inform our readers, that in following the common notion, that all the above-mentioned morbid products are the result of inflammation, we are opposed by some very respectable pathologists. Dr. Baron, in his clever work on the "Tuberculated Accretions of Serous Membranes," promulgates the idea, that morbid productions on the peritoneum are not always the consequence, but rather the cause, of inflammation of that membrane. He supposes that tubercles are formed from hydatids, (a notion entertained by Morgagni;) and that these substances owe their production to a diseased state of the absorbent rather than the vascular system. He details many facts drawn from the observance of the serophulous diathesis of the patients of chronic peritonitis, from the absence of symptoms of inflammation, till in all probability the morbid products were formed. He traces up the formation of large tumours and general agglutination of the intestines, from the smallest millet-sized hydatid; and he shows that the symptoms of derangement of the vascular system, when they exist, may easily be referred to the local stimulation of the tubercle or other morbid product. We are not able to decide the question, whether morbid accretions of the peritoneum *never* arise but from

inflammation; but we will venture to say, that in the majority of cases they do; and whoever reads Dr. Baron's cases attentively cannot fail to see strong evidence in favour of this notion. In that of Sarah Tandy, "the complaint is reported to have come on only four weeks ago, with tenderness and swelling of the belly, nausea, and vomiting." This patient did not die for a year, so that the appearances on dissection could furnish no evidence as to when the tuberculous affection had begun. In the case of the female, p. 36, the "affection began in the pleura;" and we do not generally observe metastasis in diseases of the absorbent system. Sarah Aldridge (p. 28.) is made to state, that she recollects the pain was "more severe at the commencement than it has been since;" her blood too "showed a strong buffy coat." The case of Browning (p. 41.) affords any thing but evidence of the origin of the disease from diseased absorbents; it came on after an operation for strangulated hernia, and was clearly connected with the sphacelation of the intestine which took place.

This disease is full of danger, as well from the slow insidious progress which it makes to undermine of itself the constitution, as from the accidents to which it exposes the patient during the long course of management required in its treatment. As another cause of danger, also, may be added, the want of resolution which we have so often to regret in patients during the cure of a chronic disease, where the advantages of the plan, from its gradual operation, are not so obvious to the senses. The symptoms which indicate recovery are, an abatement of the pricking pains of the abdomen, and a diminution of the frequency of the pulse to eighty in a minute: but even under these appearances, however favourable, a relapse is always to be dreaded.

We have little, and that little unsatisfactory, to say concerning the *treatment* of this disease. In the first place, bleeding must be so far had recourse to as to keep the circulation as much as possible below the standard of health. The bowels must be kept open by none but the mildest laxatives. The most perfect quietude; cauterization by means of continued blistering on the abdominal regions; nauseating medicines so carefully watched that they never may produce actual vomiting; are also to be resorted to. Under these measure we may cure this complaint, when it has existed two or three weeks only, if we are fortunate enough to be called in so soon. After that period our measures will somewhat change. We must endeavour to excite the absorbent system to remove the morbid productions; and for this purpose we should chiefly trust to rigid abstinence. We should also endeavour to increase the sensations of the skin, kidneys, &c. Mercurial medicines seem successful in advanced stages of the complaint. We should try them, however, in the early stage of the disease; in the latter, as there is little hope of promoting the absorption of a tubercle, we should naturally be averse to excite the irritation of fever which follows the introduction of mercury.

10. *Empresma gastritis*, (*Gastritis*, *Cullen*, &c.) inflammation of the stomach: burning pain at the pit of the stomach, increased by swallowing; rejection of every thing; hiccough; oppression and dejection of mind; fever a synochus. There are two varieties.

a. *Adhæsiva*: pain very acute; fever violent.

b. *Erythematica*: with an erythematous blush extending to and visible in the fauces; pain more moderate; fever less violent: pulse low and quick.

This species, under one of its two varieties, is found also as a symptom, occasionally, in aphtha, measles, small-pox, and other exanthems.

These terms which designate the varieties we use perhaps somewhat differently from Dr. Good, in the following sense. The first variety will designate that violent form of inflammation in which all the coats of the stomach, and probably its peritoneal covering, are affected. The second variety is gastritis affecting the mucous mem-

brane only. The first is almost always acute and violent, and is very rarely met with; the latter exhibits both an acute and chronic character, and is frequently observed. The first variety, which has long been known to medical authors, is thus described.

Gastritis adhæsiva is characterized by an acute burning pain in the region of the stomach, which is suddenly increased, and vomiting at the same time excited by any thing whatever that is swallowed; it is also aggravated by external pressure. These symptoms are accompanied by a great degree of general fever; the pulse is extremely quick and small, and commonly hard. There is also extreme anxiety, and a greater depression of strength, and loss of power in all the functions of the body, than in the case of almost any other inflammation. In many instances there is a remarkable tendency to syncope; and there is frequent retching, and often hiccup, independently of any thing swallowed. In some instances, other symptoms are superadded to these. Thus, very early in the disease, a high delirium has sometimes come on, with great giddiness and loss of sight, from the sympathetic affection of the brain; considerable difficulty of breathing has also occurred, probably from the impossibility of depressing the diaphragm without compressing the stomach; convulsions of the muscles, and in some cases, although intense thirst was present; actual inability to drink has also taken place.

From the great sensibility of the stomach, and its sympathetic connexion with the other important organs of life, it must be obvious that inflammation of this viscus, by whatever causes produced, must occasion a great and often fatal derangement of the system. If the disease lasts long enough to follow the ordinary course of other inflammations, it may terminate like them by resolution, gangrene, or suppuration. Some writers have mentioned scirrhus and cancer of the stomach as among the sequelæ of gastritis; but Dr. Cullen has correctly stated that the scirrhusities, which are often discovered affecting the stomach, are seldom known to be the consequences of inflammation.

The *prognosis*, as to the tendency of the disease to one or other of these terminations, may be deduced from the following appearances and considerations. The disposition of the inflammation to cease, or to terminate by *resolution*, as it is called, may be known by the mild or moderate state of the symptoms; and by a gradual remission of them, in consequence of the action of the remedies employed in the course of the first few days of the disease. For in violent cases, where the remedies have not been applied sufficiently early or with sufficient vigour, gangrene comes on very rapidly. That a gangrene has begun, may be known from the sudden remission or cessation of the pain, while the pulse continues frequent, and at the same time becomes weaker; while other marks of the sinking of the powers of life in the whole system come on; such as frequent fainting, starting of the tendons, hiccup, a cadaverous appearance of the countenance, &c. *Suppuration* is a less frequent termination of gastritis, but occasionally occurs, and may be expected to take place, when the symptoms have continued, in a moderate degree, for more than one or two weeks; and especially when there is a considerable remission of the pain, while a sense of weight and anxiety still remain. When an abscess is formed, the frequency of the pulse is at first abated; but it soon again increases, and frequent cold shiverings, and marked exacerbations of heat and feverishness in the afternoon and evening, followed by night-sweats, come on; in other words, a hectic fever ensues. At length the disease commonly proves fatal, unless the abscess open into the cavity of the stomach, the pus be discharged by vomiting, and the ulcer soon heals. There are, indeed, some rare instances on record, in which the imposthume has burst externally, and not only the pus, but the alimentary matters swallowed, have passed out at the opening during the remainder of life. In such cases,

cases, a previous adhesion of the stomach with the peritoneum had taken place by means of the inflammatory process.

We are not acquainted with any particular *predisposition* to gastritis in the first instance; but, when the disease has once occurred, like most other inflammations, it leaves a tendency in the part affected to be more easily excited to inflammation again; and therefore, for a long time subsequent to recovery, the utmost caution, in regard to the use of irritating food and drink, is required. The *exciting* causes are, such matters applied to the stomach, as, from their sensible, chemical, or mechanical, properties, occasion violent irritation to the stomach, or injure its texture; or the inflammation is produced by the extension of the disease from the neighbouring organs, or from distant parts; or frequently it follows suddenly on the second variety.

When inflammation of the stomach induces death, independently of suppuration or gangrene (which are not the most frequent terminations of the disease), sometimes the inflammation is found, upon *dissection*, to have spread over a considerable part, or perhaps the whole, of the inner membrane; but most commonly it occupies a smaller portion. The stomach upon the outside, at the inflamed part, shows a greater number of small vessels than usual, but is commonly not much crowded with them. On opening the stomach, it is found to be a little thicker at the inflamed part, the inner membrane is very red from the number of small florid vessels, and there are frequently spots of extravasated blood. Portions of the inner membrane are sometimes destroyed; and sometimes a thin layer of coagulable lymph is found thrown out upon a portion of the inner surface of the stomach. See Baillie's Morbid Anat. p. 138.

The *treatment* of acute gastritis will necessarily vary, according to the nature of the exciting cause, and to the degree and duration of the disease, and to the circumstance of its being simple or complicated. The leading indication however, and the general plan, must be the same as in all phlegmonic inflammations in their commencement; namely, to attempt the resolution of the disease by depletion, together with the strict observance of the antiphlogistic regimen. Large bleedings must be speedily employed, and repeated, if the urgency of the symptoms continue to require it, notwithstanding the smallness of the pulse, the general debility, and even disposition to fainting. For, after bleeding, it is observed that the pulse commonly becomes fuller, and the tendency to syncope is diminished. In an instance recorded in the Edinburgh Medical Essays, the patient was bled five times within seven hours, and was each time suddenly relieved from the acute pain; the pulse, before irregular, became regular; and the cold extremities became warm. In delicate constitutions, when the violence of the inflammation has been reduced, but not altogether removed, by bleeding, the application of leeches, or of cupping-glasses, after scarification, to the region of the stomach, may be occasionally resorted to with advantage. A large blister, applied to the pit of the stomach, after venesection, is likewise advantageous. In cases where a considerable irritability of the stomach, with little or no actual inflammation, exists, and gives rise to nausea and vomiting, the external agency of a blister is often the most effectual remedy. It is perhaps advisable to abstain altogether from taking any thing whatever into the stomach, whether by way of medicine or aliment, until the violence of the inflammation be somewhat subdued, since these matters at first will produce vomiting. In other cases, where any thing can be borne by the stomach, liquids of the very mildest kind, such as milk and water, thin gruel, &c. must be given, and in very small quantities at a time.

Opiates, in whatever manner exhibited, are very hurtful during the first days of inflammation of the stomach; but, when its violence has greatly abated, or the pain

and sickness recur at intervals only, opiates may be cautiously administered in clysters. It is remarkable, that, notwithstanding the usually nauseating effect of antimony, this substance may be given with advantage in gastritis, when combined with enough opium to restrain its action. Active purges should be exhibited in clysters till the bowels are fully opened.

We are particularly cautioned in this complaint to avoid a sudden return to full living, on account of the tendency of the disease to relapse.

The second variety differs in its symptoms, as it is chronic or acute. Its acute form is usually connected with general inflammation of all the coats of the stomach, and hence its symptoms are often the same; yet it undoubtedly may exist separately, since suppuration and gangrene of the stomach, lesions not very uncommon in the first variety, are scarcely ever met with in the acute gastric inflammations which are found in exanthems. Its causes are nearly similar to those of the other variety.

The first symptom of Gastritis erythematica is sometimes a violent vomiting resembling cholera morbus. The patient throws up every thing that he swallows; then bilious, mucous, or even sanguineous-looking matters; going very frequently to stool at the same time. Fever is a necessary accompaniment of this form of the disease. Sometimes gastritis declares itself without vomiting; but always with violent pyrexia, often unpreceded by a cold stage or shivering. The patient complains of a burning internal heat, and generally of a soreness in the pharynx. The tongue appears *red* and *clean*, and the thirst is considerable; the desire for cold acidulated drink is as great as the aversion for every other kind of liquid. If the phlogosis does not extend to the intestinal tube, there is constipation. If it reach the colon, there is diarrhoea with tenesmus. There is deep-seated pain in the epigastric, and especially in the right hypochondriac region, but not exasperated without a certain degree of pressure. This pain is sometimes lancinating, and accompanied by a sense of constriction. It manifestly diminishes after the patient has swallowed cold aqueous drink, especially if acidulated. Very often the vomiting ceases in a few days, although the other symptoms persist. At other times it continues, or supervenes in the course of the disease; and the patient is harassed with constant nausea, which appears to him to be occasioned by some globular body rising upwards, and painfully compressing the lower part of the chest. Each fit of vomiting is followed by a temporary ease of very short duration, the patient incessantly demanding emetics; a symptom still more common in peritoneal inflammation than in acute gastritis. The absolute impossibility, which the patient supposes, of swallowing any thing, appears referrible to the contracted and highly-irritable state of the upper orifice of the stomach. Such are the principal symptoms of *acute gastritis*; but several of them may be absent; even pain itself does not exist, in some cases, where the inflammation is most intense. Our diagnosis must therefore be assisted by a rigid observance of the *sympathetic* troubles produced by this phlogosed state of the mucous membranes of the digestive organs. The *first* class of these appertains to the head, affecting the functions of the senses, and the movements of the voluntary muscles. Head-ache may or may not exist. Aberrations of the intellect, corresponding with the moments of greatest suffering, are more steady in their appearance. "I have seen," says Broussais, "men as completely delirious as in fevers the most malignant, or phrenitis itself." In such cases too, we often see the conjunctiva red, the eye inflamed, and the features altered. In proportion as the disease advances, and the sufferings increase, the attention becomes estranged, till coma ensues. In the mean time we observe irregular contractions of the facial muscles, grinding of the teeth, subsultus tendinum, and various convulsive movements. The patients throw off the bed-clothes when they are sensible, complaining

complaining that the internal heat which devours them is ten times more insupportable when the chest is covered. They try all kinds of positions in bed; sigh deeply; and show in their countenances the expression of intense agony. If they are questioned respecting the nature and seat of their pains, they apply the hand to the epigastric region, but cannot clearly describe their sufferings; the sense of internal burning is the only one which is distinct to them. We must therefore ground our diagnosis on the tout ensemble of the symptoms, and especially on the instantaneous relief produced by cooling drink.

In respect to the respiratory system, we observe sometimes a cough, with teasing pain; a glairy or mucous expectoration streaked with blood, or white, like that of peripneumony, at the period of resolution; a general pain in the chest; a laborious respiration in sanguineous subjects. The voice is often lost from a sympathetic paralysis of the laryngeal muscles. During the first days of acute gastritis, the pulse is full, hard, and often as strong as in pneumonia, particularly if the pectoral symptoms above mentioned are present; a proof of sanguineous plethora in the pulmonary parenchyma. In lighter shades of gastritis, and when the vital powers have been reduced by pain, the pulse is sharp, irregular, or even intermittent; towards the close of life, imperceptible. Heat of skin is considerable, during the violence of the acute stage. M. Broussais has always found it dry and harsh. The skin is cold when the disease is on the decline, and cannot be brought to a natural warmth when the disease is verging to a chronic state. The cutaneous secretions are suppressed; and the breath is fetid in a few days after the circulation becomes much increased.

Chronic Gastritis erythematica.—This may be a primitive affection, or the sequela of an acute attack. It is produced by the same causes as the above-mentioned form of the disease; but, from peculiarity of constitution, or force of cause, it is unaccompanied by those violent commotions in the system which arrest the attention of the other kind. The patient complains of pain across the base of the chest, deep-seated in the epigastric and hypochondriac regions; generally more considerable in the right side, and sometimes so high up as to be thought in the chest. This pain is constant and very troublesome; sometimes burning, lancinating, pricking, and confined to a very circumscribed spot, especially when the stomach contains any acrid or irritating substances. It is very frequently accompanied by a sense of constriction. Some patients complain of feeling as though a ball of large size were pressing against the diaphragm; others as if a bar were fixed across the stomach, preventing their swallowing food or drink. Of all these sensations, the lancinating and stinging pains are those which acquire the greatest degree of intensity. The others are so faint, that the patient seldom demands relief from them till the strength becomes considerably reduced.

The appetite always fails; and, when the disease exists in its greatest degree, there is a general abhorrence of food. When there is any remains of appetite, the digestion is quite imperfect. Aliments are usually thrown up soon after eating; especially if too much food, or food of a stimulating nature, have been swallowed. Those who, from a milder degree of the disease, or idiosyncrasy of stomach, do not vomit, are oppressed, during the gastric digestion, with a sense of load at the stomach, nausea, acid, corrosive, or fetid, eructations, rumination, and exasperation of the usual pain. There are some patients who only experience eructations, inquietude, and mental perturbation. The pulse rises a little, and the skin warms, during gastric digestion; but sink to their usual level when the digestive process is finished. For a considerable time the bowels are as costive as though a scirrhus of the pylorus existed; but ultimately, in the majority of cases, there is diarrhoea, with colic, tenesmus, and stools mixed with blood—a proof of the extension of the dis-

ease. Then the breath, and even the perspiration, exhale an odour manifestly stercoraceous.

These sufferings, even when not very severe, are badly borne by the sick, who become dejected, impatient, taciturn, discontented, and not disposed to enter into the details of their feelings. They have an air of suffering in their countenance; the conjunctiva, lips, and cheeks, being of a deep red colour, verging towards that of tincture of logwood; as are also the tongue and whole interior of the mouth, excepting along the centre of the former, where a thin mucous list may be seen. In a few subjects the tongue is very much loaded, the breath offensive, and a bitter taste is experienced in the mouth; but these are exceptions, and the diagnosis must be drawn from the whole of the symptoms, not from any one exclusively.

As soon as this disease is completely established, the cellular and adipose membrane becomes nearly absorbed, with but little diminution of the muscles; when these last are much extenuated, the disease is without hope. At all times, however, the skin is drawn tight over the muscles, sinking in in their interstices, so that it cannot be pinched up but with difficulty, even in those places where it is usually very relaxed. In no other species of marasmus has M. Broussais seen this degree of adhesion so strongly marked. This character of the skin, together with its colour, being a brown, inclining to yellow, offer two of the most constant diagnostic signs of chronic gastritis.

The pulmonary system suffers very little in this species of the disease, with the exception of a slight stomach-cough occasionally. Nor is the circulation so much influenced, at the beginning, as to evince any appreciable febrile movement. When the disease has made progress, then the pulse becomes hard and frequent; the skin, at the same time, being hot, and dry to the touch. There is always an evening exacerbation, with agitation and restlessness. If this train continues unchecked, prostration of strength soon ensues, and the gastritis, in fact, passes into the acute form. If, however, the febrile movement is only marked by frequency of pulse, without heat of skin; or if the patient only experiences a few hours of heat towards the evening, or during digestion; the malady may continue chronic. In all cases, if long protracted, the febrile symptoms subside, and the evening exacerbation ceases to be sensible. Then the skin becomes cold, and of the colour before described, with perceptible wasting of the body. When diarrhoea is added, the cessation of pyrexial phenomena is still more sudden and complete.

The treatment of the acute form of this variety is similar to that of Gastritis adhaesiva, except that cold lotions at first, and afterwards warm fomentations, are to be applied to the epigastrium instead of blisters; and local is to supersede in a great measure the general bleeding. Cooling acidulated drinks and effervescent draughts afford much gratification to the patient. Strong purges, even when nausea is not present, are extremely hurtful; and, upon the whole, the practitioner is to be careful not to give too much medicine.

As to the treatment of chronic gastritis of the mucous membrane, this must be regulated by somewhat similar indications. The patient must abstain from all animal food and all indigestible vegetable substances; thin gruel and cold drinks, as weak solutions of nitre, the occasional application of leeches and warm fomentation, with laxative clysters, forming the most approved remedies. This applies to chronic gastritis when it assumes the character of local pain and irritation, manifesting generally a *sense of burning at the pit of the stomach, redness of the fauces, and fetor of the breath*. Another form of chronic gastritis, which supervenes to long-continued nervous irritation, has been mentioned under Dyspepsia, where it is described as constituting the second stage of that complaint.

complaint. Chronic erythemata, or inflammation of the stomach, is no uncommon disease in this country, where the common practice of purging dyspeptic patients is frequently adopted in it, and tends materially to increase its violence.

11. *Empresma enteritis*, inflammation of the bowels: griping pain in the belly, with tension, tenderness, and vomiting; fever a synochus. This also has two varieties distinguished thus; that one affects all the coats of the bowels, and the other only its mucous membrane.

α. E. adhæsiva. Pain very acute; vomiting frequent; obstinate costiveness; fever violent.

When this disease attacks the small intestines, it is attended with many of the symptoms of inflammation of the stomach. There is acute pain situated in different parts of the abdomen, but generally about the umbilical region; it is constant, but liable to exacerbations from time to time, generally described as of a twisting kind. There is, in a marked degree, a painful expression of countenance and manner, and difficulty of respiration. The general surface is at first somewhat hot, but at length the countenance and extremities become shrunk, cold, and perhaps affected with cold perspiration, and lividity. The pulse is frequent and small. The tongue is moist, but not always free from load. The stomach usually rejects every article of food or of medicine. The bowels are moved with great difficulty, but generally with much relief. The abdomen in general becomes tumid and tense, and exceedingly tender under pressure.

An inflammation attacking the large intestines is distinguished by pain usually situated in the hypogastric and iliac regions, or on one or other side of the abdomen, and gradually becoming more general: this pain is at first, perhaps, of a violent or spasmodic character; afterwards it is fixed, constant, increased under pressure, restrains the movements of the body, and, in some degree, of respiration; and induces a state of continued and painful contraction of the features. The patient becomes restless, and throws the arms about. The surface is affected as in inflammation of the small intestines. The pulse is sometimes little accelerated, until the affection is advanced. The tongue is moist, and whitish or loaded. There is often little or no vomiting. The operation of purgative medicine is effective, but attended by an excruciating pain, characteristic of this disease. Sometimes the bladder seems to participate in this affection; and there is a constant desire, with ineffectual efforts, to void urine.

Enteritis is much disposed to terminate in gangrene, an occurrence indicated by a sudden remission of the pain, while, at the same time, the strength fails, the pulse sinks, the voice grows feeble, the countenance shrinks, and assumes even a cadaverous aspect; yet the distention of the belly is not diminished, but often increased. This tendency to terminate speedily in mortification constitutes the great danger of inflammation of the intestines. Sometimes the disease terminates in suppuration, which, though less rapidly fatal, most commonly wears out the patient's strength and life in a lingering manner; but sometimes this condition ends in recovery. The formation of pus is indicated in this disease, as in other internal inflammations, by the remission, but not total cessation, of the pain, and by the occurrence of frequent fits of rigor, and sometimes by a purulent discharge by stool. But the disease, especially when the aid of medicine is early and actively obtained, frequently terminates favourably, by resolution, as it is called; i. e. by a gradual diminution and cessation of the symptoms. If the pains abate gradually, and the tenderness and distention of the abdomen lessen, while the pulse becomes softer and fuller, natural evacuations of feculent matters are passed, and a free general perspiration breaks out, this favourable termination may be anticipated. Whereas, the continuance of the constipation and of the fixed pain, the increase of the sickness and vomiting, the occurrence of the symptoms just described as indicative of

gangrene, especially if accompanied with hiccup and cold sweats, are among the unfavourable prognostics.

The principal source of mistake into which the practitioner is likely to fall in treating this disease, is in confounding it with *colic*; a spasmodic disorder, which requires a treatment essentially different, but which nevertheless occasionally terminates in enteritis. The diagnostic symptoms of the two complaints have been already stated at length. See *Colica*, p. 149.

The exciting causes of enteritis are obstructions in the bowels, which necessarily retain the feces, until these, by their quantity or quality, become extremely irritating, and excite inflammation; or irritating substances conveyed into the intestine, which, by their bulk, shape, or indigestibility, or by their chemical or specific acrimony, produce excitement there. Thus, the swallowing of hard kernels, seeds, or stones of fruit, of pieces of metal, &c. has often induced the disease; and the presence of *scybalæ*, or hardened feces, and of calculous concretions, operates partly by the immediate irritation which they occasion. Thus also, strong concentrated acids or alkalis, spirituous liquors, high-seasoned food in large quantities, drastic purgatives, worms, &c. in the intestinal canal, have excited inflammation in it in different instances. Hence the disease has sometimes been the immediate effect of repletion, or of a fit of intoxication: and even a mild cathartic, when the bowels were loaded with much hardened feces, which the medicine was incapable of removing, has, in some rare cases, produced inverted motion and *intus-fusception*, terminating in enteritis. A very common cause of inflammation in the bowels is the application of cold to the legs and feet, or to the abdomen itself, especially if sudden or long continued. Gout, rheumatism, erysipelas, or chronic eruptions, are sometimes followed by intestinal inflammation. It is also a symptom in hernia.

In the cure of enteritis, as in all other acute inflammatory diseases, the leading object is to remove the inflammation, from which all the other symptoms of the disease originate. This, though apparently an identical proposition, cannot be too strongly inculcated, in the treatment of enteritis; because the excessive constipation of the bowels, which, in common with the rest of the symptoms, is in general merely an effect of the inflammatory condition of the bowels in some part, is often attacked by the inattentive practitioner with active purgative medicines, as if it were the primary object, and the source of all the mischief. The inflammation is to be subdued by blood-letting, from a large orifice, to an extent which must be various according to the constitution of the patient, and the violence of the symptoms. This depletion may be aided in its effects by the application of leeches, and afterwards of a blister, to the abdomen; and by the strictest abstinence from all stimulating aliment. The blood-letting must be repeated in a short time, if the symptoms do not abate, and the strength of the patient is sufficient to support the evacuation; which can only be determined by the observation and experience of the practitioner. If the pulse should become fuller and less wiry after the operation, it will afford a strong reason for the repetition of it, should the continuance of other symptoms appear to require it. The warm bath may be resorted to with advantage.

It must be obvious, that before the inflammation of the intestines is lessened or removed by these measures, any additional irritation to the membranes, already in an acute state of sensibility, whether by the immediate stimulus of a cathartic medicine, or by the contents of the bowels being forced forwards to the inflamed part, must tend to aggravate the disorder, rather than to relieve it. In fact it is usually found, that purgatives, given by the mouth, are not successful, where this previous diminution of the inflammation has not been effected. And, when this has been accomplished, some of the milder purgatives, as the neutral salts, should first be administered,

the action of the intestines downwards being at the same time solicited by emollient clysters, which also contribute to the same relaxant purposes as the external fomentations. A purgative medicine has often been known to operate as soon as a blister, applied to the belly, began to rise, though it had not acted previously: and this observation is still more commonly verified, after a free evacuation by blood-letting.

Though it is not advisable to irritate the bowels by drastic purges, it is improper to allow constipation to continue in this complaint. Clysters therefore, and the following mode of purging, will be found useful. Five grains of calomel may be given with one of opium; and, an hour afterwards, a large dose of castor-oil. This will be retained on the stomach in consequence of the sedative operation of the calomel and opium; and the bowels will be opened without pain or irritation.

β. E. erythematica, exhibits various gradations of feverity of danger. It has already been amply treated of under the heads of Diarrhœa and Dysentery.

12. Empressma hepatitis, inflammation of the liver. Tension, soreness, and pain, in the region of the liver; pain about the right shoulder; difficulty of lying on the left side. This species has two varieties.

α. Hepatitis acuta: the specific character decisive, and the symptoms clearly marked.

β. H. chronica: the specific character obscure, and the existence of the disease only to be suspected from an exposure to its causes, and an occasional recurrence of the pathognomonic symptoms accompanied with a slight degree of fever.

The causes of this disease are often obscure. Besides the usual ones of Empressma, we find hepatitis frequent and severe in situations where extreme heat, or extraordinary vicissitudes of heat and cold, are met with. The disease comes on with a sense of chilliness preceding pain in the right hypochondrium, sometimes dull, sometimes sharp, extending up to the clavicle and shoulder of that side most usually, which is much increased by pressing upon the part; and is accompanied with a cough, oppression of breathing, and difficulty of lying, except on the side affected; together with nausea and sickness. The intestines are generally inactive, and the stools show a deficiency of biliary secretion, or at least of any intermixture of it with them; the urine is of a deep saffron colour, and small in quantity; there is loss of appetite, great thirst, and costiveness, with a strong, hard, and frequent, pulse, of from 90 to 100 in a minute, and sometimes intermitting; the skin is hot and dry at the same time, and the tongue covered with a white, and sometimes a yellowish, fur; and, when the disease has continued for some days, the skin and eyes often become tinged of a deep yellow.

The appearance of the blood is somewhat remarkable just before it coagulates, when, the red part falling to the bottom, and the buffy coat not yet being formed, it appears of a dull green colour. This it owing to the mixture of the yellow-coloured bile with the purple-coloured venous blood, as yellow and purple form green: the coagulable lymph contains none of the purple colour; therefore the buffy coat is not green, but yellow. The same appearances are observed in the blood of a person labouring under jaundice.

In hepatitis, as well as in other species of Empressma, we do not always find the symptoms of the same degree of violence as they are described in the definition: thus in some cases the fever is severe, in others it is scarcely perceptible; in some instances, the pain is very acute and violent; in others, collections of pus have been found after death, when no pain had been felt. When the pain is seated deep in the substance of the liver, as that possesses little sensibility, the pain is usually obtuse; but, when the surface is affected, it is acute, and apt to spread to the diaphragm and lungs, producing cough.

Many authors have made a distinction between the

symptoms that occur when the inflammation occupies the convex surface of the liver, and those that are present when the disease affects the concave. It is said, when great difficulty of breathing, and cough, accompany the pain in the region of the liver, that these symptoms indicate the inflammation to be seated in the superior or convex part; but, where the inflammation occupies the concave or inferior surface, which lies contiguous to the stomach and duodenum, there is more sickness and vomiting; and moreover, the pain is not so violent in that region of the organ as in the other instance. But these symptoms are not unequivocal.

Hepatitis, when it occurs in India, exhibits many anomalies which are very unusual in this climate. Dr. Johnson, in his well-known work on Tropical Climates, states, that in many cases, if we expect to find the pathognomonic symptoms of acute hepatitis, as it appears or is described in Europe, we shall be greatly deceived. "In comparatively few instances have I seen the violent rigors, high fever, hard, quick, and full, pulse, acute pain, &c. which we would naturally look for as preceding the destruction of such a large and important viscus."

It accords, however, with Dr. Johnson's experience, that such cases do occur during the first twelve or eighteen months after arriving in the country. He mentions the case of a young gentleman, who, despising all rules of temperance or precaution, ran about in the sun for some days at Malacca, indulging in all sorts of licentiousness or inebriety; and was seized, in a day or two afterwards, with rigors and heat alternating; succeeded in a few hours by pain in the right side, extending across the pit of the stomach, accompanied with some difficulty in respiration. He did not send for Dr. J. till twelve or fourteen hours after the attack. He had then high fever, hard quick pulse, great dyspnoea, a short cough, and the most excruciating pain in the region of the liver; and a flux soon terminated his life. But our author met with few cases in India so exquisitely marked with acute European symptoms as this. In general, he says, the disease makes its approach in a much more questionable shape, though equally pregnant with danger as the foregoing, and not seldom more rapid in its course. "A man comes to us, complaining of having a flux. He says he is frequently going to stool; that he is griped, but passes nothing but slime; that his stools are like water, or some such remark. It is ten to one if he mentions any other symptom at this time. But, if we come to interrogate him more closely, he will confess that he has had some soreness at the *pit of the stomach*, or perhaps in the right side. If we examine the part, a fulness will sometimes appear; if we press upon it, he starts back, or shrinks at least from the pressure. If we look into his countenance, besides a certain anxiety we shall observe a dark kind of fallowness in his cheeks, and a yellowish hue in his eyes. The latter is seldom absent in hepatic diseases, both in India and Europe. The temperature of the surface will probably not be much increased; but the skin will have a dry feel; his mouth will be clammy, and his tongue have a whitish or yellow fur towards the back part. His pulse, though neither hard nor very quick, will have an irritable throb, indicative of some internal affection. His urine, if inspected, which it always should, will be found to tinge the bottom and sides of the pot with a pink sediment, or turn very turbid a few hours after it is voided; and he will generally complain of some heat and scalding in making water. These are all the external marks we can perceive; and the few symptoms at the head of the list are all that the heedless soldier or sailor has noticed, or at least recorded. Happily for the patient, as well as his physician, the degree of violence in the bowel-complaint, where other symptoms are not conspicuous, will be almost always a sure index to the rapidity or danger of that in the liver. Whereas in those cases where the symptoms are of the violent or European cast, particularly pain, fever, and dyspnoea,

the

the bowels are very frequently costive for the first few days of the complaint. If it is not early checked, it will frequently run on to suppuration, and then the chance of its pointing, or of the matter finding its way through ducts or adhesions, with ultimate recovery, is faint indeed. Other symptoms will occasionally arise in this disease, or accompany it from the beginning. Thus the fever is sometimes smart; the enlargement, hardness, or tenderness, of the part, more violent; the inability of lying on a particular side may be complained of; a short cough may attend; or that particular sensation in the acromion scapulæ may be noticed, though it is not very often that this last is present. These symptoms, and the duration of the complaint, will vary much. Indeed, the latter is very uncertain; as its continuance may be protracted to several weeks, without suppuration or organic derangement of vital importance following. This, then, is the hepatitis of India; and certainly there is no small dissimilarity in symptoms between it and the acute hepatitis of Europe. The flux, which may be termed the pathognomonic of the former is almost always wanting in the latter. The one (Indian) partakes more of inflammatory congestion and obstruction; the other of active inflammation, like that of the lungs, kidneys, &c."

The cure of the acute hepatitis, as it occurs in this country, may generally be effected by the usual cooling and depleting plan. Bleeding local and general, blisters over the region of the liver, brisk cathartics, and, when the violence of the disease abates, the exhibition of mercury in full doses, complete the list of measures this disease requires. In hot climates it will be necessary to push the mercury further, to begin with it earlier, and continue it longer, than is requisite in the hepatitis of this country. In the former situation, indeed, it is often necessary to administer calomel in scruple doses in the very onset of the disease; and bleeding need only be had recourse to as an auxiliary. This, however, we by no means intend to deny, that very extreme bleedings are sometimes required in Indian dysentery; but mercury is the chief dependance: this medicine must be pushed till it produces salivation, and its action kept up till all vestige of disease is extinct.

Acute hepatitis terminates when not cured, in suppuration or gangrene. In this country, however, more patients die of the inflammation itself than of its sequelæ. Suppuration is most common in hot climates. See *Apostema hepaticum*, p. 230. But few cases are known of the occurrence of gangrene in the liver.

The second variety, or *chronic inflammation* of the liver, is a disease which is more common in this country than the acute; and is so insidious in its progress as to have sometimes advanced to complete disorganization, before its existence was suspected. In some measure, indeed, a similar observation applies to all the chronic derangements of the substance of the liver, which often excite no alarm, by the symptoms which might be expected to accompany them, until they are fully formed. The slight indisposition that occurs is attributed to indigestion, flatulence, or some other affection of the stomach; the pain of which the patient occasionally complains is falsely referred to that organ; and its continuance is so short, and the degree of it frequently so inconsiderable, as to demand but a slight attention. The relief obtained by eructation and the discharge of air also tends to confirm the opinion, that the seat of the disease is in the *stomach*: but this relief may be explained on the principle of removing the distention of the stomach, and so taking off the pressure of this organ from the liver.

While this slow inflammation and gradual obstruction is going on in the liver, the patient is subject to occasional pain in the right hypochondrium, extending to the scapulæ, or to the top of the shoulder; a quick pulse, an increase of heat alternating with chilly sensations, difficult breathing on quick motion, some difficulty of lying on the left side, flatulence, indigestion, acidity, costive-

ness; and, together with a gradual diminution of strength and flesh, he has a pale or fallow complexion. The complexion, indeed, of a person affected with chronic obstruction in the liver, although often not wearing the appearance of jaundice, yet has frequently a peculiar sallowness, or a dirty-greenish hue, which Dr. Darwin, from its resemblance to the colour of a full-grown silk-worm, has aptly, though pedantically, denominated *bombycinous*. The extent and duration of pains, Dr. Saunders observes, arising from disease of the liver, are so various, as frequently to deceive both the physician and patient; they extend to the shoulder, scapulæ, muscles of the neck, along the arm, even to the joints of the wrist. Every change of posture either relieves an old pain, or induces a new one, as does the mere bending of the body in any direction, or even extending the arms. The pains are greater in a supine than in an erect posture.

These symptoms, and some others which make their appearance in the more advanced stages, are sufficient to point out the existence of chronic disease in the liver: but it is to be regretted, that they are not peculiar to chronic inflammation of that organ. Professor Portal points out some difficulties in forming an accurate diagnosis between diseases of the liver and of some of the neighbouring organs, especially of the lungs. He says that, on the one hand, obstructions and congestions in the right lobe of the lungs, and the right cavity of the chest, sometimes occasion such an alteration in the situation of the liver, by pressing down the diaphragm, as to produce a suspicion of disease in it, by occasioning the appearance of a tumour in the right hypochondrium. He relates a case of this sort, in which he was deceived by this apparent tumour, in a patient who died of pulmonary consumption, where little or no expectoration took place; and he cautions practitioners not to be misled by such an appearance, which is common in all congestions of the chest. He affirms, too, that a degree of jaundice is occasionally produced, where the bile has free passage into the intestines, but is there detained, in consequence of mechanical impediments, as volvulus, strangulated hernia, accumulations of hardened feces, &c. when it is taken up by the lacteals, and enters the blood-vessels. On the other hand, he remarks, if we sometimes attribute diseases to the liver which have their seat elsewhere, there are other maladies, actually seated in the liver, which are frequently ascribed to other organs. Thus the contiguous viscera, such as the right kidney, the diaphragm, the lungs, the stomach, and the colon, are sometimes supposed to be affected with disease, which is seated exclusively in the liver. Many examples of this are to be found in the writings of Morgagni and Lieutaud. Mr. Portal relates two cases of severe and continued vomiting, connected with diseased liver, the first of which proved fatal; and the other was cured, in consequence of the lesson taught by the previous dissection. An enlargement of the liver was felt externally, with great tenderness in the epigastrium. See *Mem. de l'Acad. des Sciences*, Ann. 1777; or *Mem. sur plusieurs Maladies*, par Ant. Portal.

It would take up much space to detail the immense variety of organic lesions which are met with in the liver. Some of these have been clearly accompanied or preceded by chronic inflammation; in others, the coincidence of this action is doubtful. We shall not enter into any account of them, since we do not find that diagnostic symptoms, distinguishing one particular degeneration of structure from another, can be laid down; and, moreover, because no curative indications can be founded even on the slight history of symptoms with which pathologists have furnished us. Indeed hydatids, various kinds of tubercles, scirrhus, softening of the substance of the organ, adhesion of its surface with contiguous parts, and effusion from its investing membrane, often produced over the whole of the peritoneum, and giving rise to dropsy, are more rarely followed by death than the former lesions, which

which are in fact almost always fatal. We should except, however, softening of the liver, which is often unattended with danger, or indeed indisposition.

The causes of this complaint are various, but the most frequent is indigestion. It is remarkable that organic alterations in the structure of the liver happen more frequently in drunkards than in those whose hepatic functions are deranged from other causes. The treatment of this has in some sort pre-occupied our pen while treating of *Dyspepsia*; it may be summed up in a few words. The adoption of measures which will ensure daily but moderate alvine discharges; a strict regulation of diet, which must be very sparing; otherwise, as the febrile symptoms are more clearly or more obscurely marked, leeching to the region of the liver or to the anus, or even general bleeding if the hardness of the pulse calls for it; and the cautious introduction of mercurial medicines, which may on some occasions be pushed to the extent of salivation; form the whole of the treatment. If mercury is expected to disagree with the constitution, or if, after being tried, it is found useless, the nitro-muriatic acid both offers a means of correcting hepatic derangement, pleasant in its modes of application, and often successful in its effect. We have anticipated a full account of the mode of applying it under the article *NITRO-MURIATIC ACID*, vol. xvii. p. 104.

In organic derangements of the liver, a regular and strict attention to what we call, for the sake of brevity, the dyspeptic treatment, with abstinent living, and, if no great nervousness be present, counter-irritation by means of an issue, offer the only means of palliation. The administration of mercury, so commonly resorted to, often aggravates the disease; that is, if the alteration of structure be of long standing; for, while nothing but coagulable lymph is effused in the interstices of the structure of the liver, salivation will undoubtedly be of much service.

13. *Empresma splenitis*, inflammation of the spleen: heat, fulness, and tenderness, in the region of the spleen; pain upon pressure.

The spleen is an organ which from its structure is liable to congestion, or accumulation of blood, before actual inflammation occurs. Thus in the earliest stage of the disorder, the organ is swelled from the passive state of its vessels, which receive a greater proportion of blood than they can return. No fever or pain accompanies this state, but leads to inflammation by the tension and irritation of the membranes that invest the spleen, a sense of fulness in the left epigastrium being the chief symptom.

In the second stage, the pulse becomes quicker, and it is long in convalescence before it is reduced to its natural standard. The increased pulse is produced by painful irritation at first, and next by the actual tension of the membranes, proceeding to inflammation and adhesion of the adjoining parts. The quickness of the pulse will assist in distinguishing the degree of progress of this disease; for it will be found, by reference to histories, that in a great proportion of cases there was no warning of the growing mischief in the earliest stage; and that painful affection of the left side existed in many other cases long before fever was induced, though these ended fatally. In the first stage the patient can lie upon the left side, but not upon the right. In the second stage it is impossible to lie on the side affected. The spasmodic action of the diaphragm is more likely to come on in the second stage, and may be much aggravated by stimulant treatment. There is no emaciation in the first stage of a morbid kind; nor any considerable emaciation in the second stage, notwithstanding the large and continued evacuations.

In the third and last stage of splenitis, emaciation is always an attending symptom, combined with hectic or slow fever, particularly in middle-aged and elderly people. In this third stage diarrhoea supervenes, as well as dysentery, and discharges of grumous and dark blood take

place, by vomiting and by stools: these discharges give temporary relief in many cases, and occur long before the final event.

The treatment of this complaint is similar to that of the other species of this genus. Bleeding must generally be the first step, to relieve the congestion of the portal system, and drastic cathartics for the same purposes. A derivation to the capillary system of the skin and muscular system must be attempted by antimonials and the warm bath; but, after the bleeding, our chief dependence must be on drastic cathartics. Mercurial remedies are of use if the spleen becomes permanently enlarged.

The Splenalgia of authors is usually a slight attack of this species with some small degree of fever. *Parabyssma splenica*, or *ague-cake*, is a frequent sequel of Splenalgia.

14. *Empresma nephritis*, inflammation of the kidneys: pain in the region of the kidneys and ureters; frequent micturition; vomiting; numbness of the thigh on the affected side; retraction of the testicle.

The chief difficulty, in this complaint, is to discover whether the inflammation be idiopathic, or whether it arise from the irritation of calculi. The following symptoms, drawn chiefly from Dr. Hall's work on *Diagnosis*, may afford some information as to this distinction.

Inflammation of the kidney is accompanied with a pain in the lumbar region, and often along the course of the ureter; a feeling of numbness of the thigh: retraction and pain of the testis; there is a frequent desire to void urine, which is usually high-coloured. There are generally nausea and vomiting; pain, and constipation of the bowels. There is more or less of an expression of pain in the countenance. The motions of the body are somewhat impeded; and certain motions are particularly painful; as bending to one side, or lifting up the thigh, especially if the hand be pressed forcibly on the knee at the same moment. Pressure between the short ribs and ilium, and sometimes along the course of the ureter, induces an aggravation of the pain. The general surface is soft, warm, but moist. The pulse is accelerated. Sometimes the pain and other symptoms affect one side only; sometimes both sides are affected.

Now, in calculus in the kidney or ureter, we find, at first, *paroxysms* of excruciating pain in the situation of the kidney or ureter, attended by great muscular contraction of the countenance; distortion of the body; holding and forcing of the breath; copious perspiration; a frequent desire of micturition, or retention of urine; the urine itself is sometimes mixed with a mucous, puriform, or bloody, fluid. The tongue and pulse are little affected. These paroxysms are apt to be induced by the violent motions of running, jumping, riding, &c. Sometimes the symptoms of calculus are more insidious and continued, and less violent. They are apt to assume the character of inflammation, or of chronic disease of the kidney.

When the kidney is chronically inflamed, it is attended with some of the symptoms just detailed, though in a minor degree. At length perhaps a tumor is perceptible on examination of the region of the kidney and of the space between the false ribs and the ilium. Disease of the kidney is distinguished from organic disease of most of the other abdominal viscera, by observing that the degree of emaciation is much less, or its progress much slower; especially when the latter affections are attended by an equal degree of suffering. There is generally paleness of the countenance and general surface. The pulse is accelerated.

The terminations of nephritis are the same as those of other inflammations. In slight cases, resolution may be obtained; but, where the disease has continued with considerable violence for upwards of a week, suppuration may be apprehended. It may happen however, that, when the disease has been kept down by proper remedies, resolution may take place as late as the fourteenth day. It is marked by the disappearance

pearance of the fever, and all the symptoms. Suppuration is marked by a remission of the pain, with rigors, throbbings, and hectic fever: in some cases, pus is discharged with the urine.

On the first coming-on of this complaint, a quantity of blood, proportionable to the severity of the pain, ought immediately to be taken away; and, if the first bleeding does not afford considerable relief, the operation should be repeated on the same day, or on the next at farthest. Topical bleeding with several leeches will also be proper.

After bleeding, fomentations and clysters may be used. The patient is at the same time to be directed to drink plentifully of barley-water, thin gruel, whey, or linseed or marsh-mallow tea. The intestines are to be emptied by gentle purgatives, as frequently as the occasion may require, in addition to emollient clysters. The warm bath, and diaphoretics, such as the saline medicine combined with nauseating doses of tartarised antimony, will at the same time be proper. When the febrile symptoms do not run high, and the inflammation has been subdued by a vigorous adoption of antiphlogistic remedies, opiates may be used occasionally to soothe the pain, and may be added to the clysters. In nephralgia, they are very important remedies, but not in pure nephritis.

In nephritis, the application of blisters is sometimes proper. The cantharides used in them should be infused in boiling water, a mode of proceeding which destroys their irritating operation on the kidneys. If this be not done, absorption of the blistering-fluid will do more harm than the local stimulus will do good. Towards the termination of the complaint, soda is a useful remedy. The reader will find some further useful remarks on this complaint under the articles NEPHRITIS and NEPHRALGIA, vol. xvi. p. 721.

15. *Empresma cystitis*, inflammation of the bladder: pain and swelling in the hypogastric region; discharge of urine painful or obstructed; tenesmus. It is often the result of wounds, sometimes of cantharides; more generally idiopathic.

The treatment of this disease is the same as that of nephritis, except that drinking large quantities of fluid must be forbidden. Purging clysters, containing opium, should be injected very freely in this complaint.

16. *Empresma hysteritis*, inflammation of the womb: pain, swelling, and tenderness, in the hypogastric region; heat, pain, and tenderness, of the os uteri; vomiting; pulse quick and low. It has two varieties.

α. *H. simplex*, the organ being unimpregnated: pain permanent, circumscribed, throbbing; fever a cauma.

β. *H. puerperarum*: pain less acute, less circumscribed; flow of urine difficult; fever a synochus or typhus.

The uterus is obviously liable to suffer inflammation, like the other viscera of the body, from the common causes of inflammatory disease. In the unimpregnated state, however, it is less frequently attacked by this disorder than most of the neighbouring organs; and seldom, if ever, is thus affected, except about the periods when its vessels are in a state of increased action, in consequence of the occurrence of the menstrual discharge. At these periods, when not only the uterine system, but the constitution in general, undergoes a slight erethism, or tendency to febrile excitement, sudden exposure to cold, violent exercise, great heats, or very high feeding, occasionally bring on inflammation in the womb; more especially in females of plethoric habit.

The most frequent cause of inflammation of the womb, however, is the irritation or injury which it is liable to suffer during the process of parturition or abortion; occurrences which arise from the pressure different parts of this organ necessarily undergo, during these processes. Perhaps the free discharge of the lochia, which is a necessary consequence of the separation of the placenta, answers the secondary purpose of local depletion, and thus, like a copious blood-letting instituted by art, pre-

vents the evils which would otherwise be very likely to ensue. This supposition is rendered farther probable, from the circumstance that inflammation of the uterus, when it comes on a few days after child-birth, is connected with a suppression of the lochial discharge.

Inflammation of the substance of the uterus usually begins about the second or third day after delivery; and is first known to exist by a sensation of pain felt at the lower part of the abdomen, which gradually increases in violence, and is distinguishable from after-pains by its constancy. *After-pains* are intermittent, like the pains of labour, depending, like them, upon contractions of the uterus; but the pain of *inflammation*, arising from the uninterrupted action of the vessels, is necessarily unremitting. The patient complains much of any pressure applied externally to the region of the uterus; and this organ feels larger than common under the hand, as well as much harder, resembling almost a stone in firmness. Marks of constitutional affection soon appear in the increase of heat over the whole body, a white and dry tongue, thirst, head-ache, a hard, full, and strong, pulse, (when the disease occurs in full habits,) and in all cases a frequency of pulse, from 100 to 120 strokes in a minute. Very soon after the attack, the stomach is usually affected with sickness and vomiting; but this symptom is not invariable. There is commonly a considerable degree of pain in the back, shooting round the pelvis to the groins, and down the thighs. Not only the lochial discharge, but also the secretion of milk, is for the most part interrupted. The bowels are variously affected; often costive in the commencement of the disease, but frequently very loose as it advances. The urine is commonly high-coloured, depositing sometimes a pink-coloured sediment, when it can be seen unmixed with the uterine discharges. It will sometimes be found, when the disease has communicated with the neck of the bladder, or when the uterus and bladder have suffered, that suppression of urine will take place, so that the catheter must be employed two or three times a-day to draw it off. On the other hand, we have seen the inflammation apparently extend to the kidneys, in which case no urine was secreted for two or three days; yet the patient experienced the sensation of an urgent desire to make water, probably from the inflammation being likewise communicated to the neck of the bladder. If the inflammation is very great, it may spread to the peritoneum, covering the fundus of the uterus, and lining the cavity of the belly; in which case there is great swelling, tension, and soreness of the belly; and other new symptoms arise, such as characterize the child-bed fever, described under PARTURITION, vol. xviii. p. 674.

In the progress of the disease, slight shiverings frequently take place at different times in the day, while the acuteness of the pain is diminished, and the face of the patient becomes occasionally flushed. These symptoms, together with the increased frequency and weakness of the pulse, mark the tendency of the disease either to suppuration, or to a dangerous failure of the vital powers. The tongue puts on a fiery red or scarlet appearance, which is often followed by aphthæ: symptoms of great general irritation succeed; and the patient is often cut off in a short time. Now and then, however, a flow of fetid lochia relieves these symptoms: the pulse becomes less frequent; the flushings more rarely appear; the tongue grows paler, and the skin, which before had been hot and dry, now relaxes and is cooler; a spontaneous diarrhœa comes on, and the patient recovers. The case is more favourable, and the prospect of recovery greater, where these shiverings and flushings have never occurred; but where the uterus gradually becomes softer, and less tender on pressure, the lochial discharge returns in its usual quality and quantity, and the secretion of milk begins again.

As the disease is often extended to different organs at the same time, and the symptoms must necessarily be

rather complicated, the functions of all the suffering organs being in some measure deranged, an accurate distinction of the seat of the disorder is often difficult. This, however, is the less important, as the same remedies will remove the inflammation, in whichever viscous it may occur. Of these, *blood-letting* is the most efficacious; and, even in the puerperal state, in strong constitutions, it should be early and liberally employed. In the disease happening independent of parturition, it cannot be omitted with safety, perhaps, under any circumstances; but the repetition of it must be determined by the constitution of the patient, the violence of the symptoms, and the effect of the previous bleeding on the disease. It may frequently be found necessary a second and a third time. A blister may be also applied to the belly, as near the seat of the pain as may be. Gentle cathartics, especially of the saline class, are evidently useful in the case of hysteritis *unconnected with child-birth*; but, in that which follows delivery, a course of purging is not to be recommended. It is always right, indeed, in the first instance, to procure two or three evacuations from the intestines; but, afterwards, it will generally be enough to preserve the regular motions of the bowels, by giving, from time to time, small quantities of castor-oil, or a little rhubarb mixed with some saline purgative. With a view of producing a determination to the skin, small doses of antimony and opium, or the compound powder of ipecacuanha, with the addition of a little rhubarb, and an occasional saline draught, may be usefully administered. In case a spontaneous diarrhoea should come on, it should not be interfered with, farther than taking care that the strength of the patient be not too much reduced by it. Except where there is reason to suspect the existence of undigested or indigestible aliment in the stomach, the action of vomiting should always be avoided; inasmuch as it constantly increases the pain by the agitation which it occasions, and the pressure made by the muscles of the abdomen on the inflamed uterus.

It is scarcely necessary to add, that, during the whole course of the disease, every thing heating and stimulating should be cautiously avoided; that the food of the patient should be of a mild and digestible nature, consisting of liquid and vegetable substances, and her drink watery and diluent, every sort of animal food, and of fermented and spirituous liquors, being abstained from.

As hysteria occurs, both connected with and independent of parturition, particularly in those who indulge in full diet, and in the use of heating food and liquors; so the prevention of the disease must depend principally upon temperance and regularity in this respect. In the former case, this end may be obtained by attention to the proper management of the woman both before and during labour. See Clarke's Essays on the Management of Pregnancy and Labour.

The terminations of this complaint are similar to those of the other species of this genus.

17. *Empresma orchitis*, (*Hernia humoralis*, and *Inflammatio testium*, of various authors.) Inflammation of the testicle. Pain and swelling of the testicle; nausea or vomiting; depression of spirits; pulse quick, somewhat low.

Subject to the same causes of inflammation as other organs of the body, the testicle is also extremely liable to an inflammation vicarious with the urethra. Hence its frequency in blenorrhoea. The first appearance of swelling is generally a soft pulpy fulness of the body of the testicle, which is tender to the touch; this increases to a hard swelling, accompanied with considerable pain. The epididymis, towards the lower end of the testicle, is generally the hardest part. The hardness and swelling, however, often pervade the whole of the epididymis. The spermatic cord, and especially the vas deferens, are often thickened, and sore to the touch. The spermatic veins sometimes become varicose. A pain in the loins, and sense of weakness there, and in the pelvis, are

other casual symptoms. Colicky pains; uneasiness in the stomach and bowels; flatulency; sickness, and even vomiting; are not unfrequent. The whole testicle is swelled, and not merely the epididymis, as has been asserted.

The treatment of orchitis, whether local or constitutional, does not differ essentially from that of phlegmon in general. The great sympathy between the stomach and the affected organ indicate the propriety of administering nauseating medicines; indeed the disease has been cured by vomiting when other means have failed.

Genus VIII. *Ophthalmia*, [from *ὀφθαλμος*, Gr. the eye.] Inflammation of the Eye. Generic characters—Pain and redness of the eye or its appendages; intolerance of light; flow of tears, or other excited secretion.

This Genus naturally follows the preceding, where inflammations of various parts are treated of; "and might perhaps," Dr. Good observes, "have been placed as a species under *Empresma*, in which case it should have been written *ophthalmitis*: but it has various characters peculiar to itself, as well in regard to its symptoms as to the seat of the organ, which seems to entitle it to the rank of a distinct genus;" and accordingly he has divided it into the following species and varieties.

1. *Ophthalmia taraxis*, (*Oph. membranarum*, *Cullen*.) Lachrymose ophthalmia. The tunics of the eye-ball chiefly inflamed: increased secretion of tears. Divided into,

α. *Mitis*: limited to the surface; pain passable, without head-ache.

β. *Acuta*: extending to the lower part of the eye-ball; sometimes commencing there; pain burning; tears perpetual and acrid; intolerable head-ache.

γ. *Ophthalmia purulenta*, purulent ophthalmia; the internal surface of the palpebræ associated in the inflammation of the eye-ball; copious secretions of a purulent fluid. Four varieties.

α. *Epidemica*, Egyptian ophthalmia: epidemic; inflammation rapid and destructive; head-ache intolerable; often succeeded by delirium; at times remittent.

β. *Metastatica*: apparently produced by a sudden suppression of catarrhal, blenorrhoeic, or other morbid discharge. The secretion often greenish.

γ. *Intermittens*: marked by regular intermissions. Nearly allied to the epidemic variety. Probably produced by marsh miasmata.

δ. *Infantum*, purulent ophthalmia of new-born children: appearing suddenly, and without any ostensible cause in new-born infants: the palpebræ florid, and peculiarly tumid.

3. *Ophthalmia glutinosa*, (*Ophthalmia tarsi*, *Cull.* *Pterophthalmia*, *Ware*.) The inflammation chiefly seated on the tarsus; its sebaceous glands secreting a viscous and acrid fluid that glues and ulcerates its edges, and irritates the eye.

4. *Ophthalmia chronica*, blear-eye, or lippitude: eye weak and weeping after the inflammation has ceased; redness permanent, increased by slight causes. Often a relic or sequel of the preceding species; and best relieved by gentle stimulants and astringents, as cold water, solutions of camphor, zinc, alum, lead; slight illinations of French brandy, laudanum, or the nitric oxyd of mercury in the form of an ointment.

Sometimes the eye assumes a general redness without pain, which is the *Ophthalmia indolens* of certain writers.

For the causes and treatment of most of the above species and varieties, see the article *OPHTHALMIA*, vol. xvii. p. 528.

Genus IX. *Catarrhus*, [Gr. from *κατα*, and *ρεω*, to flow.] Catarrh. This term, like *Ophthalmia*, has been used in various senses and latitudes by different authors. Schneider and Hoffman show a disposition to extend it to inflammation of mucous glands in general: and Parr, enticed by such an example, has made it a genus for including

cluding not only what is commonly understood by Catarrh, but the cough of old age, (which he admits is without febrile action,) croup, dysentery, phthisis, cyf-tirrhœa, leucorrhœa, gonorrhœa, and one or two others. This is the widest acceptation of the term: the narrowest is that of the old pathologists, who thus distinguished between three separate terms which are now regarded by many writers as synonymous:

Si fluit ad pectus, dicatur rheuma *Catarrhus*,
Ad fauces, *Bronchus*; ad nares, esto *Coryza*.

In the present system, the following are the Generic characters—Inflammation of the mucous membranes of the fauces, often extending to the bronchia and frontal sinuses; infarction of the nostrils; sneezing, and for the most part a mucous expectoration or discharge from the nose. There are two species.

1. *Catarrhus communis*, common catarrh, or cold in the head; in which the fever is slight, and the mucous discharge considerable.

Of those slight inflammatory affections of the bronchia which are familiarly termed *colds*, and which spontaneously amend, we have already spoken of under *Bex humida*, p. 181. There are two remarkable varieties in acute catarrh.

The first, which commonly appears during sudden changes of the weather, generally attacks old people, and those of phlegmatic habits. This disease often deceives by the apparent mildness of its attack. The febrile symptoms are for the most part not severe at first, when compared with those which usually attend pneumonia. The patient does not complain of any fixed pain in the chest, but of considerable uneasiness and sense of straitness there. He is affected with oppression about the præcordia, and the countenance is expressive of anguish. To these symptoms are added lassitude over the whole body, and a general sense of weight and tension over the breast. The respiration is quick and laborious. By degrees, from the accumulation of the secretions, the air-cells are more and more filled up, and a wheezing noise comes on. Hoarseness, though not constantly, very frequently attends. The patient cannot take a deep inspiration with the accustomed freedom; and the attempt to do so often brings on considerable cough, or increases the pain, if any exists. Early in the disease, the dyspnoea is not aggravated by lying down, and no inconvenience arises from turning on either side; but, as it advances, the respiration is more free in the erect posture. In addition to this constant dyspnoea, there are cases in which the patient is subject three or four times in the day to an aggravation of the difficulty in breathing; a sudden constriction across the thorax is complained of, which sometimes, extending to the larynx, prevails to so great a degree as to prevent the voice from being articulate. In a short time, however, such exacerbations remit, and the complaint resumes its continued form.

A cough is one of the first symptoms, and from the commencement is usually accompanied with slight expectoration; though in some cases, in the first stage, there is an unnatural dryness of the parts. The expectoration is always scanty early in the disease, and does not at all relieve the cough: but in a few days, if the disorder begin to subside, a copious secretion takes place from the inflamed membrane, and a large quantity of thick viscid opaque mucus is spit up: after which the violence of the cough is usually diminished. The cough more frequently in this than in pneumonia excites vomiting: this usually relieves the bronchia of very considerable portions of dense white mucus, which are sometimes moulded into the shape of their ramifications. The patient is frequently seized with fits of coughing, which aggravate the dyspnoea; and, after their violence has subsided, he is left almost breathless, with a painful sensation of straitness across the chest. The urgency of

these symptoms, however, gradually abates if another fit of coughing do not disturb the respiration. Yet the dyspnoea, in many cases of this disease, is by no means proportional to the cough; the latter being often slight when the former is very severe. The cough and dyspnoea are generally relieved by a copious expectoration, and more especially in those who are in the decline of life, and have been frequently the subject of catarrhal affections.

In almost every instance the cough is accompanied with intolerable pain across the forehead, which may be sympathetic, or it may be an actual extension of the inflammation. In many cases drowsiness and vertigo attend. The tongue is often dry, and the whole mouth feels clammy from viscid mucus. The stomach refuses all sustenance, and the thirst is urgent. The urine is sometimes red and turbid, depositing no sediment; and sometimes it is scarcely changed from the natural state. The frequency of the pulse in the commencement of the disease is often not much increased; but during its progress some fulness and hardness are perceptible, though, in the more ordinary examples, fulness is more characteristic of this affection than hardness; and in those whose constitutions are impaired by hard drinking, who are frequently attacked with this disorder, the strength of the pulse is often rather diminished than increased. The temperature of the body is seldom much raised, although the face is often flushed, and evening paroxysms of heat and restlessness come on. The surface is generally dry, unless acted upon by diaphoretic remedies. The blood drawn is, for the most part, buffed.

The duration of this disease is uncertain. It is often difficult indeed to determine the precise time of its commencement, so insidious is the attack. In some cases it terminates in a few days, whilst in others it runs on to a much longer period. In the more violent cases, when the remedies employed do not check the progress of the symptoms, the pulse towards the seventh or eighth day becomes very quick and much weaker; occasional perspirations break out, the nails and lips assume a slightly livid hue, and the countenance is distressed, anxious, and pallid, with somewhat of a purple tinge. In fact, every symptom bespeaks obstruction in the air-passages. Soon afterwards the extremities grow cold, and the patient dies from suffocation.

In cases of a less dangerous nature than above alluded to, the more distressing symptoms begin in six or seven days to subside. The dyspnoea becomes less urgent, the cough is relieved, and a copious expectoration of a thick white matter takes place. But the recovery is always slow, the expectoration continuing for some time, and generally preventing the patient from recovering his strength for several weeks. Moreover, in this state of the disease the bronchial membrane is particularly liable to be affected by atmospheric changes; and thus, not unfrequently, a chronic affection of a very obstinate nature occurs. If, however, the weather be favourable, after the worst symptoms have been removed, the disease often gradually disappears; but not without leaving the mucous membrane much disposed to take on inflammatory action, which will almost inevitably occur when the exciting causes again operate in any considerable degree.

Inflammation of the bronchia, when it takes place in the strong and plethoric, usually produces symptoms of much greater severity. The pulse, the surface, and the tongue, all usually indicate violent reaction; but the countenance is often peculiarly pallid. The progress of this variety of catarrh is more rapid than that of the one before spoken of. Even in this, however, there is rarely a fixed pain in any part of the chest, but a distressing sense of *straitness* is constantly felt. The breathing is hurried and laborious, the patient only experiencing tolerable ease in an erect posture. A cough almost constantly attends, but it seldom bears any proportion to the dyspnoea; the former being often trifling when the latter

latter is very oppressive. Some expectoration is generally present in the early stage of this disease; and its cessation, if the dyspnoea continue, is one of the worst signs, as it shows that there is not strength enough remaining to enable the patient to relieve the chest from the matter which is poured out into the bronchia; it must consequently accumulate, and at length entirely fill them and the air-cells. The skin, says Dr. Badham, is dry, the tongue foul, and the urine high-coloured and scarce; the pulse, however, varies in other respects, always hard, the necessity of immediate venesection for the most part obvious. Wheezing is not so constant an attendant on this as on the first variety. It is chiefly noticed towards the close of the disease.

The stage of excitement, if not met by appropriate remedies, almost invariably terminates in a corresponding sinking of all the powers of the system: dyspnoea takes place; the lips become purple; the pulse sinks, and is much increased in frequency; the heat of the surface is greatly diminished; the skin is generally damp, and the forehead and chin are bedewed with cold perspiration. Expectoration, from being copious, becomes scanty, or altogether ceases; and the patient dies from the accumulation of the secreted fluids in the air-cells. The violence of the dyspnoea, and the tendency of this disease to terminate fatally as early as the fifth or sixth day, form its most striking features.

When vigorous measures are early employed, so as to make an impression on the constitution, these dangerous symptoms occasionally give way. The dyspnoea abates; the constriction across the chest subsides; the cough is relieved, being attended with a more copious and thicker expectoration, which affords much relief. The pulse, the surface, and the tongue, become more natural, and by degrees the patient is free from present danger. The great debility which has been induced, however, necessarily renders recovery very slow; and frequently a tedious chronic disease ensues, which is characterised by a frequent and violent cough, and a very copious expectoration of a pus-like matter. The pulse is greatly quickened, the face is often flushed, particularly towards evening, and in the night partial perspirations break out. To these symptoms is sometimes added extreme emaciation: indeed almost all the symptoms of a supervening phthisis appear, and the death of the patient seems inevitable.

The discrimination of acute catarrhus from pneumonitis is difficult; and these diseases cannot be always distinguished from each other. The countenance is frequently pallid in catarrhus; it is not so in pneumonitis. The dyspnoea and anxiety are more distressing in the former disease than in the latter. Pain is seldom complained of in catarrhus, a diffused soreness of, or a peculiar *straitness* across, the chest being alone felt; whilst pain almost constantly attends pneumonia. When the expectoration commences, it is much more copious in inflammation of the bronchial membrane than in inflammation of the substance of the lungs or pleura. The wheezing noise which almost constantly attends some of the varieties of inflammation of the bronchia is seldom heard in that of the lungs. There is something also peculiar in the respiration in almost every instance of acute catarrhus; it is hurried and anxious; and, as Dr. Badham observes, the efforts of all the voluntary muscles that can be called into action render the oppressed state of the lungs sufficiently evident. The anxiety of countenance is much greater in catarrhus than in pneumonitis. The pulse is also different in bronchial inflammation; it is frequent, but it wants the hardness and vibration of the pleuritic pulse.

We may likewise be aided in forming our diagnosis by attending to the origin of the disease. If the pectoral attack succeed to rubeola, it is more than probable that it is seated in the bronchial membrane. In the same manner, if difficulty of breathing and cough come

on immediately after the disappearance of any affection of the skin, there is good ground to suspect that the mucous membrane lining the air-passages may be in a state of diseased action. In variola, when much difficulty of breathing occurs, it is probable that inflammation of the bronchial membrane may have taken place. In chronic ulceration of the trachea, when any sudden attacks of difficult breathing happen, and continue for some time, it is likely that the more minute air-passages are inflamed.

The danger from acute catarrh is different in the different varieties; but it is true of both, that, when the breathing is not very difficult, the cough not severe, the expectoration copious and free, and affording relief, the pulse regular and firm, and not very frequent or hard, and the strength not much reduced, the prognosis is not unfavourable. When the breathing is very high and laborious, a degree of coma supervenes, the nails become livid, and the voice is hoarse and indistinct: when the anxiety and sense of oppression are very great, and the pulse weak, quick, and fluttering, the fatal event will almost inevitably occur. There are few diseases, however, in which the prognosis is more uncertain than in the first variety of bronchitis. Our chief dependence may be placed on the state of the expectoration. Whenever the disease terminates favourably, the expectoration is free and copious; and, in proportion as the danger increases, the lungs become more oppressed, the expectoration scanty, and the debility great.

When bronchitis attacks the strong and plethoric, the danger is seldom equivocal. No inflammatory affection of the pulmonary organs is more frequently fatal than this. There is much to dread, even if vigorous measures be employed at an early period. The sense of constriction across the chest; the hurried, anxious, and laborious, breathing; the cough without much expectoration, the dry and hot skin, the foul tongue, the high-coloured urine, and the quick pulse, indicate the severity of the inflammation. The prognosis is more favourable if the breathing be relieved, and the cough be attended with a free expectoration. But it is much worse if we observe the slightest purple tinge on the cheeks, or if the expectoration diminish, and the breathing become more difficult; or, finally, if the eyes be rather prominent, and the patient alternately restless and lethargic. The case is altogether hopeless when the pulse becomes quite feeble and frequent; or when partial sweats break out, and the expectoration ceases. In young children, the prognosis is more unfavourable than at any other age.

Catarrhus arising from cutaneous diseases is more dangerous than that proceeding from cold.

The following is a concise view of the means we have recourse to for removing these inflammatory affections. To moderate the excitement of the sanguiferous system, general blood-letting, and abstinence from all stimulating food. To promote expectoration and perspiration, antimonial and saline medicines. To direct the fluids towards the surface, and relieve the congestion of the debilitated capillaries, local blood-letting, blisters, and rubefacients. The above means are general and local. Of those which are general, blood-letting is by far the most powerful for diminishing the excitement of the system; but it is not equally called for in all the varieties of bronchitis. In the first variety, where the disease occurs in phlegmatic habits, venesection is generally proper; but, on account of the peculiar habit of body, blood-letting should be employed with caution; for Sydenham observes, (and all succeeding writers have admitted the accuracy of his observation,) that patients of this description do not bear bleeding well. The abstraction of ten ounces of blood from the arm early in the disease, sometimes mitigates the symptoms; after which it is generally more safe to depend upon an attention to diet, proper expectorants, and local evacuations. The peculiar tendency to effusion often renders the treatment of this

this affection difficult, as we are sometimes deterred by that cause from pursuing the blood-letting when the inflammatory symptoms indicate its employment. In this event we must subdue the inflammation by those means which are least likely to bring on effusion.

Catarrhus, however, as has been noticed in the history of the second variety, sometimes occurs in robust habits, and occasions violent symptoms. The stage of excitement in these cases is not of very long continuance; it soon terminates in irremediable debility. The short space of time that is allotted for the employment of antiphlogistic measures should not, therefore, be allowed to pass without an attempt to make a decided impression on the disease. With this view, blood-letting should be boldly employed. From twenty to thirty ounces of blood may be taken from the arm in severe cases, at the first blood-letting. It is difficult, however, to direct the precise quantity of blood. If the patient be of a strong habit, and the pulmonary symptoms urgent, and the febrile excitement considerable, we should allow it to flow till the pulse becomes weak, or the pulmonary symptoms are relieved. There are few cases which yield to one blood-letting. The propriety of its repetition should be determined by the degree of benefit obtained, the state of the symptoms, and the strength of the patient. Several blood-lettings are sometimes required. When the disease attacks children, general blood-letting should be employed as far as the strength will admit. In young children we cannot always obtain blood from the arm, but we may generally succeed in taking it from the jugular vein. This practice, indeed, is attended with some advantage, as the blood is taken from a vessel which pours its contents into the thorax. For the most part, however, children do not bear the loss of blood well; but in an attack which is menacing life there is no alternative: we must adopt powerful measures, for without them the disease will almost certainly prove fatal; but such is its dangerous character, that even by them its progress is often not arrested. When bronchitis is complicated with chronic disease of the trachea, blood-letting to any great extent cannot be always employed; for, if ulceration of the trachea have come on, the strength is often so much exhausted by it, that the loss of any considerable quantity of blood is not admissible. Even if relief be obtained by these means, it can only be temporary, unless the ulceration can be removed. Bronchitis arising from the irritation of external tumours requires venesection; but this remedy cannot give effectual relief, unless the cause producing the inflammation can be taken away.

Vomiting is sometimes productive of relief. Several writers have spoken very highly of the use of emetics in the second variety. The aqueous solution of tartarized antimony is in general, perhaps, the best remedy for producing it, although in young children it is not so safe as ipecacuanha, which, in them, should be consequently preferred. Independently of the action of the former as an emetic, it seldom fails to excite diaphoresis, which if general, and not too profuse, nor brought out by heating measures, is usually beneficial. But the good effects of antimonials are not confined to those cases in which we wish to produce vomiting. In every variety of acute catarrh, when there is much fever present, the greatest advantage is derived from the steady use of antimonials. They are indeed the most valuable of all medicines; for they not only, by exciting nausea and opening the pores of the skin, considerably lessen the febrile excitement, but, by their action on the exhalant vessels of the lungs, they promote expectoration, and thus lessen the inflammation of the mucous membrane. They may be given in combination with saline draughts and nitrate of potash. In the advanced stage, when the inflammation is nearly subdued, and the bronchia are clogged, ipecacuanha combined with squills is often of great service; but in all cases of this disease, as long as the excitement is con-

siderable, if antimonial remedies be excepted, no expectorants are so useful as mucilaginous mixtures.

In every variety of bronchitis, we should keep the body lax; and, in the commencement of the disease, should administer an active purgative, so as to clear the alimentary canal, and should afterwards so employ it as to keep up a due action of the bowels. Opium is prejudicial as long as there is much fever; but, when that declines, and irritability of the system and air-passages still prevails, it not unfrequently allays the cough, and calms the patient. But opiates must be employed with great caution, especially in the second variety; for when the secretion is copious, and the strength much reduced, they interrupt, for a time, the efforts to expectorate, and may thus prove fatal. In combination with small doses of calomel, opium may sometimes be exhibited at an earlier period of the disease. When conjoined, these remedies not only diminish the cough and assist expectoration, but seem likewise to regulate the secretions throughout the system. Diuretics have been advised by some writers of authority; and, when the disposition to effusion shows itself, the milder kinds may be of considerable service.

Local blood-letting should be used under the same restrictions as in other inflammations. Blisters are productive of great benefit after the excitement has been considerably relieved by blood-letting. But when catarrh occurs in phlegmatic habits, and assumes the form of peripneumonia notha, blistering may then be employed from the commencement, and is one of the remedies to be chiefly relied on in the cure of that variety. If the disease be obstinate, we should not be content with a small blister to the chest; one of sufficient size to cover the whole of its anterior part should be applied; and, if the symptoms do not readily yield, the discharge from the blistered part should be supported, or a succession of blisters employed.

The tepid bath often relieves this as well as other internal inflammations, by removing the tension of the surface, and exciting diaphoresis. Local fomentations and cataplasms may be also used: they bring a larger quantity of blood into the vessels of the integuments covering the thorax, and encourage a more copious effusion of blood from the leech-bites. When the disease becomes chronic, those remedies are to be had recourse to which we have mentioned when treating of chronic catarrh. See p. 183 of this article.

The dissections of catarrhal subjects manifest morbid appearances in the following order: Redness of the bronchial membrane; want of elasticity in the lungs; mucous, sanguineous, or purulent, exhalation; ulceration of the bronchiæ; a redness or other morbid appearance of the substance of the lungs, showing the existence of pneumonia and bronchitis.

Dropsy and a variety of dyspeptic ailments are sometimes associated with Catarrhus; the dropsy as a consequence, the dyspepsia a cause, of the pulmonary disease. Of the dyspeptic bronchitis we have spoken under Dyspepsia; and the latter does not require a distinct treatment. The same remark is applicable to the catarrhus attending measles and other exanthems.

2. Catarrhus epidemicus, the epidemic catarrh, or influenza; attack sudden; great heaviness over the eyes; fever strikingly depressive; epidemic.

For an excellent Chronological Table of the best writers upon the subject, from the Cronica Meteorologica Tuscana of 1323, by Targioni Tozzetti, to Saillant's Tableau des Epidemies catarrhales, see Cullen's Synopsis, in loco. It appears, from what can be gathered from these sources, that the influenza was a catarrh which was no otherwise distinguished from the first species than by its severity and its being contagious. Dogs and horses are subject to a violent and frequently fatal variety of this disease; in most instances highly contagious or epidemic. This, among ourselves, is vulgarly known by the name

of *distemper*, or *snuffles*: among nosologists it is called *Catarrhus caninus*. Dr. Good mentions it as a singular well-ascertained fact, that dogs which have undergone this catarrh never *generate* *lyssa*, or canine madness, though they are capable of receiving it by contagion.

Genus X. *Sparganosis*, [Gr. from *σπάργω*, to tumefy and distend; *tumeo et distentus sum*, as rendered by Scapula.] Generic characters—Pale, tense, glabrous, diffused swelling of a limb; great tenderness; inflammation subcutaneous, unsuppurative. There is only one species.

Sparganosis puerperarum, milk-spread, or *Phlegmatia dolens*: occurring, for the most part, during the second or third week after child-birth; limited to the lower extremity, and chiefly to one side; exhibiting to the touch a feeling of numerous irregular prominences under the skin; fever a hectic.

This complaint is not always confined to the puerperal state, but it is so in most cases. In about twelve or fifteen days after delivery, the patient is seized with great pain in the groin of one side, accompanied with a considerable degree of fever, which however is seldom preceded by rigor or shivering. This part soon becomes affected with swelling and tension, which extend to the labium pudendi of the same side only, and down the inside of the thigh, to the ham, the leg, the foot, and the whole limb: the progress of the swelling is so quick, that in a day or two the limb becomes twice the size of the other, is moved with great difficulty, and is hot and exquisitely tender, but without any external appearances of inflammation. The pain in the groin is generally preceded by a pain in the small of the back, and sometimes by a pain at the bottom of the belly on the same side; the parts which suffer the most pain are the groin, the ham, and the back part of the leg about its middle. The pain indeed extends over the whole limb, in consequence of the sudden distention; but in a day or two it becomes less severe. The swelling is general and equal over the whole limb; it is much harder and firmer than in anasarca, in every stage of the disorder; it is not so cold, in any state of the disease, as the dropsical swelling, nor so much diminished by a horizontal position, neither does it *pit* when pressed upon by the finger, nor does any water issue from it when it is punctured by means of a lancet. The surface is very smooth, shining, and pale; and is even and equal to the touch in every part, except where the conglobated glands are situated, which in some cases are knotty and hard, as in the groin, the ham, and about the middle of the leg at its back part.

This disorder generally comes on in the second or early in the third week after parturition. But Mr. White mentions one instance in which it commenced as early as twenty-four hours after delivery, and another as late as five weeks: but these are rare and extreme occurrences. The disease subsides in the following order: first the pain and swelling of the groin and labium pudendi, begin to remit, next those of the thigh, and lastly those of the leg.

The fever in some patients subsides in two or three weeks, in others it continues six or eight weeks, attended with quick pulse and hectic symptoms. The disease sometimes attacks both extremities; but this rarely happens, perhaps not in one case in ten. After the disorder has existed a week or two, it is not uncommon for the sound leg to swell towards evening, and become cedematous; but then the groin and thigh are not affected on that side, and the leg is much softer to the touch than the other, and pits when pressed upon by the finger. Mr. White (*Inquiry into the Nature and Cause of that Swelling in one or both of the Lower Extremities, which sometimes happens to Lying-in Women, 1784*), affirms, that he has never known it to suppurate or prove fatal, or to be followed by any material inconvenience, after a few months were elapsed, except a little swelling of the leg after fatigue, particularly after walking.

The causes of this disease are not very obvious. It attacks women who are in full strength, and those who are reduced by flooding; those who have a moderate discharge of the lochia, and those who have a small or a large quantity; those who give suck and those who do not, whether their breasts be drawn or not, and whether they have a great deal or little milk. It attacks women in whatever position they have been delivered; but of those who were delivered on the side, it appears that the greater number were affected on that side in which they lay at the time of delivery. It attacks women of all ranks and of different habits, both the rich and the poor; the most healthful, as well as those who have laboured under chronic diseases: the strong and the weak, the lean and the corpulent; the sedentary and the active; the young and the middle-aged; after the first or any other labour, and whether the labour be natural or preternatural. It happens at all seasons of the year indiscriminately; and in the country as well as in large towns. It never attacks either of the arms, or other parts of the body; and, though it sometimes occurs in both the lower extremities, in the same or in different lyings-in, it never attacks the same limb more than once.

The complaint seems to consist of an inflammation seated in the muscles, cellular membrane, and interior surface of the skin, which produces a rapid effusion of serum and coagulable lymph from the exhalants into the cellular membrane of the limb. Dr. Hull, in his learned treatise on *Phlegmatia dolens*, divides the disease into three stages; and treats the first, or inflammatory, stage, upon antiphlogistic principles, applying leeches and blisters to moderate the local action; and emollient fomentations, liniments, and ointments, to relieve the tension of the skin. The second stage does not require or bear evacuations; but the other parts of the antiphlogistic treatment, such as rest, the removal of irritations, gentle diaphoretics and sedatives, the warm bath, &c. must be continued; and the topical affection is to be remedied by gently stimulating liniments. The third, or asthenic, period, requires the administration of tonics and stimulants, and exercise, especially in a carriage; while at the same time the topical affection must be treated by the application of a tight bandage, by the cold bath, or cold water dashed on the limb, and by remedies which may increase the action of the absorbents, such as blisters, friction, heat, electricity, &c. and by the internal medicines which excite absorption, such as mercury, digitalis, alkalies, &c. These remedies, particularly the evacuations, will of course be regulated according to the vigour and habit of the patient.

Genus XI. *Arthrosia*, [Gr. from *αρθρον*, a joint.] Articular Inflammation, or Joint-ache. Generic characters—Inflammation mostly confined to the joints, severely painful; occasionally extending to the surrounding muscles. This genus contains four species, including gout, rheumatism, &c.

The nature of neither gout nor rheumatism is precisely known. The capsules of joints, the sheaths of tendons, and indeed of the tunica propria musculorum, appear to be the parts chiefly affected; and it seems also, that inflammation is the affection in question. The diseases, however, of rheumatism and gout vary in their antecedent and concomitant symptoms, and also in regard to the morbid depositions to which they give rise. It does not seem clear, however, that either of these diseases is unconnected with constitutional malady; because arterial inflammation of the membranes of the joints is not always attended with the symptoms of gout and rheumatism. The connexion of gout and indigestion has been long observed; and, from all we have been able to gather, this connexion has been almost invariable. The disease has, in the majority of cases, attacked plethoric and intemperate persons; and even the exceptions which have happened have always presented patients, who

who from mental exertions, from hereditary predisposition, or from some other of the numerous causes of indigestion, have had the abdominal viscera disordered. In speaking of Dyspepsia, we have before stated, that it was capable of producing nervous irritation in many parts of the body, and that, if it continued very long, was very violent in degree, or if the sanguineous system was debilitated, it would produce inflammation. This it seems to do in gout. We infer that it does so, because dyspepsia always precedes gout. It does not indeed appear that it is the long continuance or the violence of the nervous excitement which is the cause of the inflammation, since neither the one nor the other is often present. We must look, therefore, to the sanguineous system, which we believe will in all gouty cases be unusually full, and its contained blood will be unnatural.

We are quite unable, in the present state of our knowledge, to show why the inflammation attacks the limbs and joints rather than other parts; but we are equally ignorant of the causes which determine other inflammations to particular parts of the body. We conclude, then, that gout is a disease of irritation, in which the inflammatory action is brought on by distant disorder. It is no argument against the theory in question, that many patients are *quite free from symptoms of indigestion during an attack of gout*; because, as we have before shown under Dyspepsia, inflammation being established in a distant part, it acts as a counter-irritant to the original disease, as when long-continued indigestion brings on inflammation of the lungs, and the dyspepsia goes off. Rheumatism, on the other hand, seems less connected with indigestion.

Having indulged in these few remarks, and being on the whole quite dissatisfied with our progress in the ætiology of either gout or rheumatism, we shall proceed to detail their symptoms and cure.

1. *Arthrosia acuta*, acute rheumatism: pain and inflammation, usually about the larger joints and surrounding muscles, often wandering; urine depositing a lateritious sediment; fever a cauma. Four varieties.

α. *A. artuum*: pain chiefly felt in the joints and muscles of the extremities.

β. *A. lumborum*, lumbago: pain chiefly felt in the loins; and shooting upwards rather than below.

γ. *A. coxendicis, sciatica*: pain chiefly felt in the hip-joint; producing emaciation of the nates on the side affected, or an elongation of the limb.

δ. *A. thoracis, spurious pleurisy*: pain chiefly felt in the muscles of the diaphragm; often producing Pleuritis diaphragmatica.

This division into varieties is rather nominal than real; and all the distinctions of rheumatism required by practical men is that of acute or chronic, or combined with gout.

Acute rheumatism begins, like most other febrile diseases, with fits of chilliness, which are succeeded by increased heat, frequent pulse, thirst, loss of appetite, and prostration of strength. Not unfrequently, however, the peculiar symptoms appear before any febrile symptom is observed; namely, pain and inflammation in the joints. The pain sometimes affects the joints alone; but often it affects also the muscular parts, shooting along the course of the muscles from one joint to another; and it is always increased by the action of the muscles, that is, by any attempt to move the joints that are diseased. Its usual seat is in the larger joints, such as the hips, knees, shoulders, and elbows: the ankles and wrists are also frequently attacked; but the smaller joints, such as those of the toes and fingers, suffer considerably less. Two, three, or more, of these joints, are commonly affected at the same time; but the pain is constantly shifting its place, leaving some joint and going to another, and frequently returning again to each of them several times during the course of the disease; and in this manner the disease is often protracted for a considerable length of time. Soon after,

and sometimes at the same moment with the commencement of the pain, the joint seized becomes swelled and somewhat red, and is extremely painful to the touch. The pain is sometimes relieved by the occurrence of swelling, but not always; neither is the joint thus rendered more secure from a return of the attack. The patient, thus unable to move the joints affected, which are irritated and acutely pained by external contact, sometimes even by the weight of the bed-clothes, and in a state of severe internal pain, unable to find any position of ease, lies sleepless and restless for several days and nights together. The fever accompanying the disease is most considerable during the night, at which time the pains also are most violent. The pulse is commonly from ninety to a hundred in a minute, and occasionally more frequent; often full, and sometimes hard and sharp, but most frequently soft. The heat of the skin is considerable, and the disease is commonly attended with sweating, even from an early period, which is often profuse and constant, but never either relieves the pains permanently or proves a crisis to the fever. The urine, in acute rheumatism, is remarkably high-coloured from the beginning, and afterwards deposits most copiously a brownish-red sediment, like brick-dust. This sediment, however, is probably the result rather of the profuse sweating than of any peculiarity belonging to the disease; since it is commonly seen after a dose of sudorific medicine, or any other variety of perspiration. Like the sweating, it does not occasion or betoken any favourable change in the fever. The blood exhibits, in a high degree, the buffy coat.

With the symptoms above detailed, the rheumatic fever often continues for several weeks: it seldom, however, proves fatal, and perhaps never while the joints alone are the seat of the disease; the fever, indeed, usually becomes less violent after two or three weeks, and the pains less severe, and less disposed to change their place. But occasionally the inflammation of the joints has disappeared, and some vital organ, as the brain, lungs, or stomach, has been seized with inflammation, by which the patient has been carried off; or these organs have become simultaneously affected, and the same fatal event has ensued.

It has been remarked by Dr. Cullen, as indicative of the peculiar nature of rheumatic inflammation, that the acute rheumatism, though it has so much of the nature of the other phlegmasiæ, differs from all those hitherto mentioned in this, that *it is not apt to terminate in suppuration*. Indeed this hardly ever happens in rheumatism: but the disease sometimes produces effusions of a transparent gelatinous fluid into the sheaths of the tendons. He says, "if we may be allowed to suppose that such effusions are frequent, it must also happen that the effused fluid is commonly re-absorbed; for it has seldom happened, and never indeed to my observation, that considerable or permanent tumours have been produced, or such as required to be opened, and to have the contained fluid evacuated. Such tumours, however, have occurred to others, and the opening made in them has produced ulcers difficult to heal. (First Lines, par. 448.) The non-occurrence of suppuration in these violent rheumatic inflammations is of itself a striking characteristic of the disease; and the circumstance, that it is not productive, on the other hand, of what are called *chalk-stones*, or of that cretaceous-like secretion which is the result of the inflammation of gout, distinguishes it from the latter malady. In addition to this circumstance, however, there are other points of distinction between the *gouty* and *rheumatic* inflammation; namely, that the latter usually attacks the large joints; that it is not preceded by symptoms of indigestion; that it does not recur in regular paroxysms; and that it attacks younger people, and those not liable to gout from their modes of life; and that is usually the effect of a specific cause, *cold*.

The predisposing causes of rheumatism, are plethora and

and the other causes of inflammation in general. Males, and those between the time of puberty and thirty years of age, are the most liable to acute rheumatism.

2. *Arthrosis chronica*, chronic rheumatism: pain, weakness, and rigidity, of the larger joints and surrounding muscles; increased by motion; relieved by warmth; spontaneously or easily growing cold; fever and swelling slight, often imperceptible.

The varieties are the same as those of the preceding species, of which Cullen regards the disease as a mere sequel. It appears however at times to be idiopathic; but it is often difficult to draw the line between the two; and indeed a variety of links connect acute and chronic rheumatism together. In most instances, chronic rheumatism is the direct consequence of an attack of the acute form of the disease. The febrile symptoms, the swelling, and particularly the redness of the joints, have disappeared, and the general functions have resumed their healthy condition; but still certain joints continue to be affected with pains and stiffness, which are particularly felt on motion, and are often accompanied by a spontaneous coldness, and a torpor sometimes almost amounting to paralytic. These affections are much influenced by the changes in the temperature and humidity of the atmosphere; and are distinctly aggravated by external cold, and relieved by external warmth. The parts affected are not easily made to perspire; so that, when the other parts of the body are brought into a state of free and warm perspiration, that on the pained joints is only cold and clammy. The pains are also, like those of acute rheumatism, most severe in the night.

This chronic affection of the joints, however, is very often altogether independent of any previous inflammation and swelling, and occurs in many persons who have never been subject to an attack of acute rheumatism. It occurs, indeed, very frequently in persons somewhat advanced in life, and beyond the period when the acute form of the malady is usually seen. In these cases it is commonly ascribed to the action of cold; very often to partial exposures of the particular parts of the body in which it takes its seat; and it is apt to be produced again and again in those parts which have once suffered from exposure of other parts of the body to cold. Thus, getting the feet wet will induce an attack of lumbago, sciatica, or a crick in the neck, according to the predisposition induced in these respective regions by former attacks. Many cases of chronic rheumatism, are ascribed, however, to violent strains of the muscles of particular parts, occurring on sudden and somewhat violent exertions, and even to fatigue from long-continued exertions of particular muscles.

As to the *treatment* of rheumatism, this is different according to the stage of the malady. In the first stage of rheumatism, free general bleeding must be had recourse to, followed by purgatives and local bleeding. When the disease is mitigated by these measures, our endeavours may be directed to the abatement of pain by means of opiates; and also to the cure of the disease by certain remedies empirically administered; of these cinchona and opium have the greatest reputation. Indeed some practitioners have recommended these drugs at the onset of the disease. This seems to us highly improper. The object of cinchona can only be to stimulate the vessels of the inflamed membrane, with a view to the recovery of their natural powers; nor can opium be any further advantageously exhibited than as it alluages pain, and thus removes one of the conditions of inflammation. Seeing the disposition of rheumatism to suffer metastasis, we should be very careful not to remove, by any other than constitutional remedies, the local affection. Cold lotions may be used however to abate the violence of the inflammation.

When the rheumatism has become *chronic*, the curative measures must be changed. We should remove occasionally general plethora; but our attention should for the

most part be directed to the nervous system; and we shall find topical remedies by no means useless. In addition to the rigid adoption of the dyspeptic treatment, a free use of guaiacum should be resorted to; or in some cases small doses of antimony, calomel, and opium, with warm fomentations to the affected joints.

When the symptoms are mitigated, counter-irritants may be used with advantage. Some other substances have been employed, with occasional success, in the cure of different cases of chronic rheumatism, which do not appear to possess any quality in common, and the operation of which, therefore, cannot be satisfactorily explained. Among these we may mention *sulphur*, which has long possessed a sort of popular reputation for the cure of lumbago, and some other varieties of the disease. Taken nightly in a considerable dose, so as to act gently upon the bowels, it has succeeded, in some instances, in affording a very speedy and marked alleviation of the symptoms; but, on the other hand, it has very often failed to produce any effect whatever; and under what circumstances these respective variations in its operation occur, no one has been able to ascertain.

As another expedient for the cure of chronic rheumatism, the *arsenical solution* of Dr. Fowler has been recommended; and, if plethora and dyspepsia be removed, it may be employed with safety, and, as it seems to us, with success.

The warm or tepid bath, from the temperature of 85° to 95° of Fahrenheit's thermometer, has been much used, but seems to be somewhat superseded by the application of the *vapour* of hot water to the surface. Dr. Bardley says, "whenever the joints were found so rigid as to be nearly immoveable, and the pains upon motion exquisitely severe, or when the muscles had become contracted and almost paralytic, and indeed in every protracted case of the disease of the hip-joint, lumbago, or sciatica, the vapour of hot water, locally and properly applied, afforded (especially in conjunction with other topical applications) a safe and often successful remedy."

As counter-irritants in chronic rheumatism, blistering, issues, or the ointment of emetic tartar, have been employed with highly-beneficial effects. In slight cases, *rubefacients*, or those substances which stimulate the cutaneous vessels, and excite a redness of the surface by causing them to be distended with blood, will be found useful, especially when their operation is aided by *friction*.

Among other stimulants which have been employed for the cure of chronic rheumatism, especially in those cases which are obstinate and of long duration, or are accompanied by considerable torpor and rigidity, and a diminution of the vital heat, the influence of the *electric* and *galvanic* fluids has been resorted to; and many testimonies might be adduced in proof of the beneficial operations of both these agents. Dr. Bardley affirms, that the application of electricity by sparks and shocks, especially the former, was manifestly advantageous; at the same time he acknowledges, that it was chiefly in conjunction with the local application of vapour, and with tonics and anodynes administered internally, that the most marked advantages were produced.

3. *Arthrosis podagra*, the gout: pain and inflammation chiefly of the smaller joints, returning after intervals; often preceded by, or alternating with, unusual affections of the stomach, or other internal parts; unfurpurative. Three varieties.

α. *P. regularis*: the articular pain, swelling, and inflammation, considerable; continuing for several days, often with remissions and exacerbations; then gradually dispersing, and leaving the constitution in its usual or improved health.

β. *P. larvata*; disguised and lurking in the constitution, and producing derangement in the digestive or other functions, with only slight and fugitive affection of the joints.

γ. *P. complicata*: the disease fixing on some internal organ,

organ, instead of on the joints; or suddenly transferred from the joints after having fixed there; producing, in the internal organ affected, debility or inflammation according to the state of the constitution.

The gout sometimes comes on suddenly, without any warning of its approach; but it is generally preceded by several symptoms, especially by those of indigestion, as heart-burn, flatulence, and heaviness after meals, with eructations of acid or bitter matters, and some degree of languor and torpor of the body; but immediately before the fit the appetite is sometimes unusually sharp. There is also often an unusual coldness of the feet and legs for a few days preceding the fit, with the cessation of the perspiration about the former; a frequent numbness, alternating with a sense of prickling, along the whole of the lower extremities; occasional cramps of the muscles of the legs, and an unusual turgescence of the veins, are occasionally observed.

The attack is sometimes felt in the evening, but more commonly about two or three o'clock in the morning; when the patient is awakened from a quiet sleep by a pain affecting one foot, generally the ball or first joint of the great toe, but sometimes the other parts of the foot, or the ankle. This pain is accompanied with more or less of chilliness and shivering, which, as the pain increases, gradually ceases, and are succeeded by a hot stage of pyrexia, or symptomatic fever, which continues during the same time as the pain. The pain becomes by degrees more and more violent: at first it is attended with a sensation as if warm water were poured upon the membranes affected, and is said to resemble the pain of a dislocated joint; as it becomes severe, it is sometimes described as resembling the pain of a tension or laceration of the ligaments, sometimes as like that from the gnawing of a dog, and sometimes as a feeling of weight and constriction of the membranes of the part, which becomes so exquisitely tender, as not to endure the weight of the bed-clothes, nor even the flaking of the room from a person walking briskly in it. Hence, great restlessness of the whole body, and especially of the part affected, always accompanies the fit; the patient constantly changing his posture, with a view to ease the pain, which, nevertheless, continues severe all the following day, until midnight, after which it gradually remits: and about two or three in the morning, that is, after twenty-four hours from the first attack, it commonly ceases almost entirely; and this freedom, with the breaking out of a free perspiration, allows the patient to fall asleep. On waking, he finds the pain slight, and the part affected with some redness and swelling.

When a paroxysm has thus come on, although the violent pain, after the period of twenty-four hours, be considerably diminished, yet the patient is not entirely without pain. For some days he has a return every evening of pain and fever, which continue, with more or less violence, till morning. After continuing in this manner for several days, the disease sometimes goes off entirely, not to return till after a long interval; and in such cases it generally leaves the person in very perfect health, enjoying greater ease and alacrity in the functions both of body and mind than he had for a long time before experienced.

It often happens, however, that the disease does not thus speedily quit the patient, especially when he has previously suffered considerably from its attacks. For, instead of ceasing altogether after a few days, it seizes the other foot in the same manner as it did the former, both in respect to the vehemence and duration of the pain. Most commonly the foot first affected becomes quite easy, in such a case, and even as strong and healthy as if it had not been diseased; but sometimes both feet are affected together, and with equal violence. When this happens, the succeeding exacerbations, as Sydenham remarks, are less regular, both as to the time of coming on, and as to their continuance; but the pain always increases in

the evening and remits in the morning; and what is called a *fit* of the gout, which goes off sooner or later, according to the age and constitution of the patient, is made up of a number of these little fits. For, when this disease lasts two or three months, it is not to be esteemed one continued fit, but rather a series or assemblage of small fits, the last of which proves milder and shorter, until the whole is terminated. In strong constitutions, and such as have the gout seldom, the attack is commonly finished in fourteen days; but in those of advanced life, or who have frequent returns of the disease, these series of fits will continue for two months; and in such persons as are more debilitated, either by age or the long continuance of the disorder, it will not go off till the summer advances, (beginning, as is most common, in January, or early in February,) which seems to drive it away.

When the fit is going off, a violent itching seizes the foot, especially between the toes; and the cuticle peels off. The appetite and strength return sooner or later, according to the greater or less severity of the preceding fit, and the interval of health between the paroxysms is generally nearly in the same ratio; i. e. longer in proportion to the greater violence of the last fit. At the beginning of the disease, Dr. Cullen observes, the returns of it are sometimes only once in three or four years; but after some time the intervals become shorter, and the attacks become annual; afterwards they come twice each year, and at length recur several times during the whole course of autumn, winter, and spring; and as it happens that, when the fits are frequent, the paroxysms become also longer, so, in the advanced state of the disease, the patient is hardly ever tolerably free from it, except, perhaps, for two or three months in summer.

Before the disease becomes thus inveterate, however, it has gradually assumed other appearances, and attacked other parts of the body. At first it commonly affects one foot only; but afterwards every paroxysm affects both feet, the one after the other, and then both together; and its changes of place as it continues to recur, are not only from one foot to the other, but also from the feet into other joints, as the hands, wrists, elbows, knees, &c. so that there is scarcely a joint in the body that is not, on one occasion or other, affected. It sometimes seizes on two different joints at the same time; but more commonly it is severe in a single joint only, and passes successively from one joint to another; so that the patient's affliction is often protracted for a long time. The pains, indeed, are commonly less violent, in this state of the disease, than they were at first; but, in addition to them, loss of appetite, sickness, and other symptoms of the atonic gout, now afflict him. Besides, in the intervals between the first paroxysms of the disorder, the joints which had been affected were entirely restored to their former suppleness and strength, and were free from pain or uneasiness, and all the functions of life were well performed. But in this protracted condition of the disease, the joints remain not only weak and stiff after the termination of the fit, but they become at length so contracted and disabled, that, although the patient can stand, and perhaps walk a little, yet it is very slowly, and with great lameness and difficulty, so that he is scarcely able to move from room to room; and sometimes the joints lose their motion altogether.

In many persons, though not in all, when the disease has frequently recurred, this immobility of the joints is farther increased by the formation of concretions, of a chalky appearance, upon the outside of them, and for the most part immediately under the skin. The secretion or deposition of this matter is characteristic of the disease, being the consequence of gouty inflammation alone. It seems to be deposited at first in a fluid form, but afterwards becomes dry and firm; in which state the concretions have the appearance of a friable earthy substance, and have been called *chalk-stones*, which see, vol. iv. p. 75.

From the investigations of Dr. Wollaston, however, and other modern chemists, it has been ascertained that they contain no calcareous or earthy matter, but consist of a neutral salt, formed by the combination of the lithic or uric acid, with the fixed alkali, soda; constituting a lithate or urate of soda. These concretions form principally about the joints of the toes and fingers, in little nodules; but sometimes they appear about the larger joints, as the elbow and knee, occasioning a whitish swelling almost as large as an egg, which becomes gradually inflamed and red.

The attack of the *regular* gout is readily distinguishable from the only disease which resembles it, viz. acute rheumatism, if all the symptoms are taken into consideration. In the first place, gout is commonly a disease of advanced life; acute rheumatism is most frequent from the age of eighteen to thirty. Nor does rheumatism, like the gout, seize the feet in preference to the other joints, or remain for a considerable time in the same joint; but at the first attack it often seizes every joint of the body in succession, and sometimes continues for several months. The colour of the skin of the part affected in rheumatism, if it be changed, is only slightly red, whereas it becomes of a deep bright red in the gout. The pain in the rheumatism is not extremely acute while the part is at rest, but becomes violent when it is moved only; which is not the case in the gout. And the symptoms of indigestion and disordered stomach, which precede the paroxysm of the gout, together with the marks of distinction just mentioned, will serve particularly to determine the nature of the paroxysm. It must be admitted, however, there are instances of the combination of the symptoms of the two diseases, which renders it difficult to decide to which of them the individual examples belong.

When the gout is cured in the limbs, inflammation of other organs of the body is often observed; and many practitioners have concluded that the translated disease differed from common inflammation. There appears no just reason for supposing this. The symptoms of these inflammations are similar, and the cure precisely the same. Our knowledge of the previous condition of the patient might induce us to rely more fully on counter-irritation, seeing that this process had a curative effect on the original malady; but further no difference should be made between the treatment of gout and that of inflammation, when vital organs are attacked. Simple irritations also alternate with gout, and require the usual treatment: severe spasms of the belly by hot and stimulating medicines; and so on.

The *cure* of gout is no easy task. It is one, however, which well repays the practitioner for his labour, whether he considers the alleviation of human suffering, or the pecuniary emoluments he derives from his profession; for no disease is productive of more pain, or more exclusively attaches itself to the higher orders of society.

The connexion between gout and indigestion having been pointed out, it remains merely to apply the knowledge of this connexion to the cure of the disease. In the first place, we have stated fulness of vessels to be one of the conditions of gout: this therefore must be removed. In some cases, a very large bleeding may be necessary; in others, a very small one will sufficiently diminish the plethora. The treatment of the local plethora is comprised in cold lotions, leeching, or cupping; but these should not be ventured on till general plethora has been removed by bleeding, and the derangements of the digestive organs, which first give rise to the symptoms in the extremities, set to rights. For the latter purpose, temperance and activity are the chief measures in which we can place confidence. By *temperance*, however, we do not mean a sudden relinquishment of the nutritious food and stimulating liquors in which the patient has indulged; neither, in recommending *exercise*, is it our intention to cause excessive exertions to supersede a life of slothful ease. The diet must retain many of the pro-

perties to which the gouty subject has long been accustomed; and the change which we make should be gradually brought about.

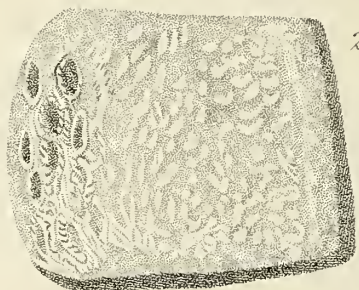
We cannot give any very precise rules as to the sort of diet which it should be our ultimate aim to establish. It may be sufficient to remark, that in plethoric patients this should gradually be deprived of those substances which are rich and easy of assimilation, while the quantity is at the same time diminished. In patients who are not plethoric, but in whom nervous irritations, whether mental or otherwise, have deranged the digestive organs, this plan must be modified; and the diet of a nutritious though easily-digestible quality, as jellies, soups, &c. must supersede the more abstinent diet.

As to the medical treatment of the gouty, this will in some measure vary according to the nature of the attending dyspepsia. The acid secretions of the stomach require carbonate of soda, a medicine which also acts on the kidneys. Derangement in the hepatic secretion requires calomel; and the inaction of the bowels, purgatives, &c. But, upon the whole, it seems generally understood, that little medicine is required in the dyspepsia of gouty patients. The derangement in the secretion of the kidneys in gout has made many physicians turn their attention to a probable connexion between these two affections. In speaking of Dyspepsia, we have already stated the opinion of a distinguished pathologist, that in that complaint an acid is actually assimilated into the blood, and that it gives rise to gravel; and, as is well known, an acid humour in the blood was once considered the proximate cause of gout. We have already mentioned objections to Dr. Phillip's views on the subject of calculi. It is certain, notwithstanding, that promoting the secretion of the kidneys is attended with salutary effects in the complaint under consideration. The action of the skin and of the capillary system in general should be excited, in gout, by bathing, and by exercising the *sound limbs*. The same treatment, which cures the gout once established, prevents also its recurrence; and indeed, *if temperance and exercise were strictly used during convalescence, it is probable that few would suffer from repeated attacks of gout.*

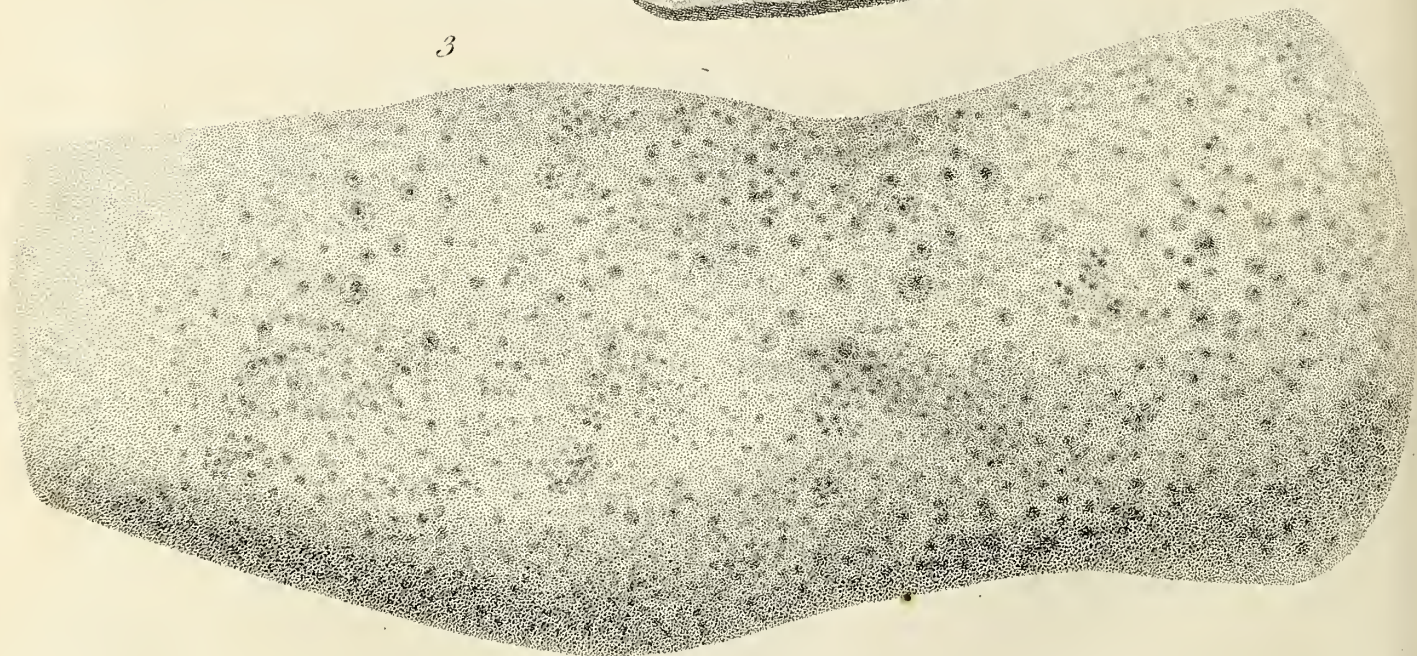
Having then gone through the treatment of gout on principles of pathology, it remains to mention a powerful remedy, of the salutary effect of which most medical men can bear testimony, though they know nothing of its modus operandi. This is the Colchicum, or meadow-saffron. It has long been used in quack-medicines as a specific for the gout; and was prescribed by the ancients; and lately it has become extremely popular. It is said to act on the skin, the kidneys, and the bowels; but it sometimes does much good without producing any visible effect of this kind. It is not, however, a specific for gout: it is a highly dangerous remedy to tamper with; and it labours under the opprobrium, that patients cured by it are very apt to suffer attacks of gout at a shorter period than when cured by the ordinary plan of treatment. It may be used in conjunction with other medicines with great advantage. A variety of formula are advocated by different practitioners; but it does not seem that any one of them is preferable to another. We have generally used the wine. It is worthy of remark, that if the sediment be separated from the preparation of Colchicum, its effects are less likely to be injurious than if this portion is taken into the body. We repeat, that few patients who are cured by Colchicum, or by any other medicine, will suffer a relapse if they strictly observe temperance and exercise.

4. Arthrosis hydarthrus, white swelling: tense, permanent, colourless swelling, chiefly of the larger joints; inflammation slow, and deep-seated; pain severe and fixed; imperfectly suppurative; fever a hectic. Two varieties are noted.

a. Plethoricus, rheumatic white swelling: pain diffused; swelling considerable from the first; originating



3



1. 2. *Rosalia simplex*. 3. *R. paristhmatica*.

and chiefly seated in the cartilages and ligaments of the affected joint; found principally in plethoric habits.

β. Strumatofus, scrofulous white swelling: pain circumscribed and shooting from a point; swelling from a general thickening of the part; at first inconsiderable; originating and chiefly seated in the bone. Found principally in scrofulous habits.

These varieties are upon the authority of Bell on Ulcers; but Hunter says, "I conceive all such collections of matter to be of a scrofulous nature: they are most common in the young subject, and seldom found in the full-grown or old. The suppuration is not proper pus, nor the swelling proper inflammation." Hunter on Blood, p. 391. See the article SURGERY.

Order III. EXANTHEMATICA, [from ἐξανθεω, to spring forth, to bud.] Eruptive Fevers; or, cutaneous eruptions essentially accompanied with fever. This order contains four genera.

Genus I. *Enanthesis*, [from εν, within, and ανθεω, to spring, or flower.] Rash, or efflorescence from internal affection. Generic characters—Eruption of red, level, or nearly level, patches; variously figured; irregularly diffused; often confluent; terminating in cuticular exfoliations. There are three species.

1. *Enanthesis rosalia*, (Scarlatina of various authors.) Scarlet fever: rash a scarlet flush, appearing about the second day on the face, neck, or fauces; progressively spreading over the body; and terminating about the seventh day; fever a typhus. Of this genus there are two varieties.

α. *R. simplex*: fever moderate, and terminating with the rash; little prostration of strength; slightly contagious.

As no authors have written on cutaneous diseases so ably and so fully as Drs. Willan and Bateman, we shall extract all our accounts of cutaneous diseases from the works of the latter.

The *Rosalia simplex* consists merely of the rash, with a moderate degree of fever. The day after the slight febrile symptoms have appeared, the efflorescence begins to show itself, about the neck and face, in innumerable red points, which, within the space of twenty-four hours, are seen over the whole surface of the body. These, as they multiply, coalesce into small patches, but on the following day (the third) form a diffuse and continuous efflorescence over the limbs, especially round the fingers. On the trunk, however, the rash is seldom universal, but is distributed in diffuse irregular patches, the scarlet hue being most vivid about the flexures of the joints and the loins. On the breast and extremities, in consequence of the great determination of blood to the military glands and papillæ of the skin, the surface is somewhat rough, like the cutis asperina, and several papulæ are scattered on these parts. See Plate III. fig. 2. On the following (the fourth) day the eruption remains at its acme; and on the fifth it begins to decline, disappearing by interstices, and leaving the small patches as at first. At this period, and on the evening of the second day, some attention is requisite to distinguish the scarlet rash from measles: the observation of the crescent-like form of the patches of the latter, and the more diffuse and irregular shape of the former, will be a material guide. (Compare Plate III. fig. 1, with Plate IV.) On the sixth day it is indistinct, and is wholly gone before the end of the seventh. On the eighth and ninth days a scurfy desquamation of the cuticle takes place. The efflorescence spreads over the surface of the mouth and fauces, and even into the nostrils, and is occasionally visible over the tunica albuginea of the eye: the papillæ of the tongue too, which are considerably elongated, extend their scarlet points through the white fur which covers it. The face is often considerably swelled. There is usually great restlessness, and sometimes slight delirium, which appears to be much connected with the great heat of the surface,

and continues in various degrees of severity, together with the fever, from three to seven days. A few patients escape without any fever, almost without indisposition.

β. *R. parithmitica*, (*Scarlatina cynanchica*, Cullen; *S. anginosa*, Bateman.) In this variety, the precursory febrile symptoms are more violent, and an inflammation of the fauces appears, together with the cutaneous efflorescence, and goes through its progress of increase and decline with it. Occasionally, however, the affection of the throat commences with the fever, and sometimes not until the eruption is at its height. With the first febrile symptoms, a sensation of stiffness and a dull pain on moving are felt in the muscles of the neck; and on the second day the throat is rough and straitened, the voice thick, and deglutition painful. On this and the two following days, the symptoms of fever are often severe; the breathing is oppressed; the heat of the skin is more intense than in any other fever of this climate, rising to 106°, 108°, or even 112°, of Fahrenheit's thermometer. There is sickness, with headach, great restlessness, and delirium; and the pulse is frequent, but feeble: there is also an extreme languor and faintness. The tongue, as well as the whole interior of the mouth and fauces, is of a high red colour, especially at the sides and extremity, and the papillæ protrude their elongated and inflamed points over its whole surface. The rash does not always appear on the second day, as in *R. simplex*, but not unfrequently on the third; nor does it so constantly extend over the whole surface, but comes out in scattered patches, which seldom fail to appear about the elbows. See the Plate, fig. 3. Sometimes too it vanishes the day after its appearance, and re-appears partially at uncertain times, but without any corresponding changes in the general disorder: the whole duration of the complaint is thus lengthened, and the desquamation is less regular. When the rash is slight, indeed, or speedily disappears, no desquamation often ensues; while, in other instances, exfoliations continue to separate to the end of the third week, or even later, and large pieces of the entire cuticle fall off, especially from the hands and feet. The tumour and inflammation of the throat often disappear, with the declining efflorescence of the skin, on the fifth and sixth day of the fever, without having exhibited any tendency to ulceration. Slight superficial ulcerations, however, not unfrequently form on the tonsils, velum pendulum, or at the back of the pharynx, sometimes early and sometimes later. Little whitish sloughs are seen, intermixed with the mottled redness; and, when they are numerous, the throat is much clogged up with a tough viscid phlegm, which is secreted among them. When these are removed, after the decline of the fever, some excoriations remain, which soon heal.

R. parithmitica sometimes puts on, towards its termination, much more formidable characters. From its commencement some difference is indeed observable, though not distinctly. The efflorescence is usually faint, excepting in a few irregular patches, and the whole of it soon assumes a dark or livid red colour. It appears late, and is very uncertain in its duration; in some instances, it suddenly disappears a few hours after it is seen, and comes out again at the end of a week, continuing two or three days. The skin is of a less steady and intense heat: the pulse is small, feeble, and irregular: the functions of the sensorium are much disordered; sometimes there is early delirium, and sometimes coma, alternating with fretfulness and violence. The eyes are dull and suffused with redness, the cheeks exhibit a dark-red flush, and the mouth is incrustated with a black or brown fur. The ulcers in the throat are covered with dark sloughs, and surrounded by a livid base; and a large quantity of viscid phlegm clogs up the fauces, impeding the respiration, and occasioning a rattling noise, as well as increasing the difficulty and pain of deglutition. An acrid discharge also distils from the nostrils, producing soreness,

sores, chops, and even blisters. These symptoms are often accompanied by severe diarrhoea, and by petechiæ and vibices on the skin, with hæmorrhage from the mouth, throat, bowels, or other parts, which, of course, but too often lead to a fatal termination. This generally takes place in the second or third week; but, in a few instances, the patients have suddenly sunk as early as the second, third, or fourth, day, probably from the occurrence of gangrene in the fauces, œsophagus, or other portions of the alimentary canal; and sometimes at a later period of the disease, when the symptoms had been previously moderate, the malignant changes have suddenly commenced, and proved rapidly fatal. Even those who escape through these dangers, have often to struggle against many distressing symptoms, for a considerable length of time; such as ulcerations spreading from the throat to the contiguous parts, suppuration of the glands, tedious cough and dyspnoea, excoriations about the nates, &c. with hectic fever.

This disease is not unfrequently followed by a state of great debility, under which children are affected with various troublesome disorders. But there is one affection peculiar to the decline of Rosalia, which occurs especially when the eruption has been extensive; namely, anasarca of the face and extremities. This dropsical effusion is commonly confined to these parts, and therefore unattended with danger: it usually appears in the second week after the declension of the rash, and continues for a fortnight or longer. But in a small number of cases, when the anasarca had become pretty general, a sudden effusion has taken place into the cavity of the chest, or into the ventricles of the brain, and occasioned the death of the patient.

In tracing the scarlet fever in its mildest form, the interference of medicine is unnecessary, and in fact hurtful. If the bowels are much confined, a laxative may be given; and saline medicines may serve to increase the security of the patient; but, further than this, medicine does harm. In the second variety, however, we have reason to adopt more efficient measures. Although blood-letting has been recommended by Morton, De Haen, and others, the experience of our later writers on this subject coincides in deeming it injurious. Dr. Willan says, wherever it had been employed great depression and faintness were the immediate consequences, the pulse becoming more weak and frequent, and often irregular. And Dr. Withering discourages even local bleeding. "Sometimes, where the fiery redness of the eyes and the state of delirium seemed to demand the application of leeches to the temples," he observes, "I have seen them applied, but never with any good effect." Upon the whole, it is best to confine bleeding in scarlet fever to cases in which the head or other vital part is gravely affected, or in which the symptoms lead us to infer that the disease will terminate in a malignant form. We have found leeches to the pit of the stomach of essential benefit when the attendant gastritis has been extreme.

Emetics have been much recommended; and in the early stage of the disease, probably while the contagious materia is still in contact with the stomach, they sometimes prevent the development of the exanthem; and many have advised vomits to be continued, and in large and frequent doses, during the continuance of the malady, and under all its forms. The propriety of this practice may reasonably be doubted. Nauseating medicines are nevertheless useful; and fox-glove may be given in the early stages of the disease. Gentle purgatives should be regularly administered; but drastic cathartics should be entirely proscribed.

The application of cold is a remedy of the greatest avail in Rosalia, the simple observation that the skin is hot and dry being enough to guide us in its use. If the foolish prejudices of patients prevent us from using this important measure, sponging the body, and especially the

epigastrium, may be resorted to. In the latter end of the disease, i. e. when it puts on the malignant form before described, cold affusion is improper. Leeches to the inflamed throat, blisters in the vicinity of an inflamed organ, and gargles, are local applications of much use; but of which plenty of formulæ abound. Plate III. fig. 3, displays the appearance of Rosalia parithmitica in its most advanced or malignant state.

2. *Enanthesis rubeola*, measles: rash in crimson stigmatised dots, grouped in irregular circles or crescents; appearing about the fourth day, and terminating about the seventh; preceded by catarrh; fever a cauma. Three varieties.

α. *R. vulgaris*: rash slightly prominent, extending over the mouth and fauces; harsh dry cough; inflamed watery eyes. Occurring only once in the course of a man's life: contagious. See Plate IV. fig. 1.

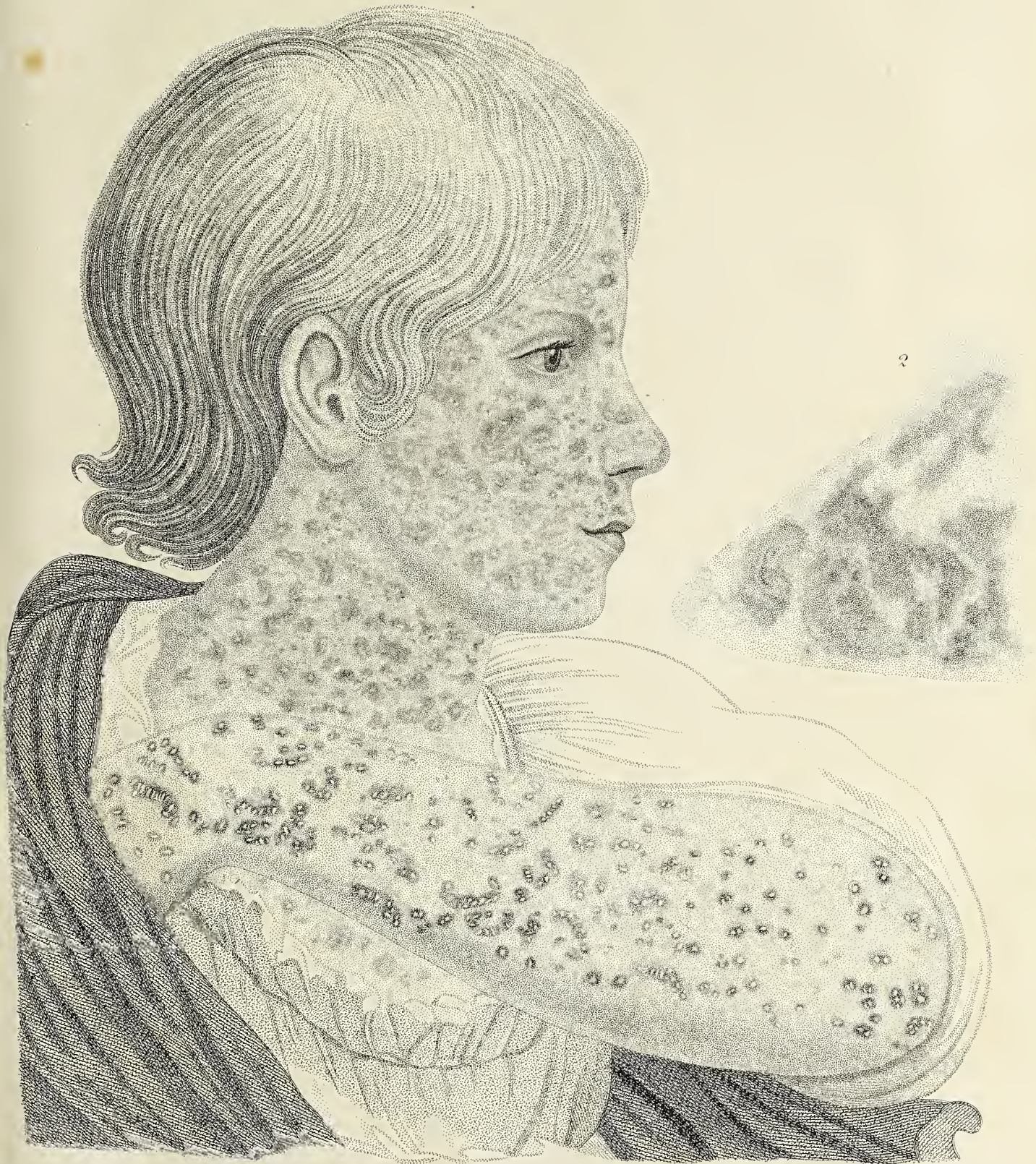
β. *R. spuria*: the rash running its regular course with little fever or catarrhal affection; affording no certain security against the common or regular disease.

γ. *R. nigra*: the rash about the seventh or eighth day assuming suddenly a black or livid hue, interspersed with yellow; prolonged in its stay; and accompanied with increased languor and quickness of pulse. See fig. 2.

The two last varieties are sufficiently described in the above definition. It remains, however, to give a more detailed account of the symptoms of measles in general.

R. vulgaris begins with symptoms of fever; flushing of the cheeks; a sensation of pain or weight across the forehead and eyes, with disposition to sleep; slight soreness of the throat, a white fur on the tongue, a frequent and somewhat irregular pulse. On the third and fourth days, the eyes become tender and inflamed, the eye-lids and tarsi a little turgid; there are discharges from the eyes and nostrils, and repeated sneezing; and afterwards a frequent dry cough, hoarseness, difficulty of breathing, and a sense of constriction across the chest. These symptoms decline with the efflorescence on the seventh day. A harsh sounding cough often precedes the attack, in infants, seven, ten, fifteen, or twenty, days. The rash appears in patients having a delicate skin, partially on the third day; in those having a dark or thickened skin about the fifth; but most usually on the fourth. It is first visible on the forehead, under the chin, about the throat, nose, cheeks, and mouth; it is formed on the neck and breast, early on the fifth day, and is diffused, towards night, round the trunk, and on the extremities; during this day it is most full and vivid on the face, as represented on Plate IV. On the sixth day the efflorescence on the face begins to decline; that on the body is most red and extended, and declines on the succeeding day, leaving a roughness and itching of the skin, with the formation of scurf. The colour of the rash is less vivid than in Roseola; and, on its decline, assumes a yellowish hue. It commences with distinct red and nearly circular dots; larger patches appear afterwards, approach to the form of a crescent or semicircle, and are gently raised under the finger. They consist of a number of the dots just mentioned, with which they are also interspersed, leaving, however, large interstices of the natural colour. Distinct papulæ are apt to appear on the face and hands in infants, and on the wrists and hands in adults: miliary vesicles also appear on the neck, breast, and arms. On the fourth day, small dark-red patches, of the form described, appear on the palate, uvula, tonsils, and velum pendulum palati; during the succeeding day, they pass into a general streaky redness. If the eruption be repelled by cold, delirium, dyspnoea, or diarrhoea, occurs, attended with considerable danger.

Dr. Willan thus recapitulates the diagnostic characters of Rubeola and Scarlatina, (our Rosalia.) "1. The efflorescence in Scarlatina generally appears on the second day of fever; in the measles it is seldom visible till the fourth. 2. It is much more full and spreading in the former disease than in the latter, and consists of innumerable



1. *Rubeola vulgaris.* 2. *R. nigra.*



rable points and specks under the cuticle, intermixed with minute papulæ, in some cases forming irregular patches, in others coalescing into an uniform flush over a considerable extent of surface. In the Measles the rash is composed of circular dots, partly distinct, partly set in small clusters or patches, and a little elevated, so as to give the sensation of roughness when a finger is passed over them. These patches are seldom confluent, but form a number of crescents or segments of circles, with large intervening portions of cuticle, which retain their usual appearance. In Scarlatina, when any part of the rash has a tendency to circular forms, the circles are usually completed; sometimes their circumferences intersect each other variously. The colour of the rash is also different in the two diseases, being a vivid red in Scarlatina, like that of a boiled lobster's shell; but in the Measles a dark red, with nearly the hue of a raspberry.

3. During the febrile stage, the Measles are distinguished by an obstinate hoarse cough, forcing up, in repeated paroxysms, a tough acrimonious phlegm; by an inflammation of the eyes and eye-lids; by an increased discharge from the lachrymal gland, sneezing, &c. The Scarlatina is frequently attended with a cough, also with redness of the eyes from an extension of the rash to the tunica albuginea, circumstances which render the distinction between this complaint and Measles particularly difficult, if other symptoms be not clear and decisive. On minute observation, however, it will be generally, perhaps always, found, that the cough in Scarlatina is short and irritating, without expectoration; that the redness of the eye is not attended with intolerance of light; that the ciliary glands are not affected; and that, although the eyes appear shining and watery, they never overflow. 4. Most writers, in distinguishing Scarlatina from Measles, observe that there is a peculiar sensation of anxiety, depression, and faintness, in all cases of it which are attended with fever. 5. When the rash appears on the third or fourth day, being scattered, and of a dark shade of colour, as frequently happens in the two last varieties of Scarlatina, the disease may be distinguished from Measles, by the appearances in the throat, by the rigidity of the muscles of the neck, &c."

In the treatment of the mildest cases of Rubeola, as little medical practice is necessary as in the milder cases of Rosalia; and, in cases of more severity, bleeding is to be confined by the same restrictions as we have endeavoured to establish in its use in the latter complaint. That is to say, when pain or soreness in the chest, oppressed breathing, general anxiety, and restlessness, are absent in the eruptive stage of the measles, we shall have no occasion to bleed; and, where these are present, venesection, either general or local, will almost always be necessary. But sometimes it happens, that the breathing is very hurried, the cough frequent, and the pulse much quickened, about the first coming out of the rash; and yet, if we wait a day or so, we shall find the respiration gradually improve. In irritable children, and especially in infants, the respiration often becomes extremely anxious on an attack even of simple fever, wholly unconnected with pectoral inflammation; and this is more particularly the case when the bowels are disordered. We must be most careful to discriminate such a state of breathing from that which commonly attends pulmonic inflammation: nor, indeed, is this difficult, because the former is seldom permanently the same, but varies so much, at different times, that the patient will seem now much oppressed, and again easy; whereas, in the latter, there are no changes of this sort in the respiration, for it is so considerably oppressed, as never to be entirely easy. Besides, the anxious breathing, which arises from irritation, is generally increased by the erect position, and that which arises from inflammation more or less diminished; in the first, the child now and then obtains pretty tranquil slumbers, with little motion of the chest; but, in the last, the sleep is always very disturbed, and the chest may be seen

heaving up and down with an unnatural labour. When any part of the pulmonary system is inflamed in children, both the diaphragm and the abdominal muscles are generally thrown into an inordinate action; so that, if the belly and breast be exposed, one cannot fail of being struck with their forcible movements.

What is here said of pulmonic inflammation is also applicable to cephalitis, when it comes on during measles: the latter complaint is, however, of very rare occurrence. The reduction of pulmonic inflammation is the chief object in the treatment of measles. Cupping or blistering to the chest are occasionally required after the general bleeding. For the rest, the administration of saline medicines, gentle laxatives, and occasional soporifics, fills up our catalogue of remedies for measles. Both measles and scarlet fever are contagious, and affect a person once only during life, subject however to the same exception as small pox or other similar maladies.

3. Enanthesis urticaria, nettle-rash: rash in florid, itching, nettle-sting, wheals; appearing about the second day; irregularly fading and reviving, or wandering from part to part: fever a mild epanetus.

The urticaria begins with pain and sickness at the stomach, head-ache, great languor or faintness, a disposition to sleep, a sense of anxiety, an increased quickness of the pulse, and a white fur on the tongue. In two days, or sometimes later, wheals appear, with an efflorescence in patches of a vivid red, or sometimes nearly of a crimson colour. They are preceded by fits of coldness and shivering, and are attended with a most troublesome itching or tingling, which is greatly aggravated on uncovering the body, or during the night, and which prevents rest for many hours. The patches often coalesce so as to produce a continuous redness; they appear on most parts of the surface, but particularly on the shoulders, loins, nates, thighs, and about the knees. They also extend to the face; and there is sometimes a red circle round the palm of the hand, accompanied with a sensation of violent heat. They appear and disappear irregularly, first on one part, and then on another; and may be excited on any part of the skin by strong friction or scratching. During the day the efflorescence fades, and the wheals in general subside; but both return with a slight febrile paroxysm in the evening. The red patches are often elevated above the adjoining cuticle, and form dense tumours with a hard distinct border; the interstices are of a dull white colour. When the patches are numerous, the face or limb chiefly covered with them appears tense and enlarged. At the latter end of the disorder the eye-lids are red and tumefied, and there is often a swelling and inflammation on the sides of the feet. On the appearance of the eruption, the pain and sickness at the stomach are in general relieved; but, when it disappears, these symptoms return. The whole duration of the affection is seven or eight days. On its decline the rash exhibits a light purple or pink colour, gradually disappears, and is succeeded by slight exfoliation of the cuticle.

This disorder occurs principally in summer, in persons of a plethoric and sanguine habit, especially from indulgence in eating and drinking. It is often connected with teething and bowel-complaints in infants, whom it affects at one and at two years old. It appears to affect men more than women. A similar affection is induced from eating almonds, mushrooms, herrings, crab-fish, muscles, lobsters, &c. The Urticaria is liable, from the form of the rash, to be mistaken for Rubeola, and, from the state of the general surface, for Rosalia, especially on a partial examination. Several parts of the surface, and all the limbs, should be inspected, as the rash is often distinctly marked in one place, although obscure in others. The character of the eruption; the mode of attack; the absence of catarrh; and sore throat; the presence of tingling and itching, &c. will sufficiently distinguish the affection. An emetic of ipecacuanha, followed by a gentle

tle laxative, with light and cooling diet, (with total abstinence from fermented liquors, and from sudorific medicines,) constitute the sole treatment which appears to be requisite for the safe conduct of these disorders to their period of decline; at which time the cinchona, with sulphuric acid, is beneficial.

Genus II. *Emphlysis*, [from $\epsilon\mu$ for $\epsilon\nu$, within, and $\phi\lambda\upsilon\sigma\iota\varsigma$, a vesicular tumour or eruption.] Ichorous eruption from internal fever. Generic characters—Eruption of vesicular pimples filled progressively with an acrid and colourless, or nearly colourless, fluid; terminating in scurf or laminated scabs. There are six species.

1. *Emphlysis miliaria*, the military fever: vesicles scattered over the body; of the size of millet-seeds; transparent red, afterwards milky; preceded by a pricking sensation, sighing, anxiety, and sour sweat.

The vesicles are at first red, from the colour of their under surface, or inflamed base, being transmitted through the transparent pellicle; they are afterwards opaque and milky, from absorption of the more attenuate part of the fluid, or from some other change. This affection, which is a mere symptom of inflammatory fever, generally owes its existence entirely to the hot and stimulating practice of our forefathers. In the present improved practice, it is scarcely ever seen; and it requires no particular treatment.

2. *Emphlysis aphtha*, the thrush: vesicles granular, roundish, pearl-coloured; confined to the lips, mouth, and intestinal canal; terminating in curd-like sloughs; occasionally with successive crops. Two varieties.

a. *Aphtha infantum*, white thrush: appearing in infants soon after birth; and often extending from the mouth to the intestinal canal; mostly with slight febrile symptoms, and white sloughs.

c. *Aphtha maligna*, black thrush: accompanied with great debility of vascular action; usually ascending from the pharynx into the mouth; sloughs black; fever a typhus.

To forbid improper diet, prescribe gentle laxatives, and occasionally the warm bath, and to cause a weak solution of borax to be applied to the fauces, constitutes all that is necessary for the treatment of *Aphtha infantum*.

The second variety shows itself at first by an uneasy sensation or burning heat in the stomach, which comes on by slow degrees, and increases gradually in violence. After some time, small pimples, of about the size of a pin's head, appear on the tip and edges of the tongue; and these at length spread over the whole inside of the mouth, and occasion such a tenderness and rawness of the parts, that the patient cannot take any food of a solid nature; neither can he receive any vinous or spirituous liquor into his mouth, without great pungency and pain being excited. Little febrile heat attends, but the skin is always remarkably dry and without the least moisture on it; the countenance is pale, the pulse is smaller and more languid than in health, and a general coldness is felt over the whole body, but more particularly in the extremities.

This complaint is always combined with chronic gastritis, of which it is probably a mere symptom; and it requires the same treatment, with the addition however of gargles.

3. *Emphlysis vaccinia*, cow-pox: vesicles few, or a single one, confined to the part affected; circular, semitransparent, pearl-coloured; depressed in the middle, surrounded with a red areola. Four varieties.

a. *V. nativa*, natural cow-pox: vesicles on the hands, or such parts as have been in contact with the affected udder of a cow; of a bluish tint; the fluid at first limpid; afterwards opaque, and purulent; often with enlargement of the axillary glands, and considerable fever. A prophylactic against the small-pox.

c. *V. spuria*, spurious cow-pox: vesicles less uniformly

circular; purulent from the first; without bluish tint; with little or no central depression. Affords no security against the small-pox.

γ. *Infecta*, inoculated cow-pox: produced by inoculation; vesicle single, confined to the puncture; cellulose; bluish-brown in the middle; fluid clear and colourless to the last; concreting into a hard dark-coloured scab after the twelfth day.

δ. *V. degener*, degenerate cow-pox: produced by inoculation; vesicle amorphous, or uncertain; fluid often straw-coloured, or purulent; areola absent, indistinct, or confused with the vesicle; scab formed prematurely. Affords little or no security against the small-pox. See the article INOCULATION, vol. xi.

Since the time at which that article was composed, much, very much, has been written on the subject of vaccination. But, though some interesting circumstances of its origin, and the vast extent of the world to which it has travelled, have been made known, yet we look in vain through the long list of reports, from the most illustrious bodies of the profession, of cases, with which our periodicals have so long teemed, and even through entire treatises on vaccination, for one new practical fact. In a work of this kind it may be necessary, however, that we should give our testimony in favour of vaccination; lest, if it should fall into the hands of some whose prejudices are in opposition to the use of Jenner's discovery, our silence should be construed into disapprobation of it. And this is the more necessary, because, in some of the early articles of this work, vaccination has been spoken of in a slight manner. Its value was not then known, as its efficacy was not established. But we can no longer withhold our conviction of its great benefit in the majority of cases. We have now the support of the highest authorities in stating, 1. That vaccine matter, duly inserted under the skin, is capable of preventing the future occurrence of the small-pox. 2. That this matter requires a very small degree of concentration, but that it is liable to degeneration from chemical changes when removed from the body, and also while in the sore if it be taken at an improper time.

Many exceptions exist to the first rule. If the patient be afflicted with any cutaneous desædation, the vaccination will be generally ineffectual. In many cases small-pox will come on after cow-pox, notwithstanding the utmost precaution, from peculiar idiopathy of habit or constitution; and this happens in a far greater proportion of cases than the occurrence of small-pox twice ever happened. But so mild is it under these circumstances, that vaccination might be considered one of the kindest grants ever conferred by Providence on man, did it never effect any thing more than this modifying operation; for, even in that case, we should possess in the vaccine process all the advantages without any of the evils that are confessedly appended to variolous inoculation; and the writer must indulge the hope that neither the apprehensions of the timid, nor the wrong-headedness of the obstinate, will operate to any considerable extent, in encouraging the re-introduction of the latter practice. The sword for ages suspended over us has been blunted to the extent of almost entire harmlessness; and it were fully amounting to insanity, to polish it ourselves into its pristine power. And, when it is considered that by far the majority of vaccinated persons do not take small-pox under any circumstances of exposure or even of inoculation; when it is considered, also, that in those countries where vaccination is enforced, small-pox no longer exists; we cannot but view the prejudices against it as a great stigma on our national character.

4. *Emphlysis varicella*, the chicken-pox: vesicles scattered over the body; glabrous, transparent, pea-sized; in successive crops; pellicle thin; about the third day from their appearance, bursting at the tip, and concreting into small puckered scabs, rarely leaving a cicatrix. There are four varieties of this species noted by Dr. Good.

a. V.

α. V. lentiformis, common chicken-pox: eruption appearing the second or third day, and consisting of small red protuberances, not exactly circular, and having a flat shining surface, in the centre of which a minute vesicle is soon formed: this, on the second day of its appearance, is generally seen first on the breast and back, afterwards on the face and extremities; disappears about the tenth day, leaving red marks on the skin, without depression.

β. V. coniformis, conoidal chicken-pox, or swine-pox: vesicles acuminated: fluid pellucid throughout.

γ. V. globularis, the hives: vesicles globular and larger; fluid at first whey-coloured, afterwards yellowish.

The varieties are sometimes intermixed; and the fluid in a few of them occasionally approaches to a purulent appearance; whence in various instances they may have been mistaken for the small-pox. It must be recollected, however, that the pustules and vesicles do sometimes rise into one another, or that pus and serum may be produced by different degrees of the same action; so that the distinction in question is not to be depended on. Our readers are well aware, that some have inferred that varicella is a modification of the small-pox; and Dr. Bateman has thought proper to give some credit to this opinion. In a note on Varicella, p. 208 of his Synopsis, he says, "Since the introduction of vaccination, considerable differences of opinion have existed among medical practitioners, respecting the character of the eruption, which has occasionally appeared, after exposure to varicellous infection, in persons previously vaccinated, some denominating it chicken-pox and others small-pox. The most careful observers must have admitted the difficulty of establishing a decisive distinction in many of these cases. A series of interesting observations which have lately been made at Edinburgh, have led the ingenious Prof. Thomson to believe that the chicken-pox itself is in fact a second and modified small-pox. While the question is still *sub judice*, I leave Varicella in its nosological seat; but many facts crowd upon my own recollection, which incline me to believe that this suggestion will ultimately prove to be correct."

The information that has been obtained on this head since Dr. B. wrote, has been highly corroborative of Prof. Thomson's views; but, as the question is by no means at rest, we shall follow the above great authority in leaving Varicella in its "nosological seat." The reader may consult on this head the Edinburgh Med. and Surgical Journal, 1818, and a variety of papers of recent dates in the London Medical Journal. The following are the usual diagnostic marks, laid down between these diseases.

Varicella may be distinguished from small-pox by, 1. The appearance, on the second or third day from the eruption, of the vesicles full of serum at the top of the pock. The pustules which are fullest of the yellow liquor resemble what the genuine small-pox are on the fifth or sixth day, especially when there happens to be a larger space than usual occupied by the extravasated serum. It happens to most of them, either on the first day the little vesicle arises, or on the following, that its tender cuticle is burst: a thin scab is then formed on the top of the pock, and the swelling of the other part abates *without the formation of pus* as in small-pox. 2. Slight scabs cover the chicken-pox on the fifth day, at which time the small-pox are not at their height. 3. The inflammation round the chicken-pox is very small, and the contents of them do not seem to be owing to suppuration as in the small-pox, but rather to what is extravasated immediately under the cuticle by the ferous vessels of the skin over a common blister. No wonder, therefore, that this liquor appears so soon as on the second day; and that, upon the cuticle being broken, it is presently succeeded by a thin scab. Hence, too, no scar is left.

Varicella is a disease which is by no means dangerous, and which affects a person but once in his life. No other

treatment is required than the cooling regimen, mild aperients, and saline draughts.

5. Emphyfis pemphigus, vesicular or bladdery fever: vesicles scattered over the body; transparent, filbert-sized; with a red inflamed edge, but without surrounding blush or tumefaction; on breaking, disposed to ulcerate; fluid pellucid or slightly coloured; fever a typhus. Three varieties.

α. P. vulgaris: vesicles appearing on the second or third day, occasionally not till the fifth or sixth; in successive crops; often extending over the mouth and intestinal canal; fluid, on bursting, yellowish; some of the vesicles livid, with a livid base.

β. P. glandularis, (P. contagiosus, Willan:) preceded by tumefaction of the neck and throat; vesicles chiefly seated on the fauces and conglobate glands; occasionally producing abscesses; highly contagious.

γ. P. infantum: vesicles irregularly oblong, with livid edge, and commonly flattened tops; appearing successively on different parts of the surface, in infants a few days after birth; fluid; on breaking, purplish.

Pemphigus is found, for the most part, as a symptom only in erysipelas, typhus, plague, and other depressing fevers. Dr. Good doubts whether Pemphigus is entitled to be considered as a distinct and idiopathic disease; and whether all its varieties and modifications may not resolve themselves into certain peculiarities of erysipelas, or pompholyx, the latter of which consists of similar vesicles or bullæ without fever, or mere symptoms of typhus or plague. Dr. Cullen seems to have been of the last opinion at the moment of drawing up his definition: but the fourth edition of his Synopsis contains a note which intimates that his opinion was altered in consequence of his having seen a patient, shown him by his excellent colleague F. Home, and who was labouring under this disease as an idiopathic affection at the time. And when to this instance (says Good) "we add the authority, not merely of the earlier writers, Bontius, Seliger, and Langhans, but of Withers, Dickson, Christie, Ring, and Braune, (Uber den Pemphigus, Leipf. 1795.) it would be unpardonable not to allow it a distinct place in a general system of nosology."

Notwithstanding this string of authorities, it may reasonably be doubted that idiopathic Pemphigus ever existed. In Dr. Bateman's Synopsis this opinion is adopted from a review of all the authors above quoted; and in this it is shown that the accounts they have given are highly vague and unsatisfactory.

6. Emphyfis erysipelas, St. Anthony's fire: vesication diffuse; irregularly circumscribed; appearing on a particular part of the body, chiefly the face, about the third day; with tumefaction and erythematic blush; fever usually accompanied with sleepiness, often with delirium. This admits of two varieties.

α. Locale: limited to a particular part; the cuticle raised into numerous aggregate distinct cells; or the cells running into one or more blebs, or large blisters.

β. Erraticum: travelling in successive patches from part to part; the former patches declining as new ones make their appearance.

Erysipelas, which seems to occur twice over in Dr. Good's arrangement, has been already referred to another division of this work.

Genus III. *Empyctis*, [i. e. suppuration.] Pustulous eruption. Generic characters—Eruption of phlegmous pimples; gradually filling with a purulent fluid; and terminating in thick scabs, frequently leaving pits or scars. But one species.

Empyctis variola, small-pox: pustules appearing from the third to the fifth day, suppurating from the eighth to the tenth; fever a cauma; contagious. The small-pox consists of the following four varieties.

α. V. discreta, distinct or natural small-pox: pustules pea-sized; distinct, distended, circular; the intervening spaces

faces red; the fever ceasing when the eruption is complete.

The natural small-pox begins with sensibility to cold, shivering, languor, feverishness, disturbed sleep, pain of the head and of the back, vomiting, and tenderness of the epigastrium under pressure. In adults, there is a strong tendency to perspiration; in infants, stupor, and fits similar to those of epilepsy, sometimes occur about the third day, but there is no tendency to perspiration. On the *fourth* day, the eruption generally appears on the face, and perhaps on the neck and breast; it extends gradually during the ensuing day, and becomes general over the surface of the body. The febrile symptoms abate on the appearance of the eruption. On the *fourth* and *fifth* days, the pustules are small, hard, and globular, red and painful, separate and distinct from each other; with nearly colourless interstices. They enlarge gradually until the *eighth* day, when they contain a little yellowish fluid, and the interstices become red. From this day the pustules increase in breadth, and have a small pit in their centre, until the *eleventh*, when they become more rounded, and are encircled by rings of rose-coloured inflammation, which coalesce when the eruption is numerous. About the *eighth* day, there is frequently a flow of saliva, the integuments of the face are apt to become swollen, the eyes are often closed, and the eyelids distended like a bladder. This tumefaction gradually declines; it is much abated, and the pustules are fully distended, about the *eleventh* day, when a degree of swelling is sometimes observed about the hands and feet; which, in its turn, subsides gradually; about the same time too, the tendency to perspiration diminishes, or ceases, spontaneously. The pustules break, the fluid partly issues, and at length dries and forms a scab, the cuticle becoming shrivelled; a process which is completed on the face about the *fifteenth* day. In a few days more, the scabs separate, leaving the subjacent part of a brownish-red colour, and often pitted. The fluid in the pustules situated on the arms and hands, is sometimes absorbed, and the cuticle falls down in a flaccid state.

6. *V. confluens*, confluent small-pox, is attended with febrile symptoms of a more serious kind, resembling those of *Empressina maligna*, and exacerbating towards evening. There are frequently coma, delirium; vomiting, and sometimes diarrhoea; a frequent, feeble, pulse; there is less tendency to perspiration; the appearance of the eruption induces less, and less permanent, relief; and the fever resumes its violence about the sixth day. The eruption appears *early*, on the *third* day. It is preceded, or attended, in many instances, by exanthema. The pustules are more numerous on the face; smaller, and less hard and eminent; during a *flower* and less marked progress, their diameters enlarge; they do not retain the circular and orbicular form, but assume an irregular figure, remain flat, and coalesce, so that frequently the face seems covered with one extended and continuous pustule. The interstices are pale and flaccid, and without the rose-coloured inflammation observed in *V. discreta*. The contained fluid becomes opaque and brownish, but does not assume the yellow, consistent, and purulent, appearance. The pustules, at length break, the cuticle shrivels up, the enclosed fluid issues; dark brown scabs are formed, separate slowly, and leave deep pits. The tumefaction of the face, and the salivation, take place earlier, and are more considerable, than in *V. discreta*; they abate, and the hands tumefy, about the *seventh* day. In infants, diarrhoea sometimes occurs; and there is no salivation. On the general surface the pustules are more distinct; but they are less prominent, and the enclosed matter less consistent, than in the former variety. The febrile symptoms are mitigated on the appearance of the eruption, but again become more violent, and constitute what is termed the secondary fever in this disease.

7. *V. inferta*, inoculated small-pox: produced by ino-

culatation; orange-coloured areola about the puncture; pain in the axilla about the seventh day; disease for the most part mild; and the purulent discharge sometimes confined to the punctured part.

8. Degener, horn-pock, or crystalline pock: pimples imperfectly suppurating; ichorous or horny, and semi-transparent.

Now as to the treatment of small-pox. Since it appears very evident, that the danger and violence of the symptoms are nearly in proportion to the quantity of the eruption; which is again much connected with the degree of fever that accompanies and precedes it; the first indication is, to moderate the eruptive fever.

In the case of inoculated small-pox, this process may be commenced in the interval between the insertion of the matter and the beginning of the disorder, that is, several days previous to the origin of the fever; when, by a light and cooling diet, and by the use of laxative medicines if the habit be full, the body may be brought into a less inflammatory state, and thus rendered less susceptible of violent inflammatory disease. But, in the casual small-pox, we have commonly no warning of the malady, until the eruptive fever actually commences; nor, when it has already begun, can we be certain, from any peculiar symptoms, that it is any thing but an ordinary fever; unless it occurs in persons who, not having previously undergone the disease, have been notoriously exposed to the infection. It is fortunate, however, that our inability to distinguish the fever which is about to usher in the small-pox from common inflammatory fever, is of no moment; since the same remedies are the most appropriate in both cases. According to the degree of violence with which the fever commences, the activity of the measures for moderating it will be various. If the symptoms are not severe, the patient may be recommended not to keep his bed, but to remain, according to the advice of Sydenham, in a cool apartment, having the benefit of cool air; and at the same time to discard animal food, and adopt that of a cooling nature, vegetable decoctions, acidulous fruits, and diluent drinks, such as plain cold water, lemonade, whey, &c. All his drinks should be given cold; and the bowels should be freely opened by some cooling purgative, as by the neutral salts, with a little calomel. If these measures are adequate to keep down the fever, and if, at the same time, the eruption appears early, and in small numbers, the safety of the patient may be considered as ascertained; and no farther treatment, except a continuance of the antiphlogistic system, is necessary.

Where the fever comes on, however, with great violence, manifested by a quick hard pulse, intense heat, and thirst, a flushed countenance, inflamed eyes, severe head-ache, quick and oppressed respiration, with delirium, very active measures should be immediately adopted, especially in plethoric habits. In persons of this description, the first object would be to let some blood, the quantity of which must be determined by a consideration of the violence of the symptoms. At the same time, the cooling plan must be adopted to the fullest extent in respect to the apartment, which should be freely ventilated by the admission of the external air, through open windows and doors, and to the bed, which should be a mattress, and as lightly covered as the season and the feelings will permit. If the skin is intensely hot and dry, much benefit will be obtained, in the most expeditious manner, by sponging the surface occasionally with cold water, or even by the use of the cold affusion. An active purgative will also contribute to relieve inflammatory action, and should be speedily administered, and repeated according to circumstances.

If, however, these salutary measures have been omitted, or have proved inadequate to prevent a numerous eruption, especially upon the face; if the pustules are not distinct; and particularly, if, on the fifth day, the fever does not suffer a considerable remission; the disease will

still require a great deal of attention. It will still be necessary to avoid heat and a heating regimen, and to continue to admit the free access of cool air, although the more active applications of cold, by sponging or affusion with water, need not be continued. At this period of the disease, it may also be necessary, in adult and plethoric subjects, to take away some blood. This, however, seldom requires to be repeated. But a cooling purgative should be administered and repeated, or aided by a frequent repetition of laxative clysters; and the free use of diluent drinks should be permitted.

Opium, which has been very much used in small-pox, does harm in its early stages. In the later periods of the disease, however, when the febrile excitement is low, and much irritation is kept up by the hardening crusts, the moderate use of opiates is to be recommended.

The *secondary fever*, as it is called, occurs about the eleventh day, upon the complete suppuration of the pustules, or at least when these are perfectly full and stretched to their utmost extent. The bowels should be treated by gentle purgatives provided no diarrhoea has occurred. According to the state of the pulse, and the appearance of the matter in the eruptions, the strength of the patient, and other symptoms, more or less of a cordial plan of treatment must, however, be combined with the laxatives. Light liquid nourishment, with a little wine and water as drink, should be frequently administered; and an infusion of cinchona, with the mineral acids, will be given with advantage. If the disease put on a more malignant character, with petechiæ and hæmorrhages, the same treatment must be continued. Under this cordial plan, the petechiæ will sometimes disappear; the empty vesicles will become filled with matter; and the ichorous fluid of others be changed into white thick pus; the other symptoms of course improving in a similar degree.

If the fever becomes complicated with inflammation of the head, chest, bladder, or indeed of any other part, the usual measures for its removal are to be used. To prevent as much as possible the deformity of *pitting*, which succeeds small-pox, about the tenth day of the disease we should spread over the face a mask of fine old cambric, thinly smeared with a mild liniment composed of oil, spermaceti, and a little wax. This mask may be renewed three or four times in twenty-four hours, and sometimes oftener. An agreeable and refreshing coolness is felt for some time after each application; and, the apices of the pustules not being suffered to dry and harden, pitting is prevented in a great measure.

Small-pox very rarely attacks the same individual twice. For instances, however, see the article SMALL-POX.

Genus IV. *Anthraxia*, [from *αὐθραξ*, a hot coal.] Carbuncle, or Plague-fore. Generic characters—Eruption of tumours imperfectly suppurating, with indurated edges, and for the most part a sordid and sanious core. There are two species.

1. *Anthraxia pestis*, (Læmus, *Greek Authors*.) Plague: tumours bubonous, carbunculate, or both; appearing at an uncertain time of the disease; fever a malignant typhus, with extreme internal heat and debility; contagious.

The precise situation which *Pestis* should occupy in the nosological scale is a matter about which authors have been divided. Dr. Good gives it a place among the exanthems, because "the fever is specific, like that of all the exanthems; it is contagious, like that of most of them; and, although capable of occurring oftener than once in a man's life, we have the concurrent testimony of all the writers who have been eye-witnesses of its effects, that it renders him less susceptible for a considerable period afterwards. The eruption of buboes or carbuncles is unquestionably a pathognomonic symptom: the fluid they secrete is capable of producing the disease by inoculation; for the most part, the earlier they make

their appearance the better; and it is the opinion of M. Sotira, and most of the French medical staff appointed to the Egyptian expedition, that, provided the bubo freely suppurates, the patient receives an indemnity for life. It is true, indeed, that these tumours do not always appear in their proper or perfect character; for sometimes the patient is destroyed by the violence of the first symptoms; and in other instances, as in small-pox, the specific fever passes through its course with an imperfect or trivial fructification; but, unless there be an actual germination, or what Sauvages calls a *conatus*, a perfect or an imperfect epantthesis, we have no right whatever to call the disease a plague, and can only regard it as a species or variety of synochus, or typhus. It has three varieties.

α. *P. fructifera*: the disease extending to about the fourteenth day; and relieved by the appearance of the eruption.

β. *P. infructifera*: eruption imperfect or suppressed; transferred to some internal organ; or superseded externally by stigmata and vibices.

γ. *P. erythematica*: the body covered over with trails of vesicular erythema, producing deep sanious and gangrenous ulcerations as it spreads, often to the loss of one or more limbs.

For the best description of this variety of *Pestis*, Dr. Good refers us to the pages of Thucydides, who describes it from having been an eye-witness of its ravages, and a sufferer under them; or to those of Lucretius, who has copied the account with close and technical punctuality. The following passage from the latter may serve to illustrate this remark. *De Rer. Nat. lib. vi. 1152*. But we give it in the translation:

Forth pour'd the breath most fetid from the mouth,
As steams the putrid carcase: every power
Fail'd through the soul, the body, and alike
Lay they liquefcent at the gates of death:
While with these dread, insufferable ills,
A reflless anguish join'd, companion close,
And sighs commixt with groans; and hiccough deep,
And keen convulsive twitchings ceaseless urg'd,
Day after day, o'er every tortur'd limb,
The wearied wretch still wearying with assault.
Yet ne'er too hot the system couldst thou mark
Outwards, but rather tepid to the touch;
Ting'd still with purple dye, and brandish'd o'er
With trails of caustic ulcers like the blaze
Strew'd by the *holy fire*. But all within
Burn'd to the bone: the bosom heav'd with flames
Fierce as a furnace, nor would once endure
The lightest vest thrown loosely o'er the limbs.

The extraordinary length of this article, and the various and affecting, though not strictly pathological, details which the history of Plague exhibits, induces us to defer our account of the malady in question till we come to the article *PLAGUE*.

2. *Anthraxia rubula*, the yaws: tumours numerous and successive; gradually increasing from specks to the size of a raspberry; one at length growing larger than the rest: core a fungous excrecence; fever slight; occurring only once during life; contagious. Two distinct varieties.

α. *R. Guineensis*, Guinea yaw: attacking infants and young persons chiefly; and subsiding as soon as the eruption appears.

β. *R. Americana*, American yaw: depascent; and destroying progressively both muscles and bones; especially the master-yaw, which is called *mamanpia*. See *YAWS*.

Order IV. *DYSTHETICA*, [from *δυσθετω*, I am ill.] Cachexies. "Morbid state of blood or blood-vessels alone or connected with a morbid state of other fluids producing a diseased habit."

This definition of Dr. Good's is extremely vague. It is very difficult, however, to make any arrangement of cachexies in our present state of knowledge without many faults; but, at all events, some of the diseases already mentioned might be referred to morbidity of the blood-vessels; and certainly dropsy has little to do with depravity of the blood as a primary cause. We must confess, however, that this is not the case of Plethora, Hæmorrhagies, Passiva, Cyrtosis, Porphyra, and some others. We have already expressed our opinion that many diseases are referrible to morbidity in the blood: and, after long and unwarrantable disregard of this important fact, our contemporaries are now returning to the investigation of the nature of the blood in disease. Their labours have hitherto been little successful; and indeed scarcely any thing can be stated with certainty as to the state of the blood in the majority of diseases, nor in any of them are we able to trace those minute changes on which the therapeutic agents would be safely set in action. It seems pretty clear that all material changes in the blood must be a work of time. The changes which a sudden alteration in the blood would induce in the contractility of the vascular and sensibility of the nervous systems would be such, that death, or at all events extreme febrile commotion, must occur. Moreover, all unnatural matters in the blood would, under such circumstances, be carried off by the secretions; and thus the sanguineous fluid would return to its natural condition. Blood being solely derived from food and air, it is to these agents we must look for its alterations. As the former can operate only by producing a greater or less degree of oxygenation in the blood, and as cachectic diseases are not extraordinarily manifested in situations where bad air is present, we should probably be right in referring cachexis to the ill effects of particular food: Indeed deficiency or bad quality of food and drink is evidently the cause of a very large proportion of cachectic maladies, and a serious source of aggravation to them all. In the natural or healthy state, indeed, we have very clear evidence, that unhealthy chyle is not formed in consequence of one or two improper meals; but when, from a long-continued use of substances irritating to the alimentary canal, from a restriction to one particular kind of food, or from previous disease in the absorbent or assimilating vessels, blood is slowly and imperceptibly produced of an unnatural quality, we should be prepared to meet with a corresponding change in the contractility of the containing vessels; we should expect also to find the secretion slowly deranged, and, as the disease advanced, the nervous system debilitated. The changes which the blood undergoes is perhaps very various in different diseases; but we know little of them. We may remark, however, that in all cachectic diseases (properly so named), the change in the blood diminishes the contractile power of the sanguineous system. Now, it having been proved by experiment, that the quantity of fibrine, and consequently the degree of coagulation, is in direct ratio to the force of the arterial contractions, we should naturally expect to find the blood containing an unusual proportion of serum, and more slow in its concretion, in cachectic diseases, since in them symptoms of arterial debility are for the most part unequivocal. It is only in this view of the subject that the first genus of this order, viz. Plethora, can be allowed to exist; for, from what has been before stated with regard to the dependance of the blood-vessels on the nerves, of the nerves on the vessels, and of the vessels on the blood, plethora, existing while these particular structures retained their natural properties, must inevitably terminate in local inflammation. This order contains fifteen genera.

Genus I. *Plethora*, [from *πληθω*, to fill.] Fulness of blood. Generic characters—Complexion florid; veins distended; undue sense of heat and fulness; oppression

of the head, chest, or other internal organ. There are two very distinct species.

1. *Plethora entonica*, sanguine plethora. This first species is rarely seen as a disease. It is probably a frequent forerunner of all the species of Pyrexia and Phlogotica, but exists in various degrees in different habits, and in many persons without manifesting scarcely any symptoms of indisposition. The change usually observed in the blood is an increase of coagulation, and in the redness of its colour.

2. *Plethora atonica*, or serous plethora, is a disease in which much change is induced in the state of blood. This change consists in an undue proportion of serum, and a deeper hue than ordinary. The pulse is full, frequent, and feeble; the mental actions languid; dullness and lowness of spirits being often met with. The figure is often plump, but inexpressive, such as is vulgarly called *dead fat*; and the urine coagulates on the application of heat.

The treatment of plethora is sufficiently obvious. The first species, being the forerunner of inflammation or inflammatory dropsy, will require brisk purging and bleeding, and a spare and vegetable diet. In the second species, the same indication of reducing the bulk of the blood is to be kept in view; but, as free bleeding diminishes rapidly the tone of the system, and as the vital powers are evidently in a very low state, we must proceed with the utmost caution; and, contrary to what is practiced in inflammations, (where our object is to diminish the excessive action of the heart rather than the quantity of blood,) we should in serous plethora bleed very frequently, but in small quantities at a time. An alteration should be made in the diet, which, in the majority of cases, should gradually become sparing. The treatment of dyspepsia united with the chronic hepatitis (diseases usually combined with the serous plethora) should be pursued, and the kidneys excited by means of diuretics.

Plethora, in one or other of its species, is usually found as an almost-universal symptom in hemorrhage and dropsy.

Genus II. *Hæmorrhagia*, [from *ἡμα*, blood, and *ρεω*, to flow.] Hemorrhage; flux of blood from an organ without external violence. There are three species, besides varieties.

1. *Hæmorrhagia activa*, active hemorrhage: accompanied with increased vascular action; blood florid and tenacious.

Active hemorrhages are caused by all circumstances capable of inducing an increased momentum in the affected part, or in the system generally.

The immediate or proximate cause of an active hæmorrhage is the rupture of a blood-vessel, where the blood flows till, by the permanent contraction of the broken artery, or a coagulum, it is mechanically restrained. This retention is much more readily effected if the heart is quiescent.

Active hemorrhages we must consider as febrile diseases of an inflammatory kind. They are defined by Dr. Cullen, Pyrexia, with an effusion of blood independent of external violence; and the blood drawn having an inflammatory appearance. Active hemorrhages chiefly occur in full plethoric habits, most frequently in the spring and in the early months of summer. Previous to the fever which ushers in the discharge, some general fulness and uneasiness is felt, with a load on the parts from whence the hemorrhage will flow. The topical heat, swelling, or itching, is sometimes considerable. A short rigor which follows is relieved by the usual heat, and the hemorrhage soon comes on during this hot fit. After some time the discharge and the fever both cease; but every spontaneous hemorrhage has a tendency to recur; and, if this recurrence happens more than once,

after

after a stated time, a habit is formed which is with difficulty overcome. These very marked appearances do not always occur; but traces of such symptoms may be often distinguished even in the most debilitated states. This species has six varieties.

α. *H. a. narium*, (*Epistaxis juniorum*, *Cull.*) Bleeding at the nose. In this variety the blood is discharged from the nostrils, usually preceded by a pain and heaviness in the head, flushing in the face, heat and itching in the nostrils, a throbbing of the temporal arteries, and a quickness of the pulse. In other hemorrhages, a coldness of the feet, and shivering over the whole body, together with a costive belly, are observed to precede the attack. The intensity of the head-affection is often very great.

β. *H. a. hæmoptysis*, spitting of blood. In this complaint, with the common symptoms of fever and increased arterial action, a flushing of the cheeks comes on, attended with dyspnoea and pain in the chest; a cough follows, by means of which blood is copiously ejected.

γ. *H. a. hæmatemesis*, vomiting of blood. In this variety, dark-coloured clotted blood is thrown up from the stomach, usually mixed with much phlegm. The discharge is often preceded by a tenfive pricking pain in the stomach, or the left hypochondrium; and almost always attended with a nausea, anxiety of the præcordia, a compressing pain on the same side, and faintness.

It is of much consequence to ascertain whether the blood comes from the fauces, the nose, the stomach, or the lungs. If from the fauces, either directly or dropping from the nose, it is inconsiderable in quantity, and not *always* attended with any hawking; and, though this is sometimes the case, the symptoms of *Hæmorrhagia narium*, or inspection of the fauces, will assist the distinction. Blood, however, seldom comes from the fauces, but in passive hemorrhage. When a discharge of blood is from the stomach, it is brought up by vomiting; but patients can seldom distinguish between these two operations. In general, when from the stomach, the quantity discharged *at once* is more considerable; it is also mixed with the contents of the stomach, and not the mucus of the lungs; and faintness and nausea have generally preceded. The pulmonary blood is usually florid; that of the stomach of a darker colour. Complaints of the lungs, preceding the discharge, will show that a doubtful hemorrhage probably proceeds from those organs.

The treatment of these hemorrhages is very simple. The action of the heart being one of the causes of the hemorrhage, this is if possible to be restrained. Blood should be taken with almost as much freedom as in *Empresma*; i. e. if the pulse and constitution of the patient warrant such a measure. We have stated that it is necessary to take blood very quickly in inflammation, and this is still more necessary in active hemorrhage: a large orifice, or sometimes both arms, should be opened for this purpose; for it is not so much required to deplete blood as to exhaust the force of the heart. This being done, if the hemorrhage does not stop, the next step is to astringe the extremities of the bleeding vessels. This object is affected in the *H. narium* by injections of sulphate of zinc, sulphate of copper, &c. in hæmatemesis by solutions of sulphate of zinc, but in very moderate doses; or by the *Tinctura Ferri muriatis*, in large draughts of cold water. The same treatment is applicable to the paroxysm both of hæmoptysis and that of hæmatemesis. In the bleeding of the nose, the auxiliary measure of dashing cold water over the face, head, and neck, or even the general cold bath, may be resorted to. We may remark, that the affusion of cold water has been used in hæmoptysis; but, for obvious reasons, it is a dangerous expedient. Plugging the nasal sinuses with lint may be adopted as a dernier resort in violent hemorrhage from the nose.

The above remarks apply principally to the treatment of a sudden eruption of blood. When this is stopped,

the treatment should be conducted still with the same view of lessening the momentum of the blood by venesection and abstinent diet. We should avoid all circumstances capable of stimulating the heart, or increasing the impetus of blood in the affected organ. Animal food should therefore be withheld, quietude enjoined, cool drinks and purgatives administered. In hæmatemesis, and still more in hæmoptysis, digitalis and the superacetate of lead are very useful medicines. The former is given in various doses (usually from five to twenty drops), according to its effects; and the latter in a quantity varying from one to three or more grains. The sugar of lead is usually combined with opium; but we have found it more successful when given alone. The fears of some practitioners as to this substance producing colic should not arrest its exhibition, its constipating effects being easily corrected by purgatives.

δ. *H. a. hæmaturia*, bloody urine: evacuated at the urethra; preceded by pain in the region of the bladder or kidneys; and accompanied with faintness.

A discharge of blood by urine, when proceeding from the kidneys or ureter, is commonly attended with an acute pain in the back, and some difficulty of making water, the urine which comes away first being muddy and high coloured, but towards the close of its flowing becoming transparent and of a natural appearance. When the blood proceeds immediately from the bladder, it is usually accompanied with a sense of heat and pain at the bottom of the belly. The voiding of bloody urine is always attended with some danger, particularly when mixed with purulent matter. When it arises in the course of any malignant disease, it indicates a fatal termination.

When the disease occurs in a plethoric habit, it may be proper to take blood, and pursue the general antiphlogistic plan, opening the bowels occasionally with castor-oil, &c. When owing to calculi which cannot be removed, we must be chiefly content with palliative measures, giving alkalies or acids according to the quality of the urine; likewise mucilaginous drinks and clysters; and opium, fomentations, &c. to relieve pain; *uva ursi* also has been found useful under these circumstances; but more decidedly where the hemorrhage is purely passive; in which case also some of the terebinthate remedies may be cautiously tried; and means of strengthening the constitution must not be neglected.

ε. *H. a. uterina*, uterine hemorrhage: blood discharged from the uterus; with a sense of weight in the loins, and of pressure upon the vagina. See *Paramenia*, and the article PARTURITION, vol. xviii. p. 706-9.

ζ. *H. a. proctica*, (*Hæmorrhoids*, *Cull.*) blood discharged from the anus spontaneously; with a sense of weight and pain within the rectum; and often of load in the head. See the genus *Proctica*, p. 166.

2. *Hæmorrhagia passiva*, passive hæmorrhage: accompanied with general laxity or debility; and weak vascular action; blood attenuate, and of a Modena red.

Passive hemorrhages are much more difficult to cure than the active species before detailed. Their chief symptom, as in the active hemorrhages, is a discharge of blood, which however is said to be of a darker colour, longer in coagulating, and the coagulum when formed less firm, than in active hemorrhages. The symptoms of fever are also absent; and, above all, the pulse is soft and small. The passive hemorrhages result sometimes from ruptured arteries; but sometimes the blood is actually secreted. They are not necessarily accompanied with plethora, but they are so very generally. They are always connected with alteration in the blood; and are consequently never met with except in old persons, in dyspeptics or debilitated habits, or in those who have suffered from bad modes of living. The same local treatment is necessary in both species; but bleeding, so important in the first, is of no avail towards relieving the sanguine

sanguine eruption in the second. Between the paroxysms, however, it is necessary, for the most part, to take blood, and that frequently; but in small quantities, as directed in serous plethora. The dyspeptic treatment must be put in force. Very great benefit is also derivable from counter-irritants, as blisters, &c. and, except in hæmaturia, by diuretics. The treatment of passive hæmorrhage embraces a wider field of dietetic treatment than probably any other malady. It may be considered as the same disease with Porphyra, affecting however another structure. The varieties are similar to those of the first species; viz.

α. Narium: discharged from the nostrils without local heat or head-ache.

β. Hæmoptysis: thrown up from the respiratory organ, usually with coughing; often accompanied with scirrhus or calculous affection: countenance pale and emaciated.

γ. Hæmatemesis: evacuated from the alimentary canal at either extremity with expulsive effort, nausea, and faintness; but without tensive pain.

δ. Hæmaturia: evacuated at the urethra; usually with faintness, but without previous pain.

ε. Uterina: discharge from the menstrual organ, with a sense of local weakness.

ζ. Proctica: discharged from the anus spontaneously, with little or no pain; usually with varices or congestions of the hæmorrhoidal veins; occasionally producing a habit. See Proctica marisca, p. 168, 9.

A remarkable history is contained in the 33d volume of the London Medical Journal, of a whole family who died at different periods from hæmorrhage supervening to trifling wounds or scratches. But, as the relator made no further remarks as to the constitution or symptoms of the patients, we know not whether these were cases of active or passive hæmorrhage. We should be inclined to suppose the latter.

3. Hæmorrhagia vicaria, vicarious hæmorrhage: catenated with a morbid or suppressed action of some other organ; the outlet being usually the nostrils, trachea, vagina, or rectum; at times the urethra. This species has the same symptoms and treatment as idiopathic hæmorrhage. It may be active or passive.

Genus III. *Marasmus*, [from *μαραίνω*, to grow lean.] Emaciation of the entire body. It has three species.

Emaciation is a symptom of many complaints, and one which often serves us to distinguish idiopathic from nervous or irritative diseases: it being usually found, that, while in the latter this is often absent, in most chronic inflammations or degeneration of internal structures, early emaciation is met with. A marasmus from mere exhaustion, a very unimportant disease, differs from that which depends on visceral disorder in the greater *tightness* of the skin which the latter exhibits, while in the former its texture is loose and natural.

1. Marasmus atrophica, atrophy: complexion pale, often squalid; skin dry and wrinkled; muscles shrunk and inelastic: little or no fever. Three species.

α. A. inanitorum: the crisis of the blood vitiated by excessive evacuations; as saliva, sweat, milk, intestinal secretion, or blood itself.

β. A. famelicorum: the crisis of the blood vitiated by the use of food deficient in quantity, and innutritious in quality.

γ. A. debiliū: the crisis of the blood vitiated by infirm action of the digestive faculty; as in puny infants, and feeble age.

The first and second varieties are cured by the gradual exhibition of natural food; the third by the treatment for *Dyspepsia*, which see.

2. Marasmus tabes, decline: general languor; hectic fever; for the most part depressed spirits. Four varieties.

α. T. purulenta: the blood vitiated by absorption of pus from an external or internal ulcer, or a vomica.

That hectic fever is a common attendant on the forma-

tion of pus is unquestionable; but whether this arises from absorption is doubtful. Indeed it has rather seemed to us to be the particular irritation going on in the suppurating part which disturbs, through the medium of the nervous system, the general health. If this were an admitted explanation, it would also lead us to suppose that the beneficial effect of bark was owing to the opposite impression it induced on the system.

β. T. strumosa, (T. scrophulosa, *Cull.*) Blood vitiated by a scrofulous taint; and, for the most part, connected with a scrofulous affection of some organ or other. See *Struma mesenterica*.

γ. T. dorfalis: vitiated by excess in libidinous indulgences. Accompanied with pain in the back and loins; fallow, dejected visage; heaviness of the head; syrigmus; sleeplessness; horror of mind; extreme genital debility.

We believe this dreadful malady is not to be alleviated by any but moral treatment.

δ. T. venenata: the blood vitiated by an introduction of some poisonous or other deleterious material into the system; often from the injudicious use of quicksilver; perhaps, at times, from small portions of arsenic.

2. Marasmus phthisis, consumption. To attain a knowledge of the causes and cure of consumption, may justly be considered the highest point of ambition to the English pathologist. For, whether we consider the extraordinary inroads it makes on the population of this country in general, the youth, the beauty, and often the mental endowments, of its victims; or, lastly, the opprobrium its fatality casts upon our profession; it cannot fail to be an object of the intensest study and contemplation. Much has been written on consumption by English writers; the whole materia medica has been ransacked for specifics against it; yet very little has been done. It seems to us, that the pathology of this disease has not been studied with the accuracy that has been lately applied to almost all others. This want of a theoretical view of phthisis does not indeed arise from the deficiency of high ratiocinative powers in the writers of our time. It is that we want actual data on which to found our reasoning. We want a few established facts for our premises. Most men can reason accurately on allowed premises; but in phthisis the premises are so far from being allowed or settled, that there is much reason to believe that gross errors are to be found in those most commonly received. To trace the operation of air on the lungs, as far as its temperature, its weight, its humidity, its foreign mixtures, and its electrical properties, are concerned, is a task which can only be accomplished by the united labours of many. And, though numerous desultory observations have been made on these points, yet, not being made with the specific object of tracing the cause of consumption, but being generally confined to one only of these particulars, our information is very confined. Advancing another link in the chain of the causes of phthisis, the absence of symptoms, and the unfrequency of deaths at an early stage of this disease, have prevented the medical observer from accurately tracing the formation of the consumptive disorganization to its first source, and through its separate stages.

But, if these investigations, conducted with somewhat of a philosophic spirit, have failed, what have we to expect from the mere experimenter, who, throwing aside the laborious toil of comparing the climate and situation of distant countries with the mortality of phthisis, or the still more disagreeable office of numerous and minute dissections, has been employed merely in practising on human life by potent drugs, in the vain hope of discovering a specific? We will venture to predict that it is not from this tribe of pathologists that consumption will meet with a cure. Yet how many boasted specifics have been fashionable for a time, to fall into merited oblivion! In this species Dr. Good reckons three varieties.

α. Ph. catarrhalis, catarrhal consumption: cough frequent and violent; copious excretion of a thin, offensive, purulent,

purulent, mucus; general soreness of the chest, with transitory pains shifting from side to side. Chiefly produced by catching cold, or the neglect of a common catarrh.

β. Pht. apofematofa, apofematous consumption: cough severe but dry; fixed, obtuse, circumscribed, pain in the chest, sometimes pulsatory; difficult decumbiture on one side; at length sudden and copious discharge of purulent matter, occasionally threatening suffocation; the other symptoms temporarily, rarely permanently, relieved. Chiefly the result of repeated hæmoptysis.

γ. Pht. tuberculofa, tuberculous consumption: cough short and tickling; excretion of a watery whey-like fæces, sometimes tinged with blood; pain in the chest slight; habitual elevation of spirits. Usually the result of a scrofulous diathesis.

We cannot, however, minutely follow the above division of consumption, because, in common with many other divisions, they are becoming generally abandoned in consequence of the advance of pathological knowledge. It must be granted that catarrh is often accompanied by tubercles, and that these formations often precede apofematosa; but the peculiar symptoms and the fatality of phthisis belong only to the third variety; the two former varieties being considered as severe forms of Bronchitis, or Apofematosa vomica, which see. The word Phthisis is therefore restricted in this treatise to those disorganizations of the lungs known by the name of *tubercles*, and to the subsequent alteration in structure these tubercles undergo. The only distinction that can be made out, as far as we conceive, will depend on whether the patient be scrofulous or not.

Now, as to the formation of tubercles in the lungs, this is a point little known. We have before had occasion to notice, that two explanations had been afforded of the appearance of tubercles; that one theory affirmed them to be organizations of lymph previously effused by an inflammatory process; that, on the other hand, some referred the production of tubercles to an undefined disease in the absorbent system; and, as a coincident opinion, that the first germ of the tubercle was an hydatid. We are not prepared to decide between the opposite parties; but we incline to suppose that tubercles may originate in both ways. And first, of the formation of tubercles from inflammation, we conceive some evidence is to be found in viewing their remote causes. Variable weather, more especially if in a cold and humid climate, has the effect of preventing the due action of the whole of the cutaneous vessels; consequently internal circulation is increased. This increase in the circulatory fluids is particularly felt in the lungs. This fact is evident to every one; for the most common observer has not failed to notice the extreme feeling of distention in the lungs which follows the application of cold to the surface of the body. Now, if it be admitted that plethora can be induced in the lungs by cold and moisture applied to the skin; if it be admitted also, that consumption is most prevalent in those situations where, from the degree of cold and moisture, or from their variability, these conditions can act most forcibly on the skin; then, knowing as we do that impediment in the cutaneous increases the pulmonary circulation, and that plethora is the chief condition of inflamed parts, we cannot hesitate to ascribe the production of tubercles to an inflammatory origin in some cases. Further proof of their origin in this source might be adduced from the frequency of phthisis after the pneumonia.

With respect to the origin of the tubercles in diseased absorbents, this, though capable of less direct proof, is still probable. It rests greatly on the supposed locality of scrofula, the latter disease being usually considered an affection of the lymphatic system; and, as scrofula and phthisis are frequently complicated, as in scrofulous patients tubercles even in other viscera are the most common degenerations, the origin of phthisis being the same

as scrofula has been justly contended for. It rests also on the grounds, that many people exposed to the vicissitudes of climate, and who are subject to frequent pneumonites and catarrhs after fever, enjoy nevertheless immunity from consumption. Moreover, tubercles have been found in the lungs of the fœtus. Indeed so evident is the fact that phthisis and struma are often the same diseases, that we believe it has never been disputed. The only question to be decided, is whether chronic pneumonitis will not end in phthisis, even in constitutions not strumous. The very general suffering of the French army in Holland, and the testimony of Broussais, who says that all the tuberculous cases he dissected there were preceded by catarrh or pneumonia, go to prove the affirmation.

Leaving, however, these speculations, on which we cannot throw so much light as we wish, we proceed to consider these tubercles when formed, their progress, and accompanying symptoms.

Laennec, in his excellent work on "Mediate Auscultation," states that the earliest stage of tubercles he has met with is when they form small semi-transparent grains of a grey hue, but sometimes diaphanous and almost colourless. Their size, in the first instance, varies from that of a millet to that of a hemp-seed; they at length become larger, opaque or yellowish, at first in the centre, and successively throughout their extent. Those most adjacent unite as they develop themselves, and form then more or less voluminous masses, of a pale yellowish colour, opaque, and of a density similar to that of the hardest sort of cheese: they are then termed *crude tubercles*. It is ordinarily towards this epoch of the disease, that the tissue of the lungs, hitherto healthy, begins to become hard, greyish, and semi-transparent, around the tubercles, from a new production of tuberculous matter in the first stage of its formation, which infiltrates the pulmonary structure: the latter is sometimes found without tubercles. The pulmonary tissue, thus engorged, is dense, humid, and wholly impenetrable to the air. Numerous smaller opaque yellow spots then become dispersed in it, and at length extend throughout it.

In whatever way tubercles are formed, they terminate, after a period of various duration, by becoming soft, and at length liquid. This softening begins in the centre of each mass, and gradually extends to the circumference. Tuberculous matter at this stage is in two different states: it either resembles a thick inodorous pus of a deeper yellow colour than the tubercles, or it is separated in two parts, one of which is very liquid, more or less transparent or colourless, unless it be tinged by blood; the other opaque, and of the consistence of soft and friable cheese. The latter, M. Laennec says, is particularly found in scrofulous subjects. When the tuberculous matter is completely softened, it opens a passage into some one of the adjacent bronchial tubes; this opening is smaller than the diameter of the cavity left after the evacuation of the matter, and remains fistulous. Many excavations of the above kind generally co-exist; and cavities successively formed often open into each other, forming anfractuous excavations of various forms and extent. Bands or columns of condensed pulmonary tissue, often infiltrated also by tuberculous matter, frequently traverse these excavations. Bayle has stated that these bands were traversed by blood-vessels; but M. Laennec has hardly ever found a vessel of any considerable size in them. The vessels naturally existing in the pulmonary structure are obliterated in those bands. The tuberculous matter, on being developed, presses aside the proper structure of the lungs, and its blood-vessels are found often very large in size, winding about the parietes of the cavities soon after the softening of the tuberculous matter, and forming even part of those parietes. These vessels are ordinarily flattened; they are rarely obliterated; but those of their ramifications which are directed towards the excavation or towards the tuberculous

masses, are evidently so; and liquids injected into those vessels will not pass into the cavities, as Dr. Baillie long since observed.

The ramifications of the bronchiæ appear to be rather enveloped in, than pressed aside by, tuberculous matter; and the compression excited on them, apparently, promptly destroys them, for they can hardly ever be distinguished in the tuberculous masses; and yet it is very rare to find an excavation, however small, in which one or more bronchial tubes of different diameters do not open, and in a direction which makes it evident that those tubes were originally extended through the tuberculous matter. The parietes of those excavations, in proportion as they are formed, become lined with a sort of thin, smooth, soft, and almost friable, false membrane, of nearly an opaque white hue, and which is easily removed by scraping it with a scalpel. Sometimes a finer membrane of the same kind is formed in spots on the sides of the cavities; or such a membrane will exist beneath the former, but not adherent to it, and which is attached more intimately than the former to the texture which it lines. It seems to be the first degree of development of the former. Sometimes neither of these membranes is present, and the sides of the excavations are formed by the pulmonary texture, ordinarily hard, red, and infiltrated by tuberculous matter, in different degrees of development.

From this false membrane, as well as from the bronchial lining, (a very large portion of which becomes involved in the same action,) pus is secreted. At times also blood is poured forth, giving rise to the sanguineous sputa so common in the latter stages of consumption.

If the disease now remain stationary, there is developed, here and there, beneath this false membrane, flakes of greyish-white and semi-diaphanous matter, of a texture analogous to cartilage, but a little softer, and which adheres intimately to the pulmonary tissue. These flakes at length increase so as to unite, completely line the ulcerous excavation, and terminate, as by continuity of substance, in the internal membrane of the bronchial tubes which open into those cavities. Sometimes this cartilaginous substance is of a light-red colour, apparently from a development of very fine blood-vessels; sometimes this formation is as ancient as the tubercles themselves, an affection which constitutes the *encysted tubercle*. It adheres strongly to the surrounding structure of the lungs; but the tubercles it envelopes can be separated from it, although also firmly adherent; and the internal surface of the cyst is then found smooth and polished, although unequal in its surface.

In cases of recovery, the above cartilaginous cyst, forming a communication with the bronchial air-cells, and lined with the polished membrane before mentioned, which has the same character as mucous membrane in general, becomes no longer a source of irritation, and, the unnatural cavity alone remaining, the consumption is arrested. A still more perfect cure is effected if the cartilaginous cysts cicatrize in consequence of an approximation of their sides.

By the above-mentioned processes, then, phthisis is sometimes cured. In almost all cases, however, other terminations ensue. The tubercles coalesce, and form enlarged tubercles; and then pressure on the bronchiæ excites a severe bronchitis, which terminates in death, or, if life be more prolonged, the cysts degenerate into foul ulcerations.

The following, then, is the process of pulmonary tubercles: Firstly, diaphanous miliary granulations; secondly, grey tubercles, more voluminous, and yellow and opaque in the centre; thirdly, tubercles entirely opaque, but still of firm consistence; fourthly, softened tubercles, especially in the centre; fifthly, excavations, more or less completely empty; sixthly, the excavations lined by a mucous membrane, and their external covering formed of cartilage; or, on the other hand, an ulcerous cavity secreting pus and blood; lastly, the cartilage cicatrized,

or, fatally and more generally, the substance of the lungs destroyed. It is to be remarked also, that, as in other parts of the body, the tubercular cyst in the lungs sometimes contains varieties of morbid matter, as a medullary or cerebriiform matter, a melanose or black matter, a cancerous matter, &c. It is needless to say that these are hopeless cases, and most distinguishable from each other, or from simple tubercles, during the life of the sufferer. They are fortunately rare.

Our task is now to trace the symptoms which accompany the above-mentioned morbid changes. We have no fear of being contradicted when we say, that, notwithstanding all that has been written on phthisis, the early symptoms of the tubercular formations have never been correctly described. This has arisen partly from the confusion of terms; for, till lately, most authors have treated, of chronic catarrh, apostema, vomica, and other insidious diseases of the lungs, under the title of *consumption*; while, in more recent accounts, the same deficiency still exists from the paucity of examples the physician has had an opportunity of witnessing. Not indeed that there is a scarcity of phthisical patients, but because the absence of pain or uneasy sensation prevents them from applying to medical men in the beginning of the disease.

From what we have been able to collect by personal observation and from contemporary authors, we conceive, that a remarkable pallor of the skin, a diminution of perspiration, and a removal of all those trifling cutaneous roughnesses or defædations from which scarcely any one is entirely free, are among the earliest signs of consumption. To these also is added a feeling of tightness in the chest on unusual exertion, as running or the like. Sometimes this tightness is absolutely a pain; sometimes it is absent, and a mere quickness of breathing follows slight exertions. A peculiar placidity of manner is usually observed in patients at this period, and somewhat of fulness in the face. The next symptom is a cough, which seems to the patient to arise from irritation in the glottis, like that produced by the accidental presence of a husk of corn, or other dry substance. It is familiarly known by the name of an husky or tickling cough. This, which is usually worse towards night, is not however always present. These fugacious symptoms are of course little to be depended on, since they are met with in trifling gastric irritations; but they may serve to direct our attention to the accession of phthisis at an earlier period than it would otherwise have been done.

The suspicion that these symptoms denote phthisis will be confirmed, if hereditary predisposition, or if external symptoms of struma, should also be present. The above-mentioned appearances do not always produce more formidable symptoms. They do so, however, in so large a proportion of cases, that the following description may justly be called the *second stage*. We believe that when it is the first stage, or, to speak more plainly, when phthisis is suddenly manifested, and is rapid in its course, a chronic pneumonitis is always very evident, pain and fever being for the most part met with.

In the progress of this affection, the pallor of the countenance is interrupted by partial flushing of the cheek. This is attended with a sensation of burning heat in the part flushed: it is not confined to the cheek; a sense of burning and redness being often seen and felt round the palms of the hands or soles of the feet. The pulse becomes frequent; a difficulty of lying on one side comes on, attended with pain in some particular parts of the chest, which is increased by sudden changes of position. One portion is generally preferred during the whole disease. The irritation being now communicated to the mucous membrane of the bronchiæ, or the irritability of that membrane being now so far increased that slight variations of temperature affect it with inflammation, the cough, before dry, becomes attended with copious expectoration. The respiration is quick and easily accelerated, and the nostrils are forcibly moved by it. As this dis-

case advances another grade, and as the tubercles begin to soften and ulcerate, these symptoms become more marked; hectic fever is more manifest, and suffers evening exacerbations. Sweats general or partial, but always debilitating, break out; the blood becomes more highly oxygenated, either in consequence of its more rapid circulation through the pulmonary organs, or from its more extensive and close application to the air through the medium of the ulcerated cavities. Hence the phthisical patient acquires, to a great extent, the high romantic and imaginative spirit which has been so often remarked to attend the passage over lofty mountains, situations in which the air is extraordinarily rarefied. Hence the never-dying hope, the absence of all that desponding querulousness which excites our pity, not unmingled with contempt, in viewing the victim of hypochondriac malady. It has been said, indeed, that the amiability, serenity, and gaiety of temper, of the consumptive patient, is rather the result of the temperament that disposes to phthisis than of the phthisis itself; but we believe there are few practitioners who have not observed that the very first approaches of consumption are marked by much less hopefulness than the latter stages; and, even at times when the constitutional disturbance suffers an exacerbation, the spirits are higher than usual.

To proceed with this picture. Cases of recovery are too rare to allow us much to say as to the appearances of amendment. We need hardly caution the practitioner not to be deceived by the cheerfulness of the patient, and by the occasional absence of all ill feeling which sometimes lasts for a day or so. The symptoms which foretell the fatal termination of the malady are well known. All the symptoms are distressingly increased: the quick pulse, the evening exacerbations, the colliquative sweats, the glossy eye, the hurried and difficult respiration, the distended nostrils, and the general emaciation, are all most strongly manifested. To these may be added, diarrhoea and slight delirium. These arrived at the highest pitch endurable by the human frame, the patient calls on the by-standers for breath, snaps with horrid energy at the air, and expires. This afflicting termination only occurs, however, when the patient actually dies from dyspnoea, while the rest of the frame retains to a high degree the powers of life. More commonly, gradual wasting and decay entirely exhausts the sufferer, and he sinks into the grave without a groan.

According to Laennec, the formation of the ulcerated cavities in the lungs may be known by applying the *stethoscope* (so often mentioned) to the chest, in which case the *voice of the patient seems to come through the cylinder*. This phenomenon Laennec calls *pectoriloquism*. The student may make himself acquainted with it by applying the stethoscope to the trachea of any individual, or in lean persons over the infurcation of the bronchiæ. The parts of the chest over which the stethoscope is to be applied to ascertain an ulceration in the lungs are the anterior and superior portion, the axilla, the space between the clavicle and the trapezius muscle, and the fossa above and below the spinous process of the scapula. It may be perfect, imperfect, or doubtful. When it is perfect, it is a certain sign of the existence of a preternatural cavity in the lungs. It is more clearly evident in proportion to the acuteness of the voice of the patient; when the voice is grave or hoarse, the pectoriloquism is like the voice coming through a speaking-trumpet or roll of paper. Accidental circumstances sometimes operate to prevent pectoriloquism from being clearly evident: Laennec finds it proper, therefore, to examine a patient several times; and in no case where pectoriloquism was manifest did he fail to recognise, by dissection or by symptoms, ulceration in the lungs.

The above circumstances will distinguish the latter stages of phthisis from chronic bronchitis; but the diagnosis of its first stages is more difficult. In chronic bronchitis the absence of pain during inspiration, the ca-

pability of resting on either side in bed, (when there is no abdominal disease,) the wheezing noise in respiration, the leaden colour of the lips, and the pallidity of the countenance, the appearance of the sputa, consisting almost entirely of mucus, are symptoms which distinguish it from tubercular phthisis. Moreover, the dyspnoea is greater on exertion in tubercular phthisis, and the patient cannot take so large a volume of air into the lungs as he can in bronchitis. The dyspnoea too is less relieved by expectoration; and there is a peculiar sensation of stuffing complained of in catarrh, which does not occur in phthisis. The expectoration is various, but there is always a considerable quantity of mucus mixed with the pus-like matter. The quantity of matter expectorated in the former disease is much greater than in tubercular consumption. The cough also in bronchitis is deep and sonorous. The paroxysms of hectic fever are much less regular in chronic bronchitis than in tubercular phthisis. The perspirations are more, and the emaciation less, in inflammation of the mucous membrane, than in tubercular phthisis, though we do meet with cases in which the emaciation is as great in the former as in the latter affection. When the pulmonic symptoms have arisen from a diseased liver, it is a strong presumption that the seat of the disease is in the bronchial membrane; for in almost all cases of this description the mucous membrane is the part affected. When this combination occurs, the spirits are always depressed; and, in addition to the usual pulmonic symptoms, we have in this form of the disease a painful and distended epigastrium, unnatural stools, and disordered digestion. The mouth is dry in a morning, and the tongue loaded. The fits of coughing are constantly excited when the stomach is overloaded, and are apt to come on when the patient is lying on either side in bed. If chronic have succeeded to acute bronchitis, the emaciation is sometimes so great, the hectic fever so complete, and the matter expectorated so purulent, that a person seeing the disease after it is formed will often be inclined to believe that he has to treat an ordinary phthisis; but an attention to the history of such cases will frequently lead him to distinguish the former affection from the latter; and the event will usually justify his distinction.

The greatest advantage arises from tracing these affections to their origin. We sometimes find that the symptoms have come on soon after the disappearance of a cutaneous affection, which should always lead us to suspect that the bronchial membrane is diseased. Notwithstanding all our attention to the occasional cause by which the disease is induced, to the habit of the patient, and to the modification of the symptoms, in the latter stage of the disease it often becomes impossible to distinguish catarrh from phthisis.

An ignorance of the precise causes of phthisis we have before lamented. We shall put down what is usually said in medical works on this subject. The predisposition is frequently hereditary, descending from parents whom the disease had attacked, or who had, at some period of their lives, been affected with some form of scrofula. It is distinguished by external peculiarities of form and appearance. Persons possessing fine skin, with large veins, soft hair, light eyes, a florid complexion, tall and thin person, long slender neck, narrow chest, and projecting shoulders, may be considered as having the phthisical predisposition. The fine skin and complexion, and slender form, are however much surer emblems of consumptive predisposition than the colour of the hair and eyes; for the disease often attacks dark-haired persons. Broussais refers the consumptive constitution to an extraordinary development in the lymphatic system. Frequent attacks of pneumonitis seem to become causes of consumption. The same may be said of catarrh, of hæmoptysis, or any other diseases which cause increased afflux of blood into the lungs. But as many persons, and even whole nations, suffer pulmonary disease without the sub-

sequent

sequent formation of tubercles, we can only consider the above diseases as assisting the production of, rather than entirely producing, phthisis.

The cause of the frequency of consumption in England has been variously accounted for. It evidently cannot be the coldness of the climate; for in some of the more northern regions of the globe phthisis is scarcely known: nor, when we consider the sudden hurricanes and chilling blasts which occasionally alternate with excessive heat in hot climates, where the disease is equally unknown, are we justified in referring it to the vicissitudes of our clime. Some have endeavoured to prove that the dampness of our atmosphere is the cause of consumption; but in Holland, and other humid situations, the mortality of consumptive patients does not equal that of our own country. It will not therefore seem improbable, that we must look for the cause of consumption in a morbid state of the blood; and that the action of cold and moisture merely determines, by increasing the circulation through the lungs, the elimination of its morbid material to those latter organs. What seems to bear out this explanation is, that the same sort of temperaments most disposed to phthisis are also disposed to tubercular depositions in other parts of the body, if circumstances operate to increase the afflux of blood to those parts. The same proposition receives further proof from the known connexion between long-continued impediment to the functions of the liver and phthisis; and no one can doubt, that inaction of the largest gland in the body must deteriorate the blood. Still further proof is derived from the well-known circumstance, that the absorption of venereal virus does, under certain circumstances, produce consumption: an instance of this we have now under our care.

We consider, therefore, deterioration of the blood one cause of phthisis; debility of the functions of the skin another. That the functions of the skin are injured by cold and moisture, and still more by changes of temperature; that coldness, moisture, and frequency of change, are the actual conditions of the English atmosphere; and that the determination of blood to the lungs is in direct ratio to the inaction of the skin; are propositions which no one will be inclined to doubt. Whoever views, therefore, the exanguious skin of the person disposed to consumption, and contrasts it with the *rough redness* of those who, through suffering the vicissitudes of climate and the privation of wholesome diet, are nevertheless wholly exempt from its attacks, cannot fail to learn a wholesome lesson as to a mode of preventing consumption. This is, to increase the action of the cutaneous vessels until a permanent vigour of the skin is acquired. As to the means of doing this, much care will be requisite. It will sometimes be necessary, to use the warm bath or friction: but, where symptoms approaching phthisis are entirely absent, the cold bath, followed by such friction as will ensure powerful re-action, would be most useful. In doing this, however, we must be careful that the bather does not stop long in the water; and that it be never used except redness and heat of skin follow the immersion. Regular muscular exercise is also indispensable, always taking care that exposure to wet be avoided. The clothing should be warm, but not heavy; and should be so regulated, that, while the skin is prevented from suffering the evil influence of moisture, it is not rendered morbidly sensible by extreme heat. The filthiness of the custom would ever prevent its use in a civilized state; else, considering the stimulating influence of *oil* on the skin, we should conceive that inunction must be a very powerful agent in strengthening this important covering. To this practice, however, many northern savages probably owe their ability to resist the rigour of their climate. To return to the subject. The above measures should of course be assisted by an attention to the food of the phthisical patient. The reader will observe, that the above remarks apply merely to the bringing up of chil-

dren born of a consumptive stock, or displaying the marks of the consumptive diathesis at an early age.

The treatment of phthisis is now to be discussed; and it naturally arises out of the above description of causes and symptoms. In almost all deteriorations of the blood, some excess of it will, we believe, be generally found; and indeed most authors have seemed to consider bleeding necessary to the treatment of phthisis. Even if plethora did not exist generally, the inaction of the skin would of course throw a greater proportion of blood than ordinary into the larger vessels, and consequently into the lungs. At all events, the propriety of bleeding is pretty generally allowed. This evacuation should therefore be made in small quantities at a time, and according to the degree of pain, the rapidity of the attack, and the hardness of the pulse. In the earliest periods of the disease, the bleeding will require to be regulated rather by the fulness of the pulse than by any other sign. If we are called in at this period of the disease, our attention should be carefully directed to the removal of all distant irritation; for often the disease of other parts of the body, especially of the liver, is the cause of phthisis. If this be not the case, and the malady we have to treat be strictly idiopathic phthisis, the skin must be excited, the regulation of diet very closely attended to, and the patient placed in a situation in which the debilitating influence of cold and moisture is carefully excluded. The warm bath, the flesh-brush, and a regular use of antimony in such doses as not to nauseate or produce sweating, are all the means we are possessed of for fulfilling the first indication. The second must be the business of the patient. It is impossible to lay down any exact rules as to what food, or what proportion of it, should be used by the consumptive patient. There is no doubt in our mind, that much, very much, may be effected by what we have before called the dyspeptic treatment, in curing phthisis. Not indeed that we are sanguine enough to suppose that this will bring about the absorption of the tubercles; but certainly, if it improves the morbid condition of the blood, it will prevent their increase, and it will exert a very beneficial influence on the curative processes which the tubercles undergo in their progress to excavation and cicatrization. A concentrated form of diet, as jellies, milk, and mucilaginous preparations, has obtained a popular fame as a regimen for consumptive patients, but probably without deserving it. Indeed, considering that in phthisis the action of the stomach does not seem much impaired, we should rather advise sparing quantities of meat or vegetables, since with them the natural juices of the stomach and bowels would be mixed, and consequently the quality of the blood most probably improved. We are doubtful whether abstinence should be carried merely to the extent of improving the digestive and assimilative powers, or whether it should be so far enforced as to produce emptiness of the system. The latter practice, steadily persevered in, has certainly succeeded in removing a variety of morbid growths on the outside of the body; and, from the result of some few cases which have come to our knowledge, we are inclined to favour its adoption in phthisis. The excellent Broussais also speaks well of it. Dry feeding has also been recommended by some; and, as it is pretty well ascertained that nutrition goes on but slowly, even from large quantities of food, unless a certain proportion of drink be taken, this may have operated in the same way as rigid abstinence, but it is by no means so effectual as actual abstinence. It is needless to add, that stimulating drinks should be forbidden in consumptive cases.

The third indication, i. e. that of placing the patient in a favourably-constituted climate, is next to be attended to. A variety of places have been recommended for consumptive patients: these have generally been selected in warmer climates, on the supposition that the cause of consumption was the coldness of our atmosphere. But an high temperature is by no means enough to ensure alleviation

alleviation to the phthical patient. Many places in hot climates are exposed to bleak winds: often the winter is as bleak as our own. The most proper situation is one in which *equability* of temperature throughout the year, protection from wind, and density of air, are continued. The occasional cold induced by blasts of wind renders the situation of Rome, of Pisa, and even of Nice, objectionable. A place called Villa Franca, a short distance from Nice, has been recommended as a spot in which the temperature is uniform, the site low, and the soil fertile. But, where pecuniary resources are wanting, or where the comforts of the native country are relinquished with regret, a situation may be found at home, scarcely if at all inferior to the boasted climes of Italy. The lower parts of the well-sheltered Devonshire have long been held in repute for the phthical patient; and Dr. Foster, in a recent work on the "Climate of Penzance and Land's End," has shown that the latter places are superior even to that. The contrast of Penzance with the famous places of resort in Italy, is much in its favour, as will be seen by the following Table.

Fahrenheit's Thermometer.	Time of Observation.	Dec.	Jan.	Feb.	Mar.
Nice, 3 years, (1815-1817)	sun-rise	44	44	47	45
Pisa, (1814-1816)	sun-rise	42	40	43	41
Rome, (1815-1817)	7 A.M.	42	41	43	42
Penzance, (1815-1817)	7&8A.M.	42	41	44	42

The benefit consumptive patients derive from a sea-voyage has induced many to suppose that the sea-coast must be an advantageous situation. This notion has been confuted, however, by recent observation. Mr. Mansford especially (see Mansford on Pulmonary Consumption) is of opinion, that the vicinity of the sea should be sedulously avoided. This author considers that low inland situations which enjoy a tolerably equable and somewhat warmer temperature, with a seclusion from the keen blasts of the north and east, are the situations to be selected from those who are suffering under pulmonary consumption. On reviewing various points in our own island, Mr. M. thinks no place presents so many requisites for the residence of consumptive patients as the low ground which extends southward from the Mendip Hills; of which he thus depicts the leading features: "Its geographical position is in the south-western part of the island. The shelter afforded by the range of hills towards the north, and the lowness of its level, while spots may be chosen just sufficiently raised above the marshy lands to escape the prejudicial and chilling influence of concentrated moisture, without being so high as to defeat the object in view, point it out as one of the most eligible. To these advantages of a physical nature may be added others of a more obvious and inviting character. The varied and romantic scenery of the neighbourhood does not fail to charm those who possess a relish for the beauties of nature; while the tastes and habits of individuals may be gratified in the society of a city, or the seclusion of a village."

Now with regard to the drugs which have procured a name in the cure of consumption, we shall pass over the lichen, stramonium, tar-vapour, with a host of others, because the shortness of their reputation has too clearly indicated their inutility; and pass to the consideration of two medicines which are now much in vogue; viz. the digitalis and the prussic acid. Those who give the former drug very properly confine its administration to cases in which it has the effect of abating the arterial action. This however is only to be found by its exhibition; for we are not acquainted with the external appearances which designate the constitution in which digitalis accelerates rather than depresses the pulse; it should be given in very small doses, and gradually increased. Though unable to explain its *modus operandi*, we may remark, that a combination of very minute doses of this drug, as

a quarter of a grain given every night with half a grain of calomel, has done much good, and this in cases where no hepatic disorder was apparent. We make this remark because it is well known, that, in phthisis accompanied by disordered liver, a cure is often effected by the gradual use of mercury; and hence many pathologists confine its exhibition to liver-cases.

The utility of digitalis, when exhibited with the above-mentioned restrictions, in conjunction with other measures, and not as a specific, no one will doubt. Of the prussic acid we cannot say so much. Indeed, the distinguished authors who have introduced it not having stated the peculiar effects of the drug, and having described it as a specific capable of curing phthisis in an early stage, and alleviating it when advanced, we can only say, that it appears to us very extraordinary, that the same medicine should promote the removal of a tubercle and the cicatrization of an ulcer, since these operations appear essentially different. Moreover, in the cases in which we have tried the prussic acid, a few have been made worse, and none have recovered. Nevertheless it is very probable, that, if we knew more of the precise operation of this medicine, and the *time* at which it should be used, it might prove a useful auxiliary to the treatment of phthisis.

Exercise, by various modes of gestation, has been frequently employed as a remedy for consumption. Sydenham indeed asserted, that riding on horseback is as effectual in the cure of phthisis pulmonalis, as the bark in agues, or mercury in the venereal disease, provided the journeys be long enough. An example is related in Dr. Darwin's *Zoonomia*, vol. ii. (the case of the late ingenious Dr. Currie of Liverpool,) in which an hereditary phthisis was removed, by persevering in a daily journey; at first in an easy carriage, and subsequently, as the strength increased, alternately in the carriage and on horseback. Some physicians, however, are of opinion, that exercise on horseback is rather pernicious, than otherwise, in phthisis. *Sailing* seems to be considered at present as the most efficacious mode of gestation, especially if a long voyage is taken, with the double recommendation of removal to a warmer climate. As a sort of substitute for this kind of gentle motion, *swinging* has been recommended as a remedy for phthisis; and Dr. Carnichael Smith has written a treatise in its favour. In the use of any or all these modes of gentle exercise, however, the same precept must be pursued; they must be resorted to *early* in the disease, and varied with the feelings of the patient.

When the disease proceeds favourably, the same treatment as to regular exercise, pure air, and nourishing diet, is to be persevered in; and the digitalis and other powerful drugs discontinued. When the ulceration of the tubercles is attended with bad symptoms, we can only alleviate the suffering of the patient. It will be too late to send him to a foreign clime, or perhaps to allow exercise. The keeping-up of a regular degree of temperature in spacious apartments, the occasional use of narcotics, among which opium combined with sulphuric acid, poppies, and lactucarium, hold the chief rank, comprises all that can be done for the palliation of symptoms, and the prolongation of a wretched existence.

Genus IV. *Cyrtofis*, [from *κυρτος*, curved.] Rickets, or curved spine. Generic characters—Head bulky, especially anteriorly; stature short and incurvated; flesh flabby, tabid, and wrinkled. There are two species.

1. *Cyrtofis cretinismus*, Cretinism: chiefly affecting the head and neck: countenance vacant and stupid: mental faculties feeble or idiotic; sensibility obtuse; mostly with enlargement of the thyroid gland: hereditary.

The term Cretinism is usually applied to the idiotic and incurvated patients; bronchocele to the same disease connected with enlargement of the thyroid gland. In this system Cretinismus embraces both. Cretins are

never found but where goitres exist, though the latter are often found without cretins. This seems to show that only a more powerful application of the common cause is necessary to produce cretinism.

The precise nature of cretinism is unknown. It is supposed to be a malady closely allied to scrofula. The same may be said of the next species. It is well established that cretinism is a disease of low and moist regions. Professor Fodéré, in his Voyage to the Maritime Alps, had occasion to make numerous observations tending to prove the truth of this opinion. Bronchocele, or goitre, and cretinism, accompany each other in the maritime Alps as they do in the Swiss mountains. Here, as well as in the valley of Aosta, Maurienne, and the Valais, they are not found in elevated regions; they are not seen at Saint Dalmas le Sauvage, nor at Molinet, nor at Tende and Briga; the maritime places, as well as cold and dry, or hot and dry, elevated regions, are exempt from them: but they are commonly met with in the humid parts of both the northern and southern regions, at the foot of the secondary Alps. They are most frequent in the valley of Visubia; and at Saint Martin de Lantofca the greatest part of the population has goitres; there are here, also, fifty cretins from birth: from hence we rise to Val de Blora, and those infirmities are no longer seen; but, on descending again into the valley Tinée, they are constantly observed until we arrive at Saint Etienne, where not a cretin was to be found. In general, in the valley Tinée, the inhabitants of the hamlets on the borders of the river which runs through it, are subject to goitre and cretinism, whilst those of the hamlets situate on the more elevated parts are free from them. The Valley la Roja presents also striking examples of the same kind: there is not a cretin or goitre to be seen in the chief village in it, which is situate on high ground, whilst they are numerous in the immediately surrounding region, which is comparatively low. The whole of the author's observations serve to confirm his former remark, that goitre and cretinism exist and take their course with the degree of the humidity of valleys, in all temperatures and climates.

In the United States, Dr. Gibson informs us, bronchocele prevails as an endemic. It is very frequent in many parts of Lower Canada, especially near the marshes between St. John's and Montreal. At Detroit, Lake Ontario, Oneida, Erie, Huron, and among the Tuscorora, Seneca, Oneida, and Brothertown, Indians, it is very common. In many parts of the state of Vermont, especially Bennington and Chittenden, bronchocele is well known. It is also found at Camden, Sandgate, and Chester, in the same state. Sandgate, some years ago, contained 1020 inhabitants, and out of that number one fourth of the females were affected with the disease. According to Dr. Trask, bronchocele is so common a disorder at Windsor in Vermont, that hardly any female is exempt from it. In the state of New York goitre prevails principally in the neighbourhood of Old Fort Schuyler, the Oneida-village, the German Flats, Fort Herkimer, Fort Dayton, Henderon-town, Onondago-valley, Canasara, Brothertown, the township of Manlius, and the whole of the military district. At Angelica, in Allegany-county, state of New York, goitre is a very frequent complaint. In Pennsylvania, where bronchocele is very common, it is found chiefly at Pittsburgh, on the waters of the Alleghany, Sanduky, Monongahela, French Creek, Cannonsburgh, Brownville, and throughout the county of Somerset. In some parts of Virginia, especially at Morgantown and on the banks of Cheat-river, it is by no means unfrequent. In certain situations on the western shore of Maryland, and in North and South Carolina, the disease is occasionally met with. It is probable, indeed, that goitre may be found as an endemic disease in almost all the mountainous and marshy districts throughout the United States. All writers on the complaint agree that it generally prevails in valleys at the bottom of the highest mountains, which are particularly

exposed to the influence of easterly and southerly winds. In those situations, moreover, where the temperature is mild and uniform, where the atmosphere is moist, in the neighbourhood of rivers, of falls or lakes, or of the sea, where the soil is rich and the habitations surrounded by fruit-trees, goitres are commonly found.

We shall now speak of the English, or curable bronchocele. The seat of this disease is the thyroid gland, which lies just below the larynx, round the trachea. The tumour appears in the fore-part of the neck, between the skin and the wind-pipe. Women are the most frequent subjects of it; and in them it usually appears early. Dr. Hunter met with one case of this kind in a young surgeon; but it is rarely happens in males.

The cretinismal bronchocele is a tumour arising on the fore-part of the neck; it generally first appears some time betwixt the age of eight and twelve years, and continues gradually to increase for three, four, or five, years; and sometimes the last half-year, we are told, it grows more than for a year or two before. It generally occupies all the front of the neck, for the whole thyroid gland is enlarged; and it is of a pendulous form, not unlike, as Albucafis says, the flap or dewlap of a turkey-cock, the bottom being the larger part of the tumour. In figure, it varies considerably in different cases. It is soft, or rather flabby, to the touch, and somewhat moveable; but, when it has continued some years after it has ceased to increase, it becomes more firm or confined. By the situation and nature of the complaint, it generally occasions a difficulty of breathing, which is increased on the patient's taking cold, or attempting to run. In some the tumour is so large, and so much affects the breathing, as to occasion a loud wheezing. Patients, however, sometimes suffer but little from a large tumour, while others suffer much from an inconsiderable one: in general, however, it occasions little inconvenience. Dr. Hunter observed, that the tumour now and then suppurates.

The bronchocele should be distinguished from a schirrus, from an aneurism, and from those swellings in the neck that arise from strains or ruptured vessels. The distinction however is not difficult.

An issue, or a perpetual blister, applied on some other occasions, has apparently prevented the growth of the bronchocele, though the effect continued only during the irritation. It cannot be extirpated, as it is entangled with the recurrent nerves, and the first branch of the external carotid artery; and, if by chance a suppuration is formed, an ill-conditioned ulcer, difficultly cured, is the consequence. In addition to the above directions, attention to the state of the general health, and the regular exhibition of large doses of uva ursi, or soda, comprehends all the treatment. If not cured before the age of puberty, at which time it sometimes amends spontaneously, little success can be anticipated.

This applies to the common bronchocele of this country. Occurring under the form of cretinism, as seen in the alpine regions, we are not aware that any treatment has been very successful. Dr. Wylie, of Petersburg, is said to use, with good effect, friction with an ointment composed of ℥ss of litharge ointment, ℥j of calomel, and gr. x. of tartrate of antimony. And we learn in the Appendix to Dr. Clark's "Notes on France, Italy, &c." that M. Quadri thinks highly of the treatment by seton. "I find," says he, "that all goitres of a soft consistence, and not arterial, were cured quickly and safely by the seton. Of twelve individuals on whom the operation was performed, eight were perfectly cured." Probably removing to a higher situation, and living in the best manner, might in the course of a few generations exhaust the disease. See CRETINS, vol. v.

2. *Cyrtofis rachia*, the rickets: chiefly affecting the limbs and body; spine crooked; ribs depressed; articular epiphyses enlarged and spongy; belly tumid; mental faculties clear, often premature.

Usually the first appearance of rickets is in the eighth or

or ninth month of the child's age. The several parts of the body by degrees become disproportioned; the skin grows lax, the belly flaccid; the muscles are extenuated, particularly those of the neck; the joints of the hands, arms, knees, and feet, are enlarged, so that there seem to be excrescences on the bones of the wrists and ankles; the bones and the spine, too weak to support the body, are at length incurvated; the child walks with more difficulty, until this exercise becomes too troublesome to be continued; the carotids and jugulars swell, but the other blood-vessels disappear; the head grows large; the sutures are more visible; the fontanel is often membranous; the neck too weak to support the head steadily. The countenance is, however, lively, and the child is more sensible than usual at the same age; the breast is strait, and compressed on its sides; the sternum rises up in a point, and the extremities of the ribs are enlarged and crooked; the hypochondria swell; fever, with symptoms of consumption, comes on, and the patient sinks from debility. In children predisposed to rickets the teeth come forward slowly, and soon decay. The appetite, however, seldom fails; but digestion is mostly imperfect.

The rickets chiefly prove fatal from the attending hectic, consumptive symptoms, or asthma. If the disorder continues after the fifth year of the child's age, the body usually continues weakly and deformed for the whole life. The bones of the legs, though very crooked, will become nearly, often perfectly, straight during the growth of the child, if it becomes strong and healthy. On dissection, the muscles are found pale and flaccid, the liver indurated, the mesenteric glands enlarged and hardened, the bones spongy. Its usual period of attack is from six months to two years; but it has attacked adults. The top of the spinal marrow is said to have been uncommonly hard and obstructed; water is sometimes found between the dura and pia mater; and the brain is enlarged.

The immediate cause of rickets is the want of a due proportion of phosphate of lime in the bones. The remote causes of this deficiency are disordered state of the digestive organs, in consequence of which bad blood is prepared, and inaction in the vessels which secrete the healthy part of bone. The means employed in the treatment are the same as in that of dyspepsia; viz. regular *passive* exercise, bathing, medicines which slightly stimulate the stomach, those which open the bowels, and those which promote the secretion of bile; nutritive diet, and country air. Months and years will often elapse before a cure is effected; it is in all cases a tedious affair.

Genus V. *Alphosis*, [from *αλφός*, white.] White leprosy. Generic characters—Cuticle, among negroes, white and colourless; hair white and woolly; irids white; pupils rosy; sight strongest in the shade; corporeal faculties feeble; mind unimpaired.

There is but one species, which is the Albino, or White Moor. See the article ALBINOS, vol. i. p. 240.

A variety is found among Europeans with fair cuticle; flaxen hair; irids blue; pupils rosy; corporeal powers weak; mind unimpaired. *Irail*, in Nicholson's Journal, Feb. 1808.

"The whiteness is probably produced by a want of the secretion of the pigment that renders the rete mucosum black; and which does not usually take place till several weeks, sometimes months, after birth; the negro-child being fair when first born." The Spaniards and Portuguese denominate those who are thus affected *Albinos*; the French, *Blafards*; the Dutch, *Kacklacken*.

Genus VI. *Struma*, [from *σπρωμα*, Gr. coacervation; not, says Good, from *struo*, Lat. to heap up.] Scrofula, or King's Evil. Generic characters—Indolent glandular tumours, chiefly in the neck; suppurating slowly,

and imperfectly, and healing with difficulty; upper lip thickened; skin smooth; countenance usually florid.

The best division of Struma is derived from its external or internal appearance. Dr. Good's classification accords with this principle. It is long since Mr. Abernethy referred to disorder of the digestive organs scrofulous disease; and the same opinion has been taken up by Dr. Carmichael Smyth, and more recently by Mr. Lloyd. Neither of these authors, however, has advanced the etiology of the disease one step. Its connexion with disorder of the digestive organs no one can fail to see; but the mode by which the latter act on the former is by no means apparent. We are very well able to ascertain how dyspepsia disturbs the nervous and vascular systems of remote parts; but, when we come to consider it in relation to scrofulous disease, we ask why every intense dyspepsia does not produce scrofula in situations and external circumstances favourable to its development. If it be answered, that dyspepsia produces scrofula only in constitutions *predisposed* to the latter malady, we ask in what this predisposition consists. We have already shown, that a predisposition to inflammation consists in a want or an excess of contractile power in the vascular system; and that a predisposition to nervous disease consists in an habitually higher degree of sensibility in particular nerves. But the predisposition to scrofula is by no means clearly made out. Broussais indeed refers the scrofulous constitution to a preponderance of the lymphatic system over the nervous and vascular systems. Upon the whole, it must be allowed by all, that the nature of the disease called scrofula is at present unknown.

Some recent authors have comprised under the term scrofula a very large proportion of the chronic phlogotica; but, it seems to us, without just cause. We shall confine ourselves in this article to the term in its older and more restricted sense. There are two species.

1. *Struma vulgaris*: confined to the external conglobate glands: tumour pea-sized, or chestnut-sized; appearing in infancy or youth; subsiding on mature age; hereditary.

Two conditions of the body are to be described in treating of scrofula. The first, the appearance of the person predisposed to scrofula; and the second, the appearance of the disease when formed. The scrofulous constitution is observed to be, in many instances, denoted by particular symptoms. It has been said that the complexion is fair, and the colour of the hair either reddish or of some other light tint; but people with dark complexions and black hair are equally subject to scrofulous complaints. The skin is remarkably soft and white, and the face often has a shining polished smoothness. The cheeks are in general florid; and the tunica albuginea is frequently of a dead white colour, and more pale than usual. The edges of the eye-lids are affected with a degree of tenderness which easily degenerates into a troublesome inflammation, that distresses the patient by its continuance, and produces a disagreeable degree of deformity. This redness is very common and remarkable. There is likewise very frequently a swelling of the upper lip, with some thickening of the nostrils and point of the nose.

One of the most frequent symptoms of scrofula is a swelling in the superficial lymphatic glands, especially in those of the neck. Such glands swell without any previous complaint, and often attain a large size before the swelling attracts notice. The swellings are frequently unaccompanied with pain or discolouration. The same indolence and absence of inflammatory symptoms, which characterize scrofulous swellings of their glands, likewise distinguish similar affections in other parts of the body. The commencement of the attack is, in general, unperceived, and the progress slow; though the tumefaction which follows is frequently very considerable.

The greater number of scrofulous affections are accompanied with a preternatural swelling of the parts attacked. The tumour is of two kinds; one remarkable for its soft-

ness,

ness, the other of a more firm consistence. Soft scrofulous tumours are always formed by the effusion of a fluid; and it may be remarked that they are somewhat variable in their size, being one day more prominent and tense, the next more sunk and flaccid. When they are opened in the early state, they are found to contain nothing but a serous fluid, which lies in the cells of the cellular membrane. As the fluid is not contained in one common cavity, the tumour has a soft flabby feel, and imparts to the fingers of a surgical examiner no distinct sensation, either of elasticity or fluctuation. But, when the fluid has been for some time effused, a striking difference occurs, a fluid lodged in a particular cavity now being evidently perceptible. This change seems to proceed from the destruction of the partitions which are between the cells of the cellular substance. As these collections, however, are not accompanied with any sensible degree of inflammation, they are not surrounded with a firm, solid, circumscribed base; and they do not betray any great tendency to ulcerate the skin, and burst of their own accord. Hence they sometimes become very prominent, and the skin is gradually distended to a surprising degree.

The matter contained in such tumours also undergoes a change. After a time, the more solid parts are deposited in the form of little masses, resembling coagulated milk. The remaining portion of the fluid is rendered thinner, and resembles whey. A quantity of purulent matter is also formed on the internal surface of the cavity, which seems to be attacked with a slow kind of inflammation. The admixture of this purulent matter greatly changes the appearance of the contents of the tumour, and they now bear more resemblance to those of a common abscess. They never acquire, however, exactly the properties of healthy purulent matter, being always thinner, more transparent, and more of a greenish colour.

Although the tendency to ulceration is not considerable, the skin at length gives way, and allows the matter to escape through a narrow opening. After the contents are evacuated, the tumour subsides; but, there being in general little disposition in the parts to heal, a scrofulous sore is usually formed, which discharges unhealthy matter, and continues open for an indefinite length of time.

The other more firm kind of scrofulous swelling always increases slowly, and most commonly attacks the neighbourhood of joints. The affected part enlarges, without acquiring any circumscribed determinate form. By degrees the tumour becomes softer; and at last particular portions near the surface become more prominent, inflame, suppurate, burst, and discharge matter. But, as the suppuration is only partial, and the discharge inconsiderable, they have little effect in diminishing the size of the swelling, or in producing any other change of importance. The only difference occasioned is the addition of little ulcerations, which lead to sinuses, and emit matter.

A common abscess, in a person of a scrofulous constitution, often exhibits appearances which betray the diseased state of the system. The matter first secreted is formed with extraordinary rapidity; the swelling is somewhat more transparent, the surface more shining, and the colour of the tumour more blue, than is observable in a case of healthy abscess. Scrofulous abscesses also contain, before they burst, a larger quantity of purulent matter, in relation to their size, than common phlegmonic abscesses. When abscesses in scrofulous patients burst, an empty cavity is not left; but there is seen a mass of cellular membrane apparently deprived of life. It resembles wet cotton, and often separates in the form of a solid mass. The separation is effected without pain. This state of the cellular membrane bears some remote analogy to the death of the central parts in a carbuncle; but it differs from the latter disease by there being no malignity, pain, nor danger.

The bones of scrofulous people partake of the general disease in the constitution; they seem to contain a smaller proportion of the phosphate of lime, and a larger one of gelatinous matter, than what exists in the composition of a healthy bone. They are also exceedingly susceptible of morbid action. The particular changes, however, induced in the bones by scrofula, are not to be treated of in this place.

With regard to scrofulous ulcers, their margin is commonly of a pale red or purplish cast, with a shining surface; the edges in general thin; and the surface of the fore sunk somewhat below the level of the surrounding parts. These sores are mostly attended but with a small degree of inflammation, and little pain; they are not very sensible, and have no great disposition to spread. The matter discharged from them is viscid, having very little colour, and often an offensive smell. In consequence of its viscidly it adheres to the surface of the sore, and covers the granulations. It is to be observed, however, that scrofulous ulcers sometimes assume a more malignant aspect, having elevated indurated edges, and fungous central granulations, accompanied with pain and an ichorous discharge. In these cases, they may counterfeit the appearance of cancerous ulcers; but, though the resemblance may be very imposing, we are in general able to ascertain the real nature of the case, by tracing its history from the commencement, and by inspecting the rest of the patient's body with accuracy; when the vestiges of former scrofulous sores, or other proofs of a scrofulous constitution, often manifest themselves.

Scrofulous sores often continue to discharge for a long while, with very little change of appearance. In time, however, they begin to heal, and, for the most part, dry up altogether at last, leaving a very ugly red irregular cicatrix, upon which the skin seldom recovers its natural look. In general, scrofulous complaints are most troublesome in the spring, and get better towards the end of the summer.

Scrofula is an hereditary disease. It is doubtful whether it can be communicated by contact, or even inoculation. Kortum tried to transfer scrofula from one person to another by inoculation; but, although he took great pains to insert the matter completely, and repeated the experiment frequently, yet all his attempts failed, as no disease was communicated to the person inoculated, nor even any very evident irritation excited at the place where the matter was inserted. Yet it is unquestionably propagable by transfusion of blood from the diseased horse, not only to other horses, but to asses, as has been lately proved by professor Coleman at the Veterinary Institution.

The remote causes of scrofula are well established. Every circumstance capable of prolonging for a certain space of time irritation of the bowels; an alteration in the quality of the blood from injuries of the nervous system; and, above all, a cold and humid atmosphere; will produce scrofula. The last cause is perhaps the most frequent of all. The means of cure are therefore obvious. The same regulations that we have advised under phthisis, for exciting and strengthening the skin, are to be put in force. The diet should be regulated; the secretions of the mucous membranes gently excited. In performing the first indication, much stress has been laid by Mr. Lloyd upon the necessity of warm clothing. This is a very important matter. Flannel should be worn next the skin; and the patient should use every means in his power to keep up a regular temperature of the body. For this purpose, the dress should be as heavy at one period of the day as another; and the practice of sleeping under too many bed-clothes avoided; there being good reason to believe that a great majority of persons err in this latter respect. Cold bathing, *when followed by re-action*, should also be enjoined; and the patient should remove to a less humid air than that in which he has been accustomed to live. The regulation of the digestive organs embraces

embraces modifications of dyspeptic treatment obvious enough. The bowels are to be kept regular; and the hepatic secretion excited, if depraved in quality or deficient in quantity. For opening the bowels, the mildest purgatives only must be used, irritation of the mucous membrane being sedulously avoided; for irritating cathartics *aggravate* the disease. According to the condition it happens to be in, the stomach will require to be excited by gentian, steel, and aromatics; or, on the contrary, to have its morbid secretions corrected by sedatives and alkalies. The diet will be regulated by the same criterion. In most cases solid animal food may be allowed; but this of course will depend on the powers of digestion, since, if the food be not properly digested, little must be taken, and that reduced to a pulpy consistence. If morbid growths are large, and their continuance dangerous, much may be effected towards their dissolution by extreme abstinence, and the exhibition of small doses of antimonials daily. The external treatment of scrofulous tumours, ulcers, &c. is obvious. Little, in the majority of cases, need be done. If they put on an inflammatory appearance, the usual means for the reduction of inflammation is to be put in force; if they are indolent, slight irritants, or, as the case demands, counter-irritants, must be resorted to. The treatment of scrofulous ulcers and abscesses will receive further notice under the article SURGERY.

2. *Struma mesenterica*: affecting the mesenteric glands; countenance pale; appetite infirm; abdomen tumid; excrements usually peculiarly fetid.

The nature of this species of scrofula is pretty evident. The application of irritating matter to the termination of the mesenteric absorbents is the primary cause. This irritant is either improper food, or food undigested in consequence of dyspepsia. The irritation on the oral extremities of the absorbents causes an inflammation of their vessels, which is communicated to their glands; the inflammation destroys in a great measure the absorbing property of the vessels; and, when the inflammation terminates in deposition of morbid matter, as tubercles, &c. those properties are entirely lost; consequently the supply of chyle to the blood is stopped, emaciation and debility follow, and the patient dies. The detail of symptoms is sufficiently full in Dr. Good's definition. As to the treatment of the malady, this is to remove the exciting causes; under which plan, during its early stages, the disease may be removed. Gentle doses of calomel, althelminitics, wholesome diet, and the other measures used in the treatment of diseases arising from gastric, bilious, or intestinal, irritation, are to be adopted. In the latter stages of the disease, extreme abstinence appears to be the only means capable of arresting the deposition of tuberculous matter. Dr. Uwins has related a case, in which very minute doses of digitalis, we believe one drop, gradually increased, effected a cure. Most practitioners trust to small doses of calomel and opium.

The symptoms of this complaint are very similar to what Dr. Gregory has called "scrofulous inflammation of the peritoneum." It is very nearly the same complaint, except that the irritation does not seem to be derived from the intestines. The treatment of this latter disease, with the addition of occasional blistering, is the same as in the *Struma mesenterica*.

Genus VII. *Carcinus*, [from *καρκινος*, *cancer*, a crab; on account of the cancriform or crab-like ramifications of the dark distended veins of the tumour.] Cancer. Generic characters—A scirrhus livid tumour, intersected with firm whitish divergent bands, chiefly of the secretory glands; pains acute and lancinating, often propagated to other parts; terminating in a fetid and ichorous ulcer. Dr. Good makes but one species.

Carcinus vulgaris; tumour burning, knotty, with dark cancriform varices; ulcer, with thick livid retorted lips.

A hard unequal tumour that is indolent, and with-

out any discoloration in the skin, is called a *scirrhus*; but, when an itching is perceived in it, which is followed by a pricking, shooting, or lancinating pain, and a change of colour in the skin, it is usually denominated a *cancer*. It generally is small in the beginning, and increases gradually; but, though the skin changes to a red or livid appearance, and the state of the tumour from an indolent to a painful one, it is sometimes very difficult to say when the scirrhus really becomes a cancer, the progress being quick or slow according to concurring causes. When the tumour is attended with a peculiar kind of burning shooting pains, and the skin hath acquired the dusky purple or livid hue, it may then be deemed the malignant scirrhus, or confirmed cancer. Mr. Pearson further adds, when thus far advanced in women's breasts, the tumour sometimes increases speedily to a great size, having a knotty unequal surface, more glands becoming obstructed, the nipple sinks in, turgid vessels are conspicuous, ramifying around, and resembling a crab's claws. These are the characteristics of an occult cancer on the external parts; and we may suspect the existence of one internally, when such pain and heat as hath been described succeed in parts where the patient hath before been sensible of weight and pressure, attended with obtuse pain. A cancerous tumour never melts down in suppuration like an inflammatory one; but, when it is ready to break open, especially in the breast, it generally becomes prominent in some minute point, attended with an increase of the peculiar kind of burning shooting pain, felt before at intervals in a less degree, and deeper in the body of the gland. In the prominent part of the tumour, in this state, a corroding ichor sometimes transudes through the skin, soon forming an ulcer; at other times a considerable quantity of a thin lymphatic fluid, tinged with blood from eroded vessels, is found in it. Ulcers of the cancerous nature discharge a thin fetid acrid sanies, which corrodes the parts, having thick dark-coloured retorted lips; and fungous excrescences frequently rise from these ulcers, notwithstanding the corrosiveness of the discharge. In this state they are often attended with excruciating, pungent, lancinating, burning, pains; and sometimes with bleeding.

Though a scirrhus may truly be deemed a cancer as soon as pain is perceived in it, yet every painful tumour is not a cancer; nor is it always easy to say whether a cancer is the disorder or not; irregular hard lumps may be perceived in the breast; but on examining the other breast, where no uneasiness is perceived, the same kind of tumours are sometimes found, which renders the diagnosis uncertain. Yet, in every case after the cessation of catamenia, hard unequal tumours in the breast are suspicious; nor, though without pain, are they to be supposed indolent or innoxious. Barren women, old maids, and those who mismenstruate, are chiefly the subjects of cancer.

The nature of cancer is unknown. It has long been disputed, whether it was a *general* disease, a portion of the fluids determined by different causes to the affected part, or whether any accident to the organ diseased altered its former habits, so as to produce a poisonous corrosive fluid instead of the usual salutary one. We regard it as *local*; and in this opinion many of the best practitioners of the present day, among whom are Mr. Abernethy and Dr. Baillie, concur. All its symptoms impress the notion that it is a local inflammation, as far as regards the vascular system, in which the secretions, from hereditary predisposition (which we cannot admit to exist in the blood), or from other at present unknown causes, lose their natural functions, and acquire a faculty of secreting a new and peculiar poison. This action of the secretions is so excessive, that no known agents are capable of controlling it. The arguments adduced in favour of the *general* origin of the disease are these; that it is hereditary, and often met with in the same family. This can be no argument in favor of it, were it not presumed that

hereditary predisposition consists in a peculiar crisis of the blood. But this is so far from proved, that the opinion that the state of the nervous system constitutes predisposition has the most supporters. Thus it is said by Dr. Parr (see his article CANCER), that in six cases in which he found cancer heal, the same disease broke out in other parts; or apoplexy, enteritis, &c. supervened. This proves nothing; or, if any thing, rather against the proposition of the cachectic origin of the malady. For, as to the occurrence of cancer in another part when an old cancer is healed, does this prove the blood diseased? does not the same thing follow the healing of simple ulcers, and the reduction of common phlegmon? yet no one will refer these maladies to diseased blood. And again; how does it happen that apoplexy and enteritis follow the cure of cancer? according to this mode of argument, cancer of the brain or bowels should ensue!

At present no remedy for cancer is known; nor has any plan of treatment been laid down for its early stages which should warrant us in neglecting to urge, with all the eloquence we are masters of, the extirpation of the diseased part. Previous to amputation of the breast, however, much care will be requisite to regulate the digestive organs, the state of fulness of the sanguineous system, and, in women, above all, that of the catamenial flux. Dr. Good makes two varieties of this species.

α. C. pullulans: granulating occasionally, and giving delusive hopes of a cure; pains passable.

β. C. spongiosus, (Fungus hæmatodes, *Wardrop*;) with fungous and bleeding excrescences; heat and pain violent.

The latter disease was first described by Mr. Hey, in his *Practical Observations in Surgery*. "It is a bloody tumour, which forms in every part of the body: painful when seated in the muscles; but producing little inconvenience when in the cellular substance. It distends the integuments; but does not, like an abscess, render them thinner. When pressed with the hands, one part will give the sensation of a deep-seated fluid; in another the tumour is hard and uneven. When the integuments burst, the appearances are sometimes those of an excoaration only; sometimes a dark bloody mass protrudes through the aperture. Where the fungus comes into contact with the muscles, they lose their natural redness and their fibrous appearance, becoming brown, and like the adipose membrane. When the fungus appears through the skin, it bleeds copiously, and the hemorrhage is frequently repeated till the patient sinks; neither the hydrargyris nitratus ruber, the hydrargyris muriatus, antimonium muriatum, or undiluted vitriolic acid, can repress its growth. Amputation is the only remedy; and if the tumour has begun at the lower part of a limb, and the slightest portion is left at the upper, the disease returns. It appears to be an organised, and has been fancifully conjectured to be a living, parasitic animal, nourished by the vital fluid of the patient, and capable of absorbing from the subjacent vessels what is effused from its own."

Genus VIII. *Lues*, [from *λυω*, to dissolve, or corrupt.] The Venereal disease. Generic characters—Ulcers on the genitals, inguinal buboes, or both, after impure coition; succeeded by ulcers in the throat, copper-coloured spots on the skin, bone-pains, and nodes. It is now considered as divided into two species.

1. *Lues siphilis*, the common siphilis, or pox: ulcers on the genitals circular, ungranulating, thickened at the edge; those of the throat deep and ragged; symptoms uniform in their progress; yielding to a course of mercury, not known to yield spontaneously.

2. *Lues siphilodes*, pseudo-siphilis, sibbens, or sivvens: ulcers undeterminate in their character; symptoms irregular in their appearance; usually yielding spontaneously; variously affected by a course of mercury.

This is perhaps only a variety of the preceding; and many other varieties might be noted, but they have not hitherto been sufficiently defined for classification; for

which reason, and because a full account of the various conflicting opinions upon the nature and various forms of this disease would increase this article to an enormous size, we must (having given the early and popular history under *LUES*, vol. xiii.) refer for farther particulars to the article *SYPHILIS*.

Genus IX. *Elephantiasis*, [so denominated by the Greek physicians, because the skin of persons affected with this disease resembles that of the elephant in thickness, ruggedness, insensibility, and dark hue.] Elephant-skin. Generic characters—"Skin thick, livid, rugose, tuberculate; insensible to feeling; eyes fierce and staring; perspiration highly offensive;" testicles wasted. See the article *LEPROSY*, in this work. There are three distinct species.

1. *Elephantiasis Arabica*, the black leprosy. (This is the *Elephantiasis* of *Arctæus*, *Sauvages*, and *Cullen*.) Tubercles chiefly on the face and joints; fall of the hair except from the scalp; voice hoarse and nasal; disorder contagious, and hereditary.

2. *Elephantiasis Italica*, so called by Dr. Good, because "for a knowledge of it we are almost exclusively indebted to Italian physicians, by whom it is called *Pellagra*, *skin-affection* from *pellis* and *αγρα*; a barbarous term, as compounded of two different languages." It is otherwise called *Mal del Sole*, as if brought on by the heat of the sun. In this species, the tubercles are chiefly on the body and limbs; sometimes desquamating: great tension of the skin; vertigo; burning lancinating pain in the head; melancholy; at first remitting, afterwards fixed, terminating in alienation of mind: hereditary.

3. *Elephantiasis Asturiensis*: (*Mal de la Rosa*, *Spanish*, *Lepra Asturiensis*, *Sauvages*.) Tubercles chiefly on the hands and feet; crustaceous, desquamating; continual tremor of the head and upper part of the trunk; baldness of the scalp as well as of other parts: gloom and terror of mind.

Genus X. *Bucnemia*. [from *βου*, an augmentive particle, and *νημα*, the leg.] Tumid leg. Generic characters—Leg enormously tumid and misshapen; skin thickened, livid, rugose; often scaly; scrotum, arms, or other parts, sometimes participating in the affection. Only one species, called

Bucnemia Indica, or *Barbadoes-leg*; bones and muscles of the affected limb sound; its motion little impeded by its weight.

This disease, says Dr. Good, "is, in truth, the *dal fil*, or elephant-leg of the Arabians, the *Barbadoes-leg* of modern writers, and for which no proper technical name has hitherto been offered. Though frequently called *elephantiasis*, from a misunderstanding of the secondary meaning of two unequivocal terms in two different languages, it is without the essential character of tubercular eruptions; while unlike the *Elephantiasis*, which extends over the whole body, it is always limited, and often confined to a single limb. It makes, however, an approach to *Elephantiasis*, and ought therefore to range near it, but it cannot be included in the same genus. It is very generally known both in the East and West Indies, in Arabia, and along the whole range of the *Polynesian Isles*; in which last it is denominated *yava-skin*; as being supposed to originate from drinking the heating beverage called *yava*; and, like the gout among ourselves, is regarded in a sort of honourable light. Instances of it are frequently to be met with in our own country; and, in a case that occurred to the author about a twelve-month ago, the patient, from an attempt to repel it, was suddenly attacked with a fit of gout in the stomach, which destroyed him in three days. Here, however, gout was a constitutional disease."

Genus XI. *Catacausis*, [Gr. burning.] General combustibility of the body. No generic characters are given, and only one species noted by Dr. Good, which is

Catacausis

Catacausis ebriosa: the combustibility occasioned by a long and immoderate use of spirituous liquors; and producing combustion spontaneously. For instances, see Phil. Trans. vol. xliii. and lxiv. Journal de Physique, l'an viii. Le Cat's Memoires; and the article BURNING in this work, vol. iii. p. 533. Since that article was printed, we have met with some cases more recent and more extraordinary than any there related.

In the year 1811, John Heinrich Kopp, M. D. professor of chemistry at Hanau, published at Frankfort a little treatise with the laudable view of exciting attention to spontaneous combustions of the human body; and especially as being necessarily subject to juridical investigation. Seventeen authenticated cases of this kind of combustion are related. Sixteen of these occurred to females, and the seventeenth to a man. This last has the peculiarity of the person surviving the accident three days, and of his being able to give some account of the circumstances and sensations by which it was accompanied. The singularity of this case induces us to give a translation of it; but we regret that it did not come under the immediate observation of Dr. Kopp; it is cited by him from a Florentine journal, in which it was inserted by Joseph Battaglia, a surgeon at Porte Basto, who attended the patient. "Don G. Maria Bertholi, a priest, who lived on Mount Volere, in the neighbourhood of Fivizzani, went on business to a fair at Filetto. After having walked about the whole day, he went, toward evening, to Fenile, and put up at a relation's. Immediately after his arrival, he retired into his bed-room, and desired to have a handkerchief placed on his back, under his shirt. In a few minutes after this, being left by himself, a singular noise, mingled with cries, was heard from his bed-room. The people of the house rushed in, and found the priest stretched on the floor, surrounded by a small lambent flame, which retired as the persons approached, and at length entirely vanished. He was immediately put to bed, and the next morning (says Battaglia) I visited him. On a careful examination, the integuments on the right arm were found loosened from the muscles, and hanging down. Between the shoulders and thighs the integuments were equally injured. An incipient mortification appeared on that part of the right hand which had been most injured. On the second day, this part was in a complete state of gangrene. On the third day, the mortification had extended to all the injured parts. The patient now had excessive thirst and fever, violent convulsions, putrid evacuations from the bowels, constant vomiting, and delirium. On the fourth day, after lying two hours in a state of torpid sleep, he expired. At my last visit, during this course, I (Battaglia) saw with astonishment that the putrescence had already made rapid advances; the body of the patient emitted a most insupportable stench; worms were seen crawling from him; and the nails fell from his fingers. To the question how this accident had happened, the patient answered, that he first felt a blow, as with a club, on his right arm; and had observed, at the same time, a spark hanging to his shirt; and that the latter had in a moment been converted into ashes. The handkerchief, which had been placed on the bare skin of the shoulders, was found entire, and not even scorched. The drawers he had on were also left untouched, but the night-cap was quite consumed, though not a hair of the head was burned. That this diffused fire had consumed the skin, the shirt, and the whole night-cap, without touching the hair, is a fact I (Battaglia) can fully warrant. The night, on which this phenomenon happened, was calm, and the air clear. Not the least empyreumatic smell, nor the least trace of fire or smoke, was perceived in the room. The lamp, previously filled with oil, was dry, and its cotton incinerated. No external cause can, with probability, be assigned for this deplorable accident: if Maffei had still been alive, he would have availed himself of it as a plain proof that a lightning proceeds from within and destroys us; as noticed in the

article BURNING, quoted above. This is the only instance upon record of the calamity having happened to a man.

The last case we shall mention is one in which two persons were involved in destruction at the same time. It was read to the Medical Society at Paris, by Dr. Charpentier, physician to the royal forces of the marine, at Guerigny, near Nevers. "On the 12th of January, 1820, at ten o'clock in the evening, several neighbours of Mrs. P. of Nevers, perceived a peculiar odour, which they thought similar to that of broiled animal matter and burning wool, only more disagreeable and nauseous. They saw neither smoke nor vapour issue from any of the adjacent houses; and at last, agreeing among themselves that this odour was produced by the burning of the remains of an old Carmelite nun, who had died in the neighbourhood that day, they retired to bed without making any further inquiries. On the 13th, in the morning, a woman, living near the place, who had a second key to the door of the house, because she was in the habit of going there daily to assist the servant in attending on her mistress, opened the door to go and perform her ordinary duties. On entering the room, a dense vapour issued out, accompanied with an insupportable stench, that almost suffocated her. She retreated from the house, crying out in the most violent manner for help. The neighbours came about her; and, after waiting a few moments to let the vapour escape, they proceeded to examine the state of the room, they found neither Mrs. P. nor her servant. At first they saw no appearance of dead bodies, but they immediately recognized that Mrs. P.'s bed was entirely burned. Its different parts, however, preserved their form; but, on the slightest touch, it all sunk away, and the bedstead, mattress, feather-bed, sheets, blankets, and woollen curtains, were reduced to a cinder. Before they stirred these cinders they examined the fire-place, in which they found no wood, nor any charcoal, in combustion: the fire had not been covered, and it had probably gone out for want of wood. A candlestick stood in the fire-place, and another, on the ground, in the middle of the room; there was no candle in either of them.

"On proceeding to examine the ashes, or remains of the combustion, there was found, in front of the spot which had been occupied by the bed, the extremity of a leg covered by a stocking, with a shoe on the foot, and which was recognized to be part of the right leg of the servant. It was the only portion of the body of this woman that had not been reduced to ashes. The cranium of the mistress, devoid of the scalp, which had been burned, was found in a situation corresponding with that in which the head would be as the woman lay in bed. This was the only portion of her body that had not been utterly destroyed by combustion, excepting a small fragment of the neck, or rather the skin of the neck, that had been enveloped in a red kerchief, and of which there were yet some remains immediately attached to the preserved portion of the neck.

"Although the room had no ceiling, the beams and rafters, which were very near to the top of the bed were not burned; but they were black, and felt very hot. All the things about the room, especially such as were close to the bed, were extremely humid; which was owing, without doubt, to condensation of the dense vapours with which the room was filled on being first entered. A wooden clock, hung up against the wall beside the bed, fell into ashes on the first movement.

"There were no other persons in the house but these two women. The mistress was ninety years old, the servant sixty-six; they were both of a weak constitution, thin and meagre; their food was bad, although the mistresses had an income of 6000 francs. She, for some time past, had drunk eau de Cologne to great excess; and had eaten hardly any thing since this habitual abuse of spirits. The servant ate but little; she now and then

took

took a little brandy; but her nourishment consisted chiefly in good old wine, hot and well sugared. She often took this in sufficient quantities to make her tipsy. It is believed that the excessive cold of the night (14° Fahrenheit) had led her to drink to excess."

Genus XII. *Porphyra*, [Gr. purple, or livid.] Scurvy. Generic characters—Livid spots on the skin from extravasated blood; languor, and loss of muscular strength; pains in the limbs.

The term *scurvy* has been most erroneously and absurdly used in popular language; having been applied, in fact, to all *diseases of the skin*, of a slow and chronic nature, however various in their essential character, and possessing nothing in common with the true scurvy. The skin, in scurvy, is *not* the seat of the disease, but is only deranged, like other organs of the body, in the progress of the malady; and that derangement is totally different from the inflammatory, pimply, pustular, or scaly, conditions of the skin, which occur in leprosy, tetters, and other cutaneous disorders, usually misnamed *scorbutic*. This mistake requires correction, not merely as a matter of nomenclature, but because a great practical error results from it; namely, the administration of antiscorbutic remedies in these cutaneous disorders, which cannot be cured, and are often aggravated, by them. The late Dr. Willan conferred a benefit on the profession, by his definite discrimination of these last-mentioned disorders.

The scurvy, properly so called, was first accurately described, and received its name, in modern times; and it is the subject of dispute, as in the case of some other diseases, whether it was known to the ancient physicians, or is a malady of more recent origin. The first specific accounts of the disease appeared in the early part of the sixteenth century, when the name of the malady seems to have been familiar among the vulgar: but the symptoms were noticed by the early voyagers in the preceding century; for considerably more than half the crew who accompanied Vasco de Gama in his voyage round the Cape of Good Hope, in the year 1497, were destroyed by this disease. Olaus Magnus, in his History of the Northern Nations, published in 1555, has described it at considerable length, and states that it was known to the inhabitants of Saxony by the name of *schorbuk*, or *scorbuc*; whence the Latin term *scorbutus*, and our appellation *scurvy*. The term signified "sore-mouth; and was probably applied to the disease in consequence of the spongy ulcerations of the gums, with hæmorrhages, and loosening of the teeth, which are among the more severe symptoms of the complaint. Dr. Lind, however, suggests, with still more probability, that the name was derived from a Slavonic word, *scorb*, signifying "disease;" the scurvy being endemic in the northern countries of Europe, from whence we borrowed the appellation.

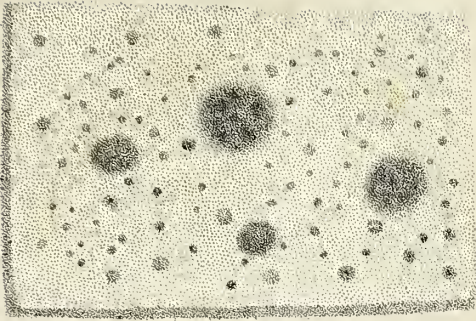
Most of the continental writers have maintained, that although the ancients have not described the symptoms of scurvy, as a single distinct disease, they have, however, mentioned several concurring symptoms, which can scarcely be supposed to belong to any other malady; while Drs. Freind, Lind, Trotter, and some other authors of this country, contend, that the Greeks, Romans, and Arabians, residing in southern climates, and unpractised in long voyages, probably never witnessed the scurvy, and thence have no-where accurately described it. The rarity of the disease, under such circumstances, will probably account for the imperfect descriptions which they have left: but sieges and seasons of great dearth were not uncommon in those times, and gave rise at least to the *ignis facer*, which appears to have been nearly allied to scurvy; and the following observations relate to no other known disease. Hippocrates, when describing the diseases of the spleen, mentions some symptoms which accompany the enlargement of that organ: "The colour of the body," he says, "is changed, and becomes black and pallid, like the rind of a pomegranate; the breath is fe-

tid, and the gums also emit a bad smell, and fall away from the teeth; ulcerations break out in the legs, resembling *epinyctides*; the limbs are emaciated, and the bowels do not discharge their contents. (Lib. de Internis Affect.) And again, in his second book of Prognostics, Hippocrates observes, "In those who have tumid spleens, the gums are diseased, and the mouth emits a fetid odour; but those whose spleens are enlarged without any consequent hæmorrhages, such persons are attacked with ill-conditioned ulcers in the legs, and black scars." Here we have an additional symptom of scurvy, viz. the hæmorrhages, which were omitted in the former description. Those, however, who expect to find only the utmost accuracy in the works of Hippocrates, will perhaps be surprised to find that he has again described, still more distinctly, the symptoms of scurvy under another appellation. For in the same book (respecting Internal Diseases) in which he has noticed the enlarged spleen, he mentions the symptoms of the *ilcus hæmolytes* (*εἰλεος αιματινῆς*), or "bloody iliac disease," in nearly the same terms: "This disease begins in the autumn, and exhibits the following symptoms. The mouth and teeth emit a fetid smell, and the gums separate from the latter, and blood flows from the nose; sometimes also ulcers break out in the legs, and, while some of these heal, others break out afresh; and the skin about them is of a black colour, thin, and tender." This may be deemed a good brief description of scurvy; and, if the commentators are right in their correction, the concluding symptom is equally characteristic: "the patient is indisposed to walk, or to use any exertion." The passage, as it stands in Hippocrates, however, asserts the affirmative, that the patient is disposed to exertion; a circumstance so inconsistent with ulcerations of the legs, hæmorrhages, and the other symptoms, that the commentators agree that the negative particle *α* must have been omitted. Van Swieten remarks, that the epithet of "thin or tender skinned," *λεπτοδερμοι*, which Hippocrates applies to those patients, is particularly characteristic of the scorbutic state; since we observe in the scurvy, that the slightest injuries break into the skin, and leave stubborn ulcerations in it; and this more remarkably happens in the legs, where only scratching them with the finger-nails will often raise an excoriation, that is followed by an ulcer of long continuance." (Comment. in Boerh. Aph. 1148.) Celsus, when treating of the affections of the spleen, mentions this indisposition of ulcers to heal: "Ulcerata aut omnino non sanescunt, aut certe cicatricem vix recipiunt." And we may add, that the opinions of the commentators, respecting the sentence above mentioned, is confirmed by the statement of Celsus, who distinctly asserts, that exertion is painful and difficult.

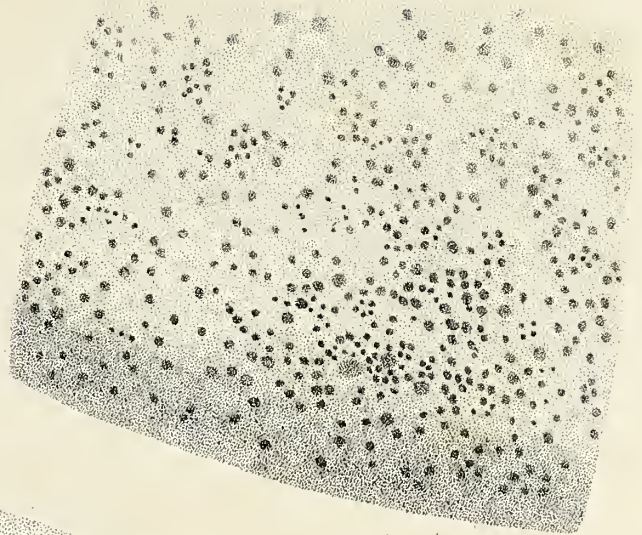
A disease is also mentioned by Strabo and Pliny, as occurring in the Roman armies in particular situations, which can only be referred to scurvy. In this disease, which Pliny ascribed to drinking the water of a certain well, when it occurred in the army of Germanicus while encamped near the Rhine, an affection of the gums, with a falling-out of the teeth, is said to have been combined with a loss of muscular power in the lower extremities; the former affection being called *stomacace*, (quasi *στοματις κακια*, soreness of mouth,) and the latter *scletetyrbe*. (Nat. Hist. lib. xxv. cap. 3.) Similar affections, to which the same appellations are given by Strabo, are said to have prevailed in the army of Ælius Gallus, when in Arabia. (Geograph. lib. xvi.) Some authors, however, have denied that this *scletetyrbe* could be a scorbutic symptom; because Galen has stated *scletetyrbe* to be a kind of paralysis, in which the patient is unable to walk straight; but such a term might be sufficiently appropriate to that rigidity of the joints which often occurs in scurvy.

On the whole, therefore, we are disposed to believe, with the early writers upon this subject, that the *scurvy* was known to the Greek, Roman, and Arabian, physicians; although, from its comparative rarity in southern climates,

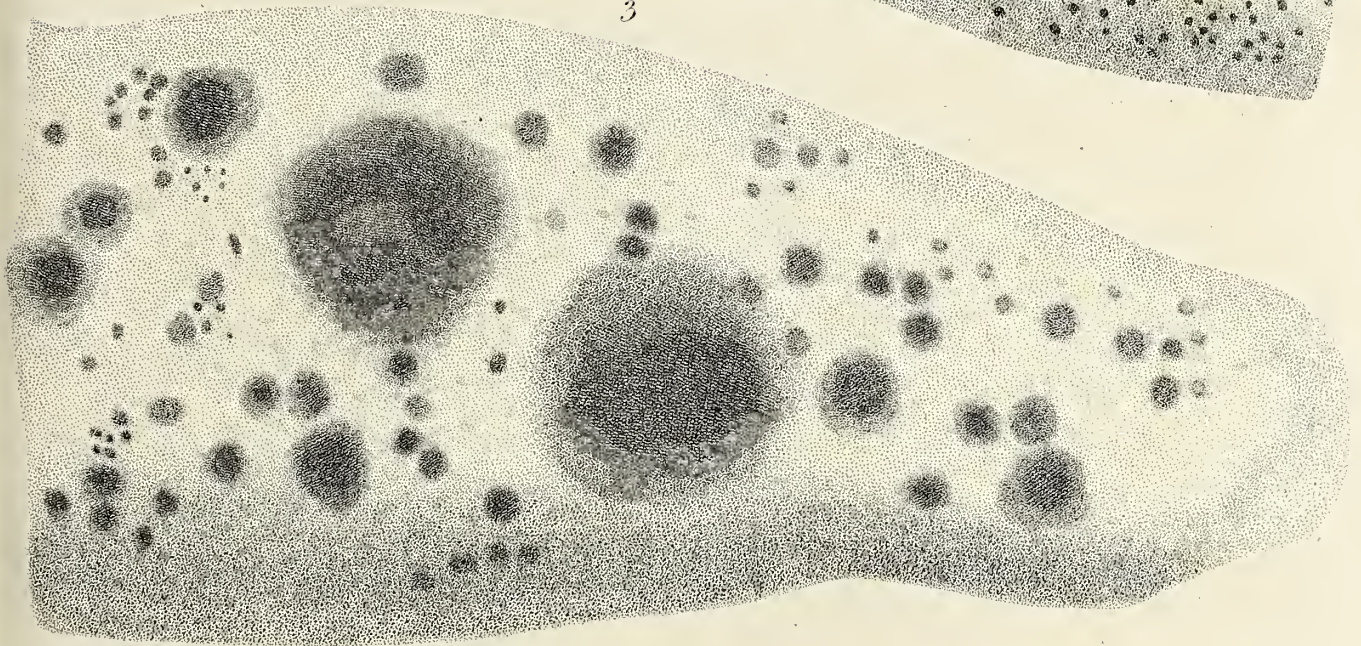
2



1



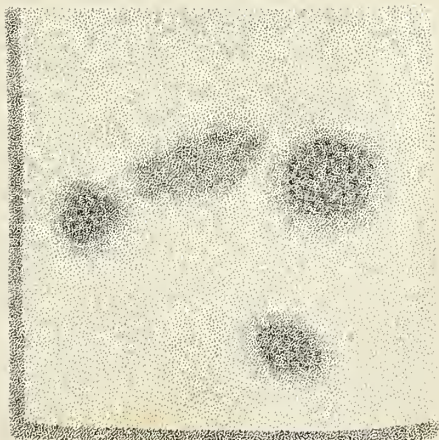
3



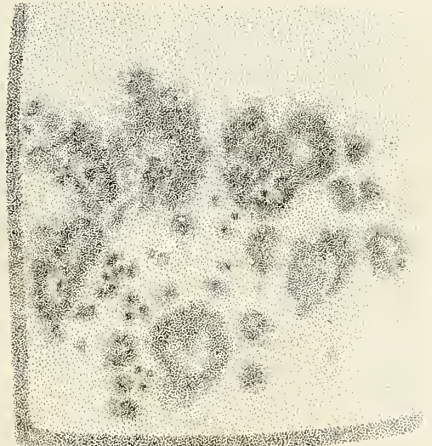
4



5



6



1. 2. *Porphyria simplex*. 3. *P. hemorrhagica*. 4. 5. 6. *Erythema roseola*.

J. Pass sc

climates, it did not occur so often or so extensively as to claim their attention very strongly. In our present state of knowledge, it is divided into three very distinct species.

1. *Porphyra simplex*, petechial scurvy: spots numerous, but small and flea-bite shaped; chiefly on the breast, arms, abdomen, and legs; paleness of visage. There are two varieties.

α. *P. pulicosa*, (*Purpura simplex*, *Willan and Bateman*.) In this variety, which is exhibited on the annexed Plate V. fig. 1. there is an appearance of petechiæ, or extravasations under the cuticle, without much disorder of the constitution, except languor, and loss of the muscular strength, with a pale or fallow complexion, and often with pain in the limbs. The petechiæ are most numerous on the breast, and on the inside of the arms and legs; and are of various sizes, from the most minute point to that of a flea-bite, and commonly circular. They may be distinguished from recent flea-bites, partly by their more livid or purple colour, and partly because, in the latter, there is a distinct central puncture, the redness around which disappears on pressure. There is no itching, or other sensation attending the petechiæ.

β. *P. urticans* (see the same Plate, fig. 2.) is distinguished by this peculiarity, that it commences in the form of rounded and reddish elevations of the cuticle, resembling wheals, but which are not accompanied, like the wheals of urticaria, by any sensation of tingling or itching. These little tumours gradually dilate, but, within one or two days, they subside to the level of the surrounding cuticle, and at the same time their hue becomes darker, and at length livid. As these spots are not permanent, but appear in succession in different places, they are commonly seen of different hues; the fresh and elevated ones being of a brighter red, while the level spots exhibit different degrees of lividity, and become brown as they disappear. They are most common on the legs, where they are frequently mixed with petechiæ; but they sometimes appear also on the arms, thighs, breast, &c. The duration of the complaint is various, from three to five weeks. It usually occurs in summer and autumn; and attacks those who are liable to fatigue, and live on poor diet; or, on the contrary, delicate young women, who live luxuriously, and take little exercise. Some œdema of the extremities usually accompanies it, and it is occasionally preceded by a stiffness and weight of the limbs.

The cure of the above-mentioned varieties is often difficult. Viewing the diseases as arising from dyspepsia, we should direct an alteration to be made in the diet of the patient, and the bowels to be kept regular. Indeed active purging has been recommended by the best authorities. The state of the skin, as far as regards its itching or other unpleasant sensation, will also require palliative measures, as the warm bath, &c. The debility of the system may be in some measure obviated (when the diet and bowels are regulated) by mineral acids and bark, or by gentian.

2. *Porphyra hæmorrhagica*, land-scurvy: spots circular, of different sizes; often in stripes or patches, irregularly scattered over the thighs, arms, and trunk; occasional hæmorrhage from the mouth, nostrils, or viscera; great debility, and depression of spirits. See the Plate, fig. 3.

We often see persons in whom the very slightest bruises or impressions turn black. This is most generally the case in old persons; and is indeed commonly observed in an inverse ratio to the vigour of the muscular structure. It is evidently the result of want of contractile powers in the capillary vessels, which consequently give way, and allow extravasation; or in which, from the same cause, the blood stagnates. An extreme susceptibility to this lividity is seen in the patients of *P. hæmorrhagica*, except in cases comparatively sudden in their accession, and attended from the first with high inflammatory symptoms.

This species, like the former, is also remarkable for the appearance of petechiæ; but these, as Dr. Bateman says, are "often of a larger size, and are interspersed with vibices and ecchymoses, or livid stripes and patches, resembling the marks left by the strokes of a whip, or by violent bruises. They commonly appear first on the legs, and, at uncertain periods afterwards, on the thighs, arms, and trunk of the body; the hands being more rarely spotted with them, and the face generally free. They are usually of a bright red colour when they first appear, but soon become purple or livid; and, when about to disappear, they change to a brown or yellowish hue; so that, as new eruptions arise, and the absorption of the old ones slowly proceeds, this variety of colour is commonly seen in the different spots at the same time. The cuticle over them appears smooth and shining, but is not sensibly elevated: in a few cases, however, the cuticle has been seen raised into a sort of vesicles, containing black blood. This more frequently happens in the spots which appear on the tongue, gums, palate, and inside of the cheeks and lips, where the cuticle is extremely thin, and breaks from the slightest force, discharging the effused blood. The gentlest pressure on the skin, even such as is applied in feeling the pulse, will often produce a purple blotch, like that which is left after a severe bruise.

"The same state of the habit which gives rise to these effusions under the cuticle, produces likewise copious discharges of blood, especially from the internal parts, which are defended by more delicate coverings. These hæmorrhages are often very profuse, and not easily restrained, and therefore sometimes prove suddenly fatal. But in other cases they are less copious; sometimes returning every day at stated periods, and sometimes less frequently and at irregular intervals; and sometimes there is a slow and almost incessant oozing of blood. The bleeding occurs from the gums, nostrils, throat, inside of the cheeks, tongue, and lips, and sometimes from the lining membrane of the eyelids, the urethra, and the external ear; and also from the internal cavities of the lungs, stomach, bowels, uterus, kidneys, and bladder. There is the utmost variety, however, in different instances, as to the period of the disease in which the hæmorrhages commence and cease, and as to the proportion which they bear to the cutaneous efflorescence.

"This singular disease is often preceded for some weeks by great lassitude, faintness, and pains in the limbs, which render the patient incapable of any exertion; but, not infrequently, it appears suddenly, in the midst of apparent good health. It is always accompanied with extreme debility and depression of spirits: the pulse is commonly feeble, and sometimes quickened; and heat, flushing, perspiration, and other symptoms of slight febrile irritation, recurring like the paroxysms of hectic, occasionally attend. In some patients, deep-seated pains have been felt about the præcordia, and in the chest, loins, or abdomen; and in others a considerable cough has accompanied the complaint, or a tumour and tension of the epigastrium and hypochondria, with tenderness on pressure, and a constipated or irregular state of bowels. But in many cases, no febrile appearances have been noticed; and the functions of the intestines are often natural. In a few instances frequent syncope has occurred. When the disease has continued for some time, the patient becomes fallow, or of a dirty complexion, and much emaciated; and some degree of œdema appears in the lower extremities, which afterwards extends to other parts. The disease is extremely uncertain in its duration: in some instances it has terminated in a few days; while in others it has continued not only for many months, but even for years."

Though the indications for the treatment of this disease are perhaps as clear as any in medicine, we are usually disappointed in our expectations of cure. The first thing to be done is of course to diminish the quantity of the circulating fluid. This practice is obviously cor-

rect: it immediately subtracts a portion of the irritant which keeps up the disease of the vascular system. The taking of blood, however, seems only useful in reducing the inflammatory action to which its morbid quality has given rise. The amelioration of the *quality* of the blood is to be attempted by strict attention to the aliment from which the chyle is formed, and the state of the organs which assimilate it. It would take much time to expatiate here upon the peculiar regimen which would be necessary for particular patients. It is clear enough that no one plan of diet will cure the disease. If the patient has lived long on vegetables, animal food would of course be allowed in moderate quantities; if the action of the stomach seemed particularly debilitated, it might be proper to have the food so prepared by culinary processes as to excite and strengthen the assimilating function; and so on of other states.

Since the secretory system acts as an emunctory to the blood, its greater excitation should be enforced; always taking care, however, that the excitation be not so great as to direct the diseased action to the excited structure. Thus the bowels and kidneys should be excited, but only by the mildest purgatives and diuretics.

In restraining the local hemorrhage, the tinctura ferri muriatis, the sulphate of zinc, and the sulphuric acid, are the most efficacious substances that we know of. They may be used sometimes in a very strong form. Dr. Struve mentions a case in which he applied concentrated sulphuric by means of a pencil to bleeding petechiæ, and the hemorrhage ceased.

3. *Porphyra-nautica*, sea-scurvy: spots of different hues intermixed with livid, principally at the roots of the hair; teeth loose; gums spongy and bleeding; breath fetid; debility universal and extreme.

The very frequent connexion between long-continued use of solid meat and scurvy, has led to the supposition, that eating of much salt is the cause of scurvy; but this idea is now considered erroneous. The use of salt seems to produce scurvy only in consequence of its extreme quantity irritating and impairing the digestive organs; and moreover the loss of nutritious juices which salted meats undergo, may operate to retard assimilation: at all events, scurvy may be brought on by the use of substances in which salt forms a very small part; and it is most evidently increased or diminished in proportion to the degree of spirits or despondence which the mind of the patient undergoes. See a very remarkable instance of the state of mind in this disease, vol. xi. p. 500.

These two last and most important species were for a long period confounded together, considered to be diseases of debility, and consequently to be cured only by stimulating means. We are indebted to Dr. Parry for first showing the error of this idea. He first pointed out the important fact, that plethora was the state of body which attended the *Purpura hæmorrhagica*, or land-scurvy; and that the dreadful phenomena of this malady arose from morbid action of the blood-vessels; though it is allowed that this morbid action must result from morbidity of the blood itself in the first instance. The only similarity which is traceable between the land and sea scurvy is that in each the primary cause is disorder of the assimilating function. In most cases this arises from bad food, whether it be improper in quality, deficient or otherwise in quantity. The assimilating function is subject likewise to be influenced by causes foreign to the aliment itself. Thus we find salted meat produces the sea-scurvy, excess and irregularity of eating the land-scurvy and its peculiar varieties.

In the land-scurvy, the gastric or intestinal disorder exerts itself most especially on the capillary system, and that in a slow and gradual manner; while the condition of plethora is extreme, and worthy of particular attention in the cure. On the other hand, in the sea-scurvy, the muscular substance, in consequence of the deprivation of the fibrine of the blood, is first affected, and the

contractility of the capillary system secondarily; nor is plethora generally very apparent, nor the inflammation so violent as to require depletory measures. We have thought proper to introduce these cursory remarks for the sake of showing the justness of the present arrangement.

The following remarks apply, more or less, to the symptoms and treatment of all the species. The first indication of the approach of scurvy is an aversion to any sort of muscular exertion; a laziness, or strong inclination to sit still or lie in bed; which is accompanied with a spontaneous lassitude, or a sense of heaviness and pain throughout the body, and especially in the muscles of the limbs and loins, like that which arises from great fatigue, which soon becomes actual feebleness, so that the least exercise, especially in ascending or descending a declivity, induces fatigue and shortness of breath. With this aversion to motion and diminished power of exertion, there is also very early a change of the complexion, which becomes pale and bloated, or fallow, especially about the lips and corners of the eyes, where there is a greenish tinge. These two symptoms, indeed, the disinclination to exertion, and the fallow countenance, often portend the approach of scurvy, while the patient eats and drinks heartily, and seems otherwise in good health: and the speedy lassitude and difficulty of breathing upon motion, are among the most constant concomitants of the distemper throughout its course.

As the disease advances, other symptoms appear. Among these the *stomatocæ*, or morbid condition of the mouth, is one of the first that presents itself. The gums become hot and painful, and soon swell, growing soft and spongy, and of a livid hue, and afterwards extremely putrid and fungous, constituting one of the most distinguishing features of the disease. This occasions great fetor of the breath, and the loosening of the teeth, which become moveable in their sockets, and may be taken out without force or pain, and even fall out spontaneously. Hæmorrhages also take place from the slightest pressure on the gums, or even without any apparent cause, as well as from the nose; and ultimately from other parts of the body, where the cuticle is delicate, or the surface broken, in consequence of the apparent loss of cohesion in the solids, and especially in the vascular system.

From this cause the *skin* also exhibits some of the most striking characteristics of scurvy. It becomes dry, and spotted over with discolourations of a red, bluish, purple, and black, hue, of various sizes, from the *petechiæ*, or spots like flea-bites, to the most extensive *ecchymosæ*, of the size of a hand-breadth, or larger, such as are produced by the severest bruises. These appear chiefly on the legs and thighs; but often also on the arms, breast, and trunk of the body; and sometimes, though more rarely, on the head and face. They consist, in fact, of effusions of blood under the cuticle, from the rupture of the small vessels. As the disease advances, this laxity and loss of cohesion in all the solids becomes still more manifest, by the frequent and profuse bleedings which are liable to occur from different parts of the body; especially from the nose, gums, stomach, bowels, lungs, kidneys, and bladder, and from the ulcers and fungous excrescences which arise on the surface. In some patients, the hæmorrhages from the bowels are accompanied by severe pains and diarrhœa; while others, without either purging or gripes, discharge great quantities of pure blood by the anus. Other marks of laxity appear in the œdematous swelling which takes place in the legs, beginning first about the feet and ankles; which, however, is more painful than common anasarca, and retains longer the impression of the finger. They appear remarkably also, in the great facility with which the slightest bruises and wounds degenerate into foul fungous ulcers, as well as in the spontaneous appearance of such ulcers, and the breaking-out of long-healed sores, and even the disunion of old fractures in bones. "Whatever former complaints,"

plaints," Dr. Lind observes, "the patient has had, especially bruises, wounds, &c. or whatever present disorders he labours under, upon being afflicted with the scurvy, his old complaints are renewed, and his present rendered worse." Indeed the scurvy often first shows itself by the changes in diseased parts. "Thus, when a person has had a preceding fever, or a tedious sickness, by which he has been much exhausted, the gums for the most part are first affected, and a lassitude constantly attends; whereas, when one has been confined from exercise by having a fractured bone, or from a bruise or hurt, these weak and debilitated parts become almost always first scorbutic. As for example, if a patient labours under a strain of the ankle, the leg, by becoming swelled and painful, and soon after covered with livid spots, gives the first indication of the disease. And, as old ulcers on the legs are very frequent among seamen, in this case likewise the legs are always first affected, and these ulcers put on a scorbutic appearance, although the patient seems otherwise perfectly healthy, and preserves a fresh good colour in his face." The effect of the disease upon former maladies is strongly depicted by the elegant writer of Lord Anson's Voyage. "But a most extraordinary circumstance," says that gentleman, "and what would be scarcely credible upon any single evidence, is, that the scars of wounds which had been for many years healed, were forced open again by this virulent distemper. Of this there was a remarkable instance in one of the invalids on-board the Centurion, who had been wounded above fifty years before at the battle of the Boyne; for though he was cured soon after, and had continued well for a great number of years past, yet, on his being attacked by the scurvy, his wounds, in the progress of his disease, broke out afresh, and appeared as if they had never been healed. Nay, what is still more astonishing, the callus of a broken bone, which had been completely formed for a long time, was found to be hereby dissolved, and the fracture seemed as if it had never been consolidated." (Voyage round the World in 1740-4, by Lord Anson, compiled by the Rev. R. Walter, Chaplain to the Centurion, p. 102.) The ulcers, which occurred in the legs of the scorbutic patients on this occasion, are said to have been "of the worst kind, attended with rotten bones, and such a luxuriance of fungous flesh as yielded to no remedy." The edges of these scorbutic ulcers are of a livid colour, and puffed up with the fungous excrecences, which are not inaptly called by the sailors *bullock's liver*, since to this substance, when boiled, Dr. Lind says, they bear a near resemblance, both in consistence and colour. They often arise in the course of a night to a monstrous size; and, although destroyed by caustics or the knife, (in which last case, a copious bleeding commonly ensues,) are found at the next dressing as large as ever. Dr. Lind affirms, however, that "they continue in this condition a considerable time without tainting the bone." (Lind on Scurvy, pt. ii. ch. 2.) These scorbutic ulcers, which are singular and uniform in their character, are distinguished from all others by being so remarkably offensive, bloody, and fungous.

In addition to these affections of the lower extremities, (to which however they are not exclusively confined,) in the advanced stage of the scurvy, the patients most commonly lose the use of their limbs, having a contraction of the tendons in the ham, with a swelling and pain in the joint of the knee. Indeed, a stiffness in these tendons, and a weakness of the knees, appear pretty early in this disease, generally terminating in a contracted and swelled joint.

In the progress of the scurvy, the patients commonly complain of pains, which are often moving from part to part. Some complain of a general pain in their bones, which is most violent in the limbs and loins, and especially in the joints and legs; and a pain, with tightness and oppression, in the breast, is very common. The head

is seldom or never affected, unless the patient is feverish, which is unusual; for, as Dr. Lind well observes, the disease is altogether of a chronic nature, and fever may be justly reckoned among its adventitious symptoms. It is remarkable, indeed, that in the worst stages of the scurvy, with all the severe symptoms above described, with painful spreading ulcers of the surface, with contracted limbs, hemorrhages, spongy, putrid, stinking, gums, over-run with sprouting flesh, and often deeply ulcerated, with inability to make the least muscular exertion, without fainting, or perhaps dying; yet the patients, even in this stage, have a good appetite with their senses entire; and, though easily dejected and made low-spirited, yet, when in bed, they make no complaint of pain or sickness, and appear to be in tolerable health. This singular characteristic of the disease is well depicted by the reverend author before quoted. "Indeed, the effects of this disease," he says, "were in almost every instance wonderful; for many of our people, though confined to their hammocks, appeared to have no inconsiderable share of health; for they ate and drank heartily, were cheerful, and talked with much seeming vigour, and with a loud strong tone of voice; and yet on their being the least moved, though it was only from one part of the ship to the other, and that in their hammocks, they have immediately expired; and others, who have confided in their seeming strength, and have resolved to get out of their hammocks, have died before they could well reach the deck. And it was no uncommon thing for those who were able to walk the deck, and to do some kind of duty, to drop down dead in an instant, on any endeavours to act with their utmost vigour; many of our people having perished in this manner during the course of this voyage."

The principal phenomena described in the necrotomy of scorbutics, are the general extravasation of blood, and the dissolution and separation of parts naturally united. Thus the bodies of the muscles are often found swelled and hard, from the blood fixed among their fibres, so that the limbs remain bent or contracted; and the epiphyses of the bones are found separated, the cartilages of the sternum loosened from their union with the bony part of the ribs, or the ligaments of the joints are corroded and loose. The mesenteric glands are generally obstructed and enlarged, and the spleen bigger than natural, often falling to pieces as if it consisted of coagulated blood.

It is now generally understood that no medicines are of avail in the cure of scurvy unless the diet be improved; and that, if this be done, medicines are scarcely ever required. It has been found, that in the worst cases the administration of fresh vegetables has restored the sufferer to health. Among these vegetable productions, lemons hold the first rank. Indeed so universal has been the success which has attended the treatment of scurvy by the vegetable acids, that some have inferred that a want of oxygen in the blood is the proximate cause of this disease; an hypothesis however which is unsupported by facts. When lemons cannot be preferred, as in long voyages, citric acid is a very useful substitute. The scurvy, which was once so formidable in our navy as to destroy whole fleets, is now so far got under by the regulations introduced into our navy (chiefly through the exertions of Dr. Trotter), that it is scarcely more frequent than other diseases.

Genus XIII. *Exangia*, [from $\epsilon\zeta\alpha\gamma\gamma\iota\zeta\omicron$, to pour out from a vessel.] Enlargement or rupture of a blood-vessel, without external opening. There are two species.

1. *Exangia aneurisma*, aneurism: pulsating tumour of an artery. Three varieties.

a. *A. cysticum*, encysted aneurism: tumour circumscribed; formed by a dilation of the arterial coats within the sphere of the enlargement.

β. *A. diffusum*, diffused aneurism: tumour diffuse: formed by the flow of arterial blood into a subcutaneous cavity,

cavity, in consequence of a rupture of the coats of the artery.

γ. A. varicosum, varicose aneurism: tumour protracted: pulsating through a superincumbent and dilated vein from an injury common to both. For the treatment of these three varieties, see SURGERY.

δ. A. cardiognus: obtuse intumescence and constant disquiet of the præcordia; with a sense of internal weight and pulsation increased on the smallest motion. See *Carditis* of this article.

2. Exangia varix: soft livid tumour of a vein. See SURGERY.

Genus XIV. *Gangræna*, [from γραινω, to feed upon.] Gangrene; the death of a portion of the body, while the rest continues alive, and often in a sound state. There are four species.

1. *Gangræna sphacelus*, mortification: the dead part soft, moist, corrupt, and highly offensive. Divided into, α. G. inductus, which is preceded by fever, inflammation, local violence, or other exhausting power.

β. G. atonicus; the result of old age or other debility.

2. *Gangræna necrosis*, dry gangrene: the dead part dry, shrivelled, hard, and dusky. Two varieties here also.

α. G. albida, white gangrene: retaining the natural colour of the flesh.

β. Dicolor: the natural colour changed to livid, or a mixture of hues.

3. *Gangræna caries*: the dead part originating in, or extending to, a portion of the subjacent bone.

4. *Gangræna utrilaginea*, mildew-mortification, or ergot: gangrene dry, diffuse, divergent; commencing in the extremities without fever or intumescence, and spreading till various limbs drop off in succession: great hebetude of mind and body; often with violent spasms. See the article SURGERY.

Genus XV. *Ulcus*, [ελκος, derived by Eustathius from ελκω, *traho*, as though *distraho*, hereby producing a λυσις συνεχειας, or in the phrase of modern times, which is a literal rendering of the Greek, "solution of continuity."] Ulcer; a purulent or ichorous sore produced by the separation of a dead part. There are five species.

1. *Ulcus incarnans*: healthy, purulent, and granulating.

2. *Ulcus vitiosum*: with a vitiated surface and secretion. Three varieties.

α. *Callosum*: the edges indurated and retracted.

β. *Spongiosum*: with fungous or spongy excrescences.

γ. *Cancrosum*: with a hard, livid, lancinating, irregular, fetid, and frequently bleeding, tumour at its base.

3. *Ulcus sinuosum*: communicating with the neighbouring parts by one or more winding channels. Divided into,

α. *Recens*: the channel fresh, and yielding.

β. *Fistulosum*: channel indurated, and of longer standing. For the treatment of these three species, and their varieties, we must refer to the article SURGERY.

4. *Ulcus tuberculosum*, lupus, or *noli me tangere*: with tuberculous excrescences, lobed by ragged and spreading ulcerations: chiefly about the alæ of the nostrils.

This is a very rare but formidable disease. Very little is known as to its nature or treatment. It is a slow tubercular affection, affecting the nose, lips, or other parts of the face, or trunk of the body. It commonly ends in ragged ulcerations, which gradually destroy the skin and muscular parts to a considerable depth. Sometimes the disease appears in the cheek circularly, or in the form of a sort of ring-worm, destroying the substance, and leaving a deep and deformed cicatrix: and Dr. Bateman has seen a similar circular patch of the disease, dilating itself at length to the extent of a hand-breadth or more, upon the pectoral muscle.

"By surgical means; i. e. by the knife or the caustic, a separation has sometimes been made of the morbid from

the sound parts, and the progress of the disease arrested. And in some cases, where the ulceration was very slow, and unaccompanied by much inflammation, the internal use of arsenic has been found beneficial; a circumstance, which has probably given rise to the opinion, that cancer has been cured by that mineral. In three or four less severe cases of lupous tubercles in the face, which had made no progress towards ulceration, I have seen the solution of muriate of barytes, taken internally, materially amend the complaint. Bateman, p. 299. The disease is said to have been cured in some instances (vide *Med. Journal*, vol. xv.) by carbonate of iron.

5. *Ulcus cariosus*, (Caries, *Sauv. Linn. Cullen, &c.*) Ulcer extending into the substance of the subjacent bone. If the ulceration extends to the medulla, it is often called "arthrocace."

CLASS IV. NEUROTICA, [from νευρον, a nerve.]

DISEASES OF THE NERVOUS FUNCTION.

Order I. PHRENICA, [from φρηνη, the mind.] Affecting the Intellect. Error, perversion, or debility, of one or more of the mental faculties. This order contains six genera.

Genus I. *Ecphronia*, [from εκ, out of, and φρηνη, the mind.] Infanity. Generic characters—Diseased perception, with little disturbance of the judgment, occasionally shifting into diseased judgment, with little disturbance of the perception; diminished sensibility; irregular remissions. There are two very distinct species.

1. *Ecphronia melancholia*, melancholy: the discrepancy between the perception and the judgment limited to a single object, or train of ideas; for the most part with taciturnity, love of solitude, gloomy fear, or suspicion. Four varieties.

α. *M. attonita*: fixed, mute, immoveable, melancholy.

β. *M. errabunda*: roving, restless, melancholy; having a constant desire to change the abode.

γ. *M. malevolens*: morose or mischievous melancholy; occasionally terminating in suicide, or the injury of others.

δ. *M. complacens*: self-complacent and affable melancholy; occasionally rejoicing in a visionary superiority of rank, station, or endowments.

See, for examples of this last variety, *Hor. Sat. iv. Ep. ii. 2.* But of this modification one of the best examples that has ever been drawn, says Dr. Mason, "is that of Don Quixote, taken unquestionably from real life. This variety is connected with all the rest in the leading specific character of the discrepancy between the perception and the judgment being limited to a single object or train of ideas; but it differs from them by the intermixture of a certain degree of *eparxis*, or sentimental elevation, which destroys the common tendency to taciturnity, solitude, and gloomy apprehension."

The more common causes of the disease as a species are false views of religion; severe disappointment; longing after one's native country and friends; and continued grief.

2. *Ecphronia mania*, madness: the discrepancy between the perception and the judgment general; raving; antony; and impassioned emotion. Four varieties.

α. *M. ferox*: furious and violent madness.

β. *M. exultans*: gay and elevated madness.

γ. *M. despondens*: gloomy despondent madness. The despondent cases are more dangerous than those of hilarity.

δ. *M. demens*: chaotic madness.

We shall now proceed to give Dr. Good's arrangement of the remainder of this order; without any intention, however, of following our nosologist into an account of the nature or treatment of mental diseases. Indeed much as we respect the talents of Dr. Good, we cannot help smiling at his love of nosology when we find that musing, joy, jealousy, and even love, are styled diseases, of

of which we may say, as Ovid did long since of the last, that they are *nullis medicabilis herbis*.

Genus II. *Empathema*, [from *εν* and *παθημα*, of *πασχω*, to suffer.] Ungovernable passion. Generic characters—The judgment perverted or overpowered by the force of some predominant passion: the features of the countenance changed from their common character. Two species.

1. *Empathema entonicum*: the predominant passion accompanied with increased excitement, ardour, and activity: eye quick and daring; countenance flushed and tumid. Divided by Dr. Good into,

- α. *Iracundiæ*, wrath.
- β. *Superbiæ*, pride.
- γ. *Gloriæ famis*, ambition.
- δ. *Letitiæ*, joy.
- ε. *Philautiæ*, self-love, or self-conceit.
- ζ. *Zelotypiæ*, jealousy.

2. *Empathema atonicum*: the predominant passion accompanied with diminished excitement, anxiety, and love of solitude; eye fixed and pensive; countenance pale and furrowed. Six varieties.

- α. *Desiderii*, longing: eager desire for an absent object, whether place or person: and hence equally including home-sickness, country-sickness, love-sickness.
- β. *Auri famis*, avarice.
- γ. *Anxietudinis*, preying care.
- δ. *Mœroris*, heart-ache.
- ε. *Desperationitis*, despondency.

Genus III. *Alusia*, [from *αλυς*, *αλυσις*, *αλυσμος*, *oberratio*. Galen occasionally employs the second. The theme is *αλυω*, "errabundâ mente afficio; inquietus oberro:" whence the Latin *allucinatio*, and *hallucinatio*.] Illusion. Generic characters—The judgment perverted or overpowered by the force of the imagination; the spirits permanently elevated or depressed; the feelings of the mind depicted in the countenance. Two species.

1. *Alusia elatio*, mental extravagance: romantic ideas of real life; ardent and exalted fancy; pleasurable feelings; frequent pulse; great activity; eye keen and lighted up: countenance confident and animated. Divided into,

- α. *E. heroica*, chivalry or romantic gallantry. A generous and high-spirited flight of the imagination, but now grown obsolete, and rarely to be met with except in ancient tales and traditions.
- β. *E. facetosa*, high spirits; sparkling ebullient wit, incapable of restraining itself; that often sacrifices a friend at the shrine of a jest.
- γ. *E. ecstasica*, false inspiration; visionary conceits. The judgment urged to mistake energetic ideas for realities; to believe in phantasms; in an immediate communication with spirits, or in the power of working miracles. Examples may be found in all ages and in all religions. One of the most interesting is that of Saint Teresa in Butler's Lives. In our own day one of the most striking is that of Baron Swedenborg.
- δ. *E. fanatica*, fanaticism.

2. *Alusia hypochondriaca*, hypochondriacism: gloomy ideas of real life; dejected spirits; anxiety; dyspepsy; languid pulse; indisposition to activity; eye oblique and frowning; countenance gloomy and fullen. Three varieties, all perhaps proceeding from *Dyspepsia*, which see.

- α. *H. auralgica*, vapours: with visionary or exaggerated sense of pains, or disease; whimsical dislike of persons, places, or things; groundless apprehensions of personal danger, or poverty.
- β. *H. pentæsa*, spleen: with general listlessness, or disgust; irksomeness and weariness of life.
- γ. *H. misanthropica*, misanthropy: with general malevolence, peevishness, and abhorrence of mankind.

Genus IV. *Aphelia*, [from *αφελω*, to draw away.] Reverie. Generic characters—Voluntary inactivity of the whole or the greater part of the external senses to

the impressions of surrounding objects, during wakefulness. Of this disease, which, as Dr. Good justly observes, is almost, if not altogether, new to nosology, and has seldom been dipt into by physiologists, the doctor gives us three species.

1. *Aphelia focors*, absence of mind: truant attention; wandering fancy; vacant or vacillating countenance.

2. *Aphelia intenta*, abstraction of mind: the attention wound up, and rivetted to a particular subject; with sympathetic emotion of the muscles and features connected with its general drift.

3. *Aphelia otiosa*, brown study, or listless musing: leisurely listlessness; free surrender of the judgment to the sportive vagaries of the fancy; quiescent muscles; idle gravity of countenance.

Genus V. *Paroniria*, [from *παρα*, and *ονειρον*, dreaming.] Depraved, disturbed, or morbid, dreaming. Generic characters—The voluntary organs connected with the passing train of ideas overpowered by the force of the imagination during dreaming, and involuntarily excited to their natural or accustomed actions, while the other organs remain asleep. Three species.

1. *Paroniria ambulans*, sleep-walking, or somnambulism: the muscles of locomotion excited into their accustomed action by the force of the imagination during dreaming.

2. *Paroniria loquens*, sleep-talking: the muscles of speech excited into their accustomed action by the force of the imagination during dreaming.

3. *Paroniria falax*, night-pollution; (*Gonorrhœa dormientum*, *Cull.*) The sexual organs excited into venereal action by the force of the imagination during dreaming.

The reader will observe, that the term *Paroniria falax* is restricted to night-pollution from dreaming, and does not therefore embrace that kind of night-pollution which requires the aid of medicine.

Genus VI. *Moria*, [from *μωρος*, silly, foolish.] Fatuity; defect or hebetude of the understanding. Two species, subdivided into varieties.

1. *Moria imbecilis*, imbecility: defect or hebetude partial or confined to particular faculties of the understanding. Four varieties.

α. *Stupiditas*, stupidity: dulness and indocility of the apprehension; torpidude and poverty of the imagination.

β. *Amnesia*, forgetfulness: feebleness or failure of the memory.

γ. *Credulitas*, credulity: weakness and undue pliancy of the judgment, with facility of being duped.

δ. *Inconstantia*, fickleness: instability and irresolution of the will.

2. *Moria demens*, irrationality: defect or hebetude of all the faculties of the understanding. Three varieties.

α. *Stultitia*, silliness: shallow knowledge; feeble judgment; light frivolous fancy; for the most part with good nature, sometimes with obstinacy.

β. *Lerema*, dotage: impotence of body as well as of mind from natural or premature old age; childish desires and pursuits; drawling speech or garrulous babble, composed of ideas for the most part associated by previous habit.

γ. *Anœa*, idiotism: general obliteration of the mental powers and affections; paucity or destitution of ideas; obtuse sensibility; vacant countenance; imperfect or broken articulation; with, occasionally, transient and unmeaning gusts of passion.

Order II. *ÆSTHETICA*, [from *αισθησις*, perception, of *αισθανομαι*, to perceive.] Diseases affecting the Sensation. Dullness, depravation, or abolition, of one or more of the external organs of sense. This order contains five genera.

Genus I. *Paropsis*, [from *παρα*, bad, and *οψις*, sight.] Diseased vision; the sense of sight being vitiated or lost.

Under this genus, Dr. Good includes all diseases of the eye, except simple ophthalmia. We regret that we cannot in this place enter into an account of these maladies. When, however, it is considered, that the anatomical details, as to the structure, into which we must first enter, would be long, and that moreover the most compressed accounts of ocular maladies occupy a space much greater than could be introduced into this article, we are compelled to postpone the subject until we arrive at the article SURGERY. In the mean time we have much satisfaction in referring our readers to two works of the first excellence for all necessary information upon the diseases in question. We allude to the works of Mr. Travers and Dr. Vetch. Dr. Good's classification of these diseases, in which there appears no fault except that catarrh, glaucoma, &c. cannot be considered as nervous diseases, is as follows.

1. *Paropsis lucifuga*, night-sight: vision painfully acute in a strong light; but clear and pleasant in a deep shade or the dusk of the evening. Chiefly common to those who live almost constantly in dark inclosures, as mines or prisons; or who have recently had a cataract depressed or extracted; and to short-sighted persons. Found also, occasionally, as a symptom in ophthalmia, irritation of the optic nerve, and Hydrops capitis.

2. *Paropsis noctifuga*, day-sight: vision dull and confused in the dusk; but clear and powerful in broad daylight. It proceeds usually from a want of sufficient irritability in the retina; which, in consequence, is only excited to action by a strong stimulus, or powerful light; and hence does not clearly discern in the shade or towards the close of day. Hens are well known to labour under this defect; and hence they cannot see to pick up small grain in the dusk of the evening, and so employ this time in going to roost: on which account the disease is sometimes called *hen-blindness*.

3. *Paropsis longinqua*, long-sight: vision only accurate when the object is far off.

In the preceding species the hebetude seems chiefly to appertain to the *retina*: in the present species it belongs chiefly to the *iris*, which is habitually dilated, and not easily stimulated to a contractile action. For "it is well known," observes Dr. Wells, "to those who are conversant with the facts relating to human vision, that the eye in its relaxed state is fitted for distant objects, and that the seeing of near objects accurately is dependant upon muscular exertion." (Phil. Transf. 1811, art. xix.) There are three varieties,

α. *Vulgaris*: common to every period of life, and chiefly produced by habitual relaxation of the iris, mostly with somewhat too flat a cornea.

β. *Paretica*: from partial paralysis: as an absolute incontractility of the iris, by which the diameter of the pupil is rendered unchangeable, and a paretic of several other muscular powers of the eye is superinduced; while the retina continues perfectly sensible to the stimulus of light. For cases, see Phil. Transf. 1793 and 1811.

γ. *Senectutis*: from old age, in which the cornea usually grows less convex; and hebetude and relaxation become common to all the powers of the eye.

4. *Paropsis propinqua*, short-sight: vision only accurate when the object is near. Mice are supposed to have this kind of vision naturally; and hence the name that has been given to it of *myopia*, or mouse-sight.

5. *Paropsis lateralis*, skew-sight. In this species the patient can only see obliquely, in consequence of some partial obfuscation of the cornea (usually perhaps from scratches or slight scars), or of the humours through which the light is transmitted; or from a partial paralysis of the retina. This must not be confounded with *strabismus*, or squinting, which proceeds from a different cause, and is accompanied with different phenomena. In *lateral vision*, the axis of the eye affected usually coincides with that of the sound eye, though it runs somewhat obliquely to avoid the obstruction in the tunic. In

strabismus, the two axes do not coincide, and the judgment is formed from the strongest eye alone. If, however, in lateral vision, the obstruction be such as to make the optical axis of the affected eye at variance with that of the sound eye, squinting must be a necessary consequence of the disease.

6. *Paropsis illusoria*, false sight: imaginary objects floating before the sight; or real objects appearing with imaginary qualities. Dr. Good notes two varieties, and several sub-varieties.

α. *Phantasmatum*: ocular spectres, assuming various semblances; as, dark spots, the *muscæ volitantes* of various authors; net-work, sparks, dazzling, iridescence, &c. "These appearances (says Dr. Young) are sometimes, if not always, occasioned by an opacity of some of the vessels of the vitreous humour, near the retina. They are seen in a full light; and cannot, therefore, as Sauvages has justly remarked, be caused by any thing in the anterior part of the eye; and they may often be observed to change their form with the motions of the eye; which they could not do if they did not depend on some floating substance. Their apparent change of position, when we attempt to follow them with the eye, is a necessary consequence of the motion of the eye itself which contains them.

β. *Mutationis*: real objects changed in their natural qualities: hence proceed, error of form, when objects appear too large, too small, cut in half, distorted; error of motion, which consists usually in dancing, nodding, or rapid succession; and error of number, when objects are doubled, tripled, or otherwise increased or multiplied.

7. *Paropsis caligo*, opaque cornea, or web-eye: dimness or abolition of sight from opacity of the cornea, or spots upon its surface. "This is the foul fiend, Flibbertigibbet: he gives the web, and the pin, squints the eye, and makes the hare-lip." *Shakespeare*.

8. *Paropsis glaucosis*: dimness or abolition of sight from opacity of the humours.

9. *Paropsis cataracta*, cataract: dimness or abolition of sight from opacity of the crystalline lens. Three kinds.

α. *C. lenticularis*, lenticular: the opacity existing in the lens itself, and confined to it.

β. *C. capsularis*, capsular or membranous: the opacity confined to the capsule, or membrane of the lens.

γ. *C. complicata*, complicated: the opacity common to the lens and its capsule.

10. *Paropsis synizesis*: dimness or abolition of sight from contraction or obliteration of the pupil. Two varieties.

α. *S. simplex*, simple closure of the pupil. The pupil becomes closed or obliterated from progressive contraction, and at length coalition, of the muscular fibres of the iris; from inflammation of the surrounding membranes; or from protrusion of the iris. In all these cases it is called "simple obliteration of the pupil."

β. *S. complicata*; closure of the pupil complicated with cataract or an opaque cornea.

11. *Paropsis amaurosis*, gutta serena, or drop serena: dimness or abolition of sight, with an unalterable immovable pupil, usually black and dilated; but without any other apparent defect. Three varieties.

α. *A. atonica*; with permanent atony and dilatation of the pupil.

β. *A. spasmodica*; with permanent contraction.

γ. *A. intermittens*; with periodical cessations and returns.

12. *Paropsis staphyloma*, protuberant eye: enlargement of the ball of the eye; protuberance of the cornea; sight dim or abolished. *Staphyloma* is from *σταφυλη*, a grape, on account of the resemblance of the tumour to the pulpy and semi-transparent appearance of this fruit. Richter has the credit of having first pointed out the real nature of this disease, of which there are three varieties.

α. *St. simplex*; from increased secretion of the aqueous or other humour: pupil transparent.

β. *St.*

β. *St. purulentum*: from flow of pus from an abscess in one of the membranes; pupil cloudy. By Plenck called *onyx*, when between the lamellæ of the cornea; and *hypopyum*, when in the aqueous humour.

γ. *St. complicatum*; complicated with a rupture of the iris, and its protrusion upon the cornea; constituting a grape-like tumour; sight abolished.

13. *Paropsis strabismus*, squinting: optic axes of the eyes not coinciding on an object.

The optic axis is an imaginary right line passing from the centre of the vitreous humour, lens, and globe, of the eye, to the object of vision. In perfect vision, the optic axis of the one eye is in unison with that of the other, and consequently they converge or coincide at the same point; and the object, which would otherwise appear double, as being seen by each eye, is contemplated as single. In order to this coincidence, the muscles of each eye must constantly assume the same direction, their position and configuration be precisely alike, and the sight be of an equal power and focus: a deviation from each of which postulates must necessarily produce squinting, or an inaccordant action of one eye with the other. From common and early habit we acquire an equal command over the muscles of both, and are able to give them any direction, and to fix them against any object we please: and such is the power of habit, that at length they involuntarily associate in the same action, and it is difficult for us to give to the one eye a different direction from that of the other, or, in other words, to make their optic axes diverge instead of converge. In persons born blind, no benefit can be derived from this unity of action; hence it is never attempted; and, the muscles being never subjected to discipline, the eye-balls roll at random, and wander in every direction. And hence one of the most difficult tasks to be acquired by such persons after obtaining sight, is that of keeping their eyes fixed, and giving the same bearing or convergent line to each; and hence, again, they see things double at first, and in a state of great confusion. When one eye is naturally stronger, or of a more favourable focus, or more frequently employed than the other, as among watchmakers and jewellers, the latter from comparative neglect relapses into an undisciplined state, and less readily obeys the control of the will. Its muscles do not assume the same direction, and if they do, in the two former cases, the object appears double; and hence the neglected or weaker eye wanders and stares at one or at various objects, while the eye relied upon is fixed upon some other. And it is this divergence of the optic axes, this inaccordance of direction, or looking at different objects at the same time, that constitutes the disease called *strabismus*, or squinting. From the above-mentioned causes, we divide the species into three varieties.

α. *Str. habitualis*, from habit, or the custom of using one eye and neglecting the other; whereby the latter grows gradually more unsteady, and the will has no longer an equal command over both.

β. *Str. atonicus*, from debility of the affected eye; whence the sound eye possesses a different focus and power of vision, and is alone trusted to: in consequence of which the weak or neglected eye insensibly wanders as above.

γ. *Str. organicus*, differently constructed in form or position: so that the situation or figure of one eye, or of particular parts of one eye, are inaccordant with those of the other; whence, as in the preceding varieties, one eye is chiefly depended upon, and the other neglected.

14. *Paropsis ectropium*, eversion of the eye-lids: eversion of one or both the eye-lids; and consequent exposure of the red internal tunic.

The opposite affection, or *inversion* of one or both eye-lids, is denominated *entropium*. It is often a very troublesome complaint, from the irritation produced by the inverted eye-lashes. But it is, perhaps, in every instance a symptom or sequel of some other disorder, as a tumour

seated on the affected lid, or a contraction of its internal membrane from a cicatrix, or other cause.

Genus II. *Paracusis*, [*παρακουσις* of Hippocrates, from *παρα*, bad, and *ακουω*, to hear.] Sense of hearing vitiated or lost. There are six species.

1. *Paracusis acris*: hearing painfully acute, and intolerant of the lowest sounds. A symptom of increased nervous excitement, as in cephalitis, epilepsy, &c. When idiopathic, i. e. when a mere nervous disease of the part, and unconnected with general plethora or general exaltation of the cerebral function, it will require the same treatment as in other local irritations; that is, the subduction of noise, opening medicine, and, in violent and distressing cases, the belladonna may be used.

2. *Paracusis obtusa*: hearing dull and confused, and demanding a clear and modulated articulation. Hardness of hearing is divided into,

α. *Organica*; from organic defect.

β. *Atonica*, or nervous deafness; from local debility. This, which arises from deficient energy of the auditory nerves, is much relieved by electricity.

γ. *A meatu obstructo*; from obstruction in the auditory tube or passage; as by mucus, wax, fordes, an insect, or any other extrinsic body. When any substance is lodged in the part, it must be extracted by syringing; and in some cases, as where the Eustachian tube was closed in consequence of inflammation, the tympanum has been successfully punctured by Sir A. Cooper. For the mode of performing this operation, see the article SURGERY.

3. *Paracusis perversa*, perverse hearing: the ear only sensible to articulate sounds when excited by other and louder sounds intermixed with them.

Of this extraordinary disease, Sauvages has collected various examples from unquestionable authorities. The first case is that of a woman who could never understand what was spoken to her unless a drum were beating close to her at the same time; and who, on this account, kept a drum always in the house, which was constantly played upon while she was conversing with her husband. Another case is that of a bell-ringer, who could never distinguish speech except while the bells were ringing. A third case relates to a person who was always deaf except when travelling in a carriage; during which time, from the rattling of the wheels, he was perfectly capable of hearing, and engaging in conversation. Sauvages ingeniously ascribes this disease to torpitude or paresis of the organs of the external ear, which require this additional stimulus to rouse them into action, so as to convey the proper sounds addressed to them beyond the tympanum. And he closes with the following illustrations: "Sic somnolenti oculos non aperiunt, nec proinde aptant ad visum, nisi magna lux oculos commoveat; sic organa genitalia gæneonum à torpore excitantur quandoque per flagra, de quorum usu in reâ venerèâ scripsit Meibomius." Tom. I. 757.

4. *Paracusis duplicata*, double hearing: the action of the one ear inaccordant with that of the other: sounds heard doubly and in different tones or keys.

Sauvages has given two or three very curious examples upon this last affection: A musician, while blowing his flute, heard two distinct sounds at every note. The sounds were in different keys, and consequently not in harmony; and, as they were heard simultaneously, the one could not be an echo of the other. This singular affection seems to have been the result of a catarrh, and ceased on its termination. On another occasion he was consulted by a person who for several months antecedently had been troubled with a hearing of two distinct voices whenever he was spoken to: the one at least an octave higher than the other, but not in unison with it, and hence producing a harsh and insupportable discordancy. Tom. I. 756.

5. *Paracusis illusoria*, imaginary sounds: internal sense

sense of sounds, without external causes. Three varieties are given.

α. Syrigmus, ringing or tinkling; a sharp, shrill, succussive, sound.

β. Sufurrus, whizzing; an acute, continuous, hissing, sound.

γ. Bombus, beating; a dull heavy intermitting sound.

This appears to be very nearly of the same nature as the first species.

6. Paracufis surditas, deafness: total inability of hearing or distinguishing sounds. Three varieties are noted.

α. S. organica; from organic defect.

β. S. atonica; from local debility.

γ. S. paralytica; from local palsy.

Genus III. *Parosmis*, [from *παρα*, and *ὄσμι*, to smell.] The sense of smell vitiated, or lost. (*Anosmia*, *Sauv. Linn. Vog. Cull.*) There are three species.

1. *Parosmis acris*, acute smell: smell painfully acute, or sensible to odours not generally perceived.

Generally speaking, the sense of smell in all animals is in proportion to the extent of the Schneiderian or olfactory membrane with which the nostrils are lined, and over which the branches of the olfactory nerves divaricate and ramify. And hence this membrane is much more extensive in quadrupeds and birds, which chiefly trust to the sense of smell in selecting their food, than in man; for it ascends considerably higher, and is for the most part possessed of numerous folds or duplications. It is hereby the hound distinguishes the peculiar scent thrown forth from the body of the hare, and the domestic dog recognizes and identifies his master from all other individuals. Under peculiar circumstances, however, the ordinary apparatus for smell possesses an activity, and sometimes even an intolerable keenness, which by no means belongs to it in its natural state. M. Virey, who has written a very learned treatise upon the subject of odours, asserts that the olfactory sense exists among savages in a far higher degree of activity than among civilized nations, whose power of smell is blunted by an habitual exposure to strong odours, or an intricate combination of them, and by the use of high-flavoured foods. And he might have added, that this sense, like every other, is capable of cultivation, and acquiring delicacy of discrimination by use; that savages, many of whom make a near approach to the life of quadrupeds, employ it, and trust to it, in a similar manner; and that this is, perhaps, a chief cause of the difference he has pointed out. It is in like manner relied upon by persons who are deprived of one or two of the other external senses, as those of sight or hearing, or both; and in these cases it often acquires an extraordinary degree of nicety. In the interesting example of the boy born blind and deaf, lately given to the world by Professor Stewart, and who, in consequence was obliged to rely upon the two faculties of smell and touch alone, in discriminating almost all the objects that surrounded him, he is said, in Mr. Wardrop's history of the case, to have employed the sense of smell on all occasions, like a domestic dog, in distinguishing persons, and chiefly to have depended on it. By this sense he identified his friends and relatives; and conceived a sudden attachment or dislike to strangers according to the odour of the effluvium that escaped from the skin.

The Journal des Sçavans, anno 1667, gives a curious history of a monk, who pretended to be able to ascertain, by the difference of odour alone, the sex and age of a person, whether he were married or single, and the manner of life to which he was accustomed. This, as far as the fact extended, may possibly have been the result of observations grafted upon a stronger natural sense than belongs to mankind in general; and is scarcely to be ranked in the list of diseased actions. But among persons of a highly nervous or irritable idiosyncrasy, Dr. Good had met with numerous instances, and doubtless

other practitioners have also, of an acuteness of smell almost intolerable and distracting to those who were labouring under it, which has fairly constituted an idiopathic affection; and sometimes nearly realized the fanciful description of the poet, by making its possessors ready, at every moment, to "die of a rose in aromatic pain."

There is a curious and ingenious paper in the Transactions of the Swedish Academy, tom. i. from the pen of Linnæus, containing a variety of useful observations on the peculiar qualities given to the smell, taste, and other properties, of animals, in consequence of their feeding on different foods.

2. *Parosmis obtusa*, obtuse smell: smell dull and imperfectly discriminative.

3. *Parosmis expers*, want of smell: total inability of smelling or distinguishing odours. This may be,

α. Organica; from organic defect, or accidental destruction of the olfactory nerve, or its branches; or of the Schneiderian membrane over which they are spread.

Or,

β. Paralytica; from local palsy.

Genus IV. *Parageusis*, [from *γευσίς*, taste.] The sense of taste vitiated or lost. (*Ageusia*, *Sauv. and Cull.*) There are three species.

1. *Parageusis acris*, acute taste: taste painfully acute, or sensible to favours not generally perceived.

2. *Parageusis obtusa*, obtuse taste: taste dull and imperfectly discriminative.

3. *Parageusis expers*, total inability of tasting or distinguishing favours. The papillæ of the tongue destitute of gustatory nerves, or covered with a mucous or other sheath which they cannot penetrate.

The first and last species are perhaps chiefly symptomatic, though not always so. The second is common, and is often connected with obtuse smell; for physiologists have remarked a striking coincidence and sympathy between these two senses; and some have conceived them to be mere modifications of each other. Dr. Good had a lady of twenty-four years of age under his care, of great mental taste and accomplishments, who had always possessed a considerable hebetude of both senses. She could distinguish the smell of a rose from that of garlic, and the taste of port wine from mountain or madeira; but she could not discriminate between the odour of a rose and that of a lily; or between the taste of beef, veal, and pork; and consequently, upon all these points, had no preference or relish.

The loss of taste, and the peculiar changes of the same faculty, in fevers and most inflammatory diseases, are well known.

Genus V. *Parapsis*, [from *παρα*, and *αΐσις*, touch.] Sense of touch, or general feeling, vitiated or lost. Three species.

1. *Parapsis acris*: touch painfully acute, or sensible to impressions not generally perceived. Four varieties.

α. *P. teneritudo*, soreness: painful uneasiness or tenderness, local or general, on being touched, with a pressure usually unaccompanied with troublesome feeling. Occasionally unconnected and idiopathic, but more frequently a symptom or sequel of fevers, debility, lassitude, violent exercise, or catching cold.

β. *P. pruritus*, itching: painful titillation, local or general, relieved by rubbing.

γ. *P. albor*, coldness: sense of temperature, local or general, below that of pleasant and natural warmth. As an idiopathic affection chiefly local, and most common to the head and feet.

δ. *P. ardor*, heat: sense of temperature, local or general, above that of pleasant and natural coolness. As an idiopathic affection occurring chiefly in plethoric and irritable habits. Found also as a symptom in the second stage of fevers, inflammations, and entonic emphysema.

2. *Parapsis*

2. Parapfis expers; total insensibility to objects of touch. Divided into,

α. Simplex, numbness: confined locally or generally to the sense of touch; sometimes accompanied with un- easiness.

β. Complicata: complicated with insensibility in several or all the other senses.

3. Parapfis illusoria: imaginary sense of touch or general feeling in organs that have no existence. Common to those who have suffered amputation. Found also, occasionally as a symptom, in hypochondriasis and other mental affections.

Order III. ΚΙΝΗΤΙΚΑ, [κίνησις, from κινω, to move.] Disorders affecting the Muscles. Irregular action of the muscles or muscular fibres; commonly denominated *spasm*. This order contains four genera.

Genus I. *Entasia*, [from εντενω, to stretch.] Tonic spasm. Irregular muscular action, producing contraction, rigidity, or both. There are seven species.

1. *Entasia priapismus*, priapism; so called from Priapus, the son of Venus and Bacchus, who is usually thus represented in paintings and sculptures. Permanent rigidity and erection of the penis, without concupiscence. For the most part the consequence of cold, cantharides, clap, or dysury. It seems to arise from a spasmodic contraction of the ereciores penis, wholly unconnected with the state of fulness of the vesiculæ feminales. It is a disease of advanced life. Priapismus affords a striking instance of spasm arising from debility. Camphor and opium at night, with purgatives and diluents in the daytime, are the best remedies; but we can in general only palliate; the disease is seldom removed.

2. *Entasia loxia*, stiff-neck: permanent contraction of the flexor muscles on the right or left of the neck, drawing the head obliquely in the same direction. Three varieties.

α. *L. disparis*; from disparity in the length of the muscles opposed to each other.

β. *L. entonica*; from excess of muscular action on the contracted side.

γ. *L. atonica*; from direct atony of the antagonist muscles. Found also, occasionally, as a symptom, in sprains or inflammations of the neck; in catarrh; and in contractions of the skin of the neck from severe burns.

This and the following species will require to have their treatment varied according to the exciting cause; and, when not arising from inflammation or injury, may be subject to the same treatment as that which applies to atony of the muscles in general. These indications we shall more particularly develop under our description of Tetanus.

3. *Entasia articularis*, muscular stiff-joint: permanent and rigid contraction of one or more articular muscles or their tendons. Three varieties,

α. *Entonica*, articular spasm; from excess of action in the muscles contracted.

β. *Atonica*; from direct atony of the antagonist muscles.

γ. *Inusitata*; from long confinement or neglect of use. Found also occasionally, as a symptom, in articular inflammations, abscesses, and ulcers secreting an irritating fluid.

4. *Entasia trismus*, locked jaw: permanent and rigid fixation of the muscles of the lower jaw. This has also three varieties.

α. *Tr. nascentium*; attacking infants during the first fortnight after birth. Probably the result of acrimony in the stomach. This is principally found in hot climates; and results occasionally from irritation in the digestive organs, and in other cases from the irritable state of the divided funis. As it is seldom cured when once formed, practitioners in hot climates should be careful to keep the bowels open, and inspect occasionally the state of the funis.

β. *Tr. traumaticus*; occurring at every age as the con-

sequence of a wound, puncture, or ulcer; chiefly in hot climates.

The following varieties of this, and of all the next species, will be treated of together, as being of the same nature, and differing in appearance merely from the peculiar muscles affected.

γ. *Tr. algidus*; occurring after exposure to cold and damp, especially the dew of evening.

5. *Entasia tetanus*: permanent and rigid fixation of many or all the voluntary muscles; with incurvation of the body, and dyspnoea. Four varieties.

α. *T. anticus*, (*Emprothotonus*, *Auct. var.*) tetanus of the flexor muscles: body rigidly bent backward.

β. *T. dorsalis*, (*Opisthotonus*, *Auct. var.*) tetanus of the extensor muscles: body rigidly bent forward.

γ. *T. lateralis*: tetanus of the lateral muscles: body rigidly bent laterally.

δ. *T. catochus*: tetanus general, with little or no difficulty of breathing; chronic and periodical.

Tetanus is very strictly a nervous malady. It follows mechanical or chemical irritations, under circumstances of high temperature or irritable habit of body, and sometimes without these circumstances. The irritations are of various kinds. The most common is a wound, puncture, or bruise, particularly if a large nerve be wounded. Next in order come gastric and internal irritations; and these are so generally met with even when external injury exists, that one might almost infer that they always form a link in the chain of morbid action. Another cause is put down in medical systems; viz. the sudden application of cold to the heated body. From whatever cause, however, the irritation arises, its effects are exerted in such a manner on the muscular system, as to produce a rigid and permanent degree of contraction. Unlike what is observed in nervous diseases in general, this disorder does not abate when its original cause is removed. If the limb be amputated on which the irritating wound has been inflicted, no relief follows. Hence it seems that the violence of the irritation in the first instance causes an actual disease of the nervous system capable of exciting continually muscular action. What this state may be we know not. It has been asserted, that it is inflammation of the spinal marrow. The state of the vascular system does not bear out this assertion; neither is it borne out by the mode of attack, which generally comes on first in the jaw, a part not depending on the spinal marrow for its nervous supply. Moreover the effect of remedies does not bear out the above proposition; the most extravagant bleedings have often failed to procure relief; while stimulants have been sometimes successful. We should conclude, therefore, that tetanus is a disease which arises from irritation of the extremities of nerves, which consists in such a change of the nervous centres of motion, that they continually and excessively maintain their stimulation on the muscular powers; and that, when this state of disease (when it may be) is induced, it goes on independently of the causes which produced it. This explanation by no means involves the question, whether or not tetanus be spinal inflammation: it only refuses to adopt the affirmative, on account of the paucity of dissections on which it is founded.

The first symptom the attentive practitioner remarks in tetanus, is a transient stiffening of the limbs during sleep, and sometimes spasmodic twitches. Another symptom, which is only useful as indicating that tetanus is likely to occur, is suspension of the alvine discharges. The next symptom is slight stiffness in the back part of the neck and about the shoulders, which, gradually increasing, impedes the rotatory motions of the head, and also its flexion forwards: so that the patient cannot look downwards, or to either side, without turning his whole body. This uneasy feeling, being chiefly felt on motion, very much resembles what occurs from rheumatism, but it is accompanied with a sense of general lassitude and debility. The rigidity now extends from the back of the neck to the muscles

muscles of the jaw, and of the root of the tongue, so that both mastication and swallowing become difficult and painful; and at length impossible. The attempt at deglutition is attended with convulsive efforts; especially when liquids are endeavoured to be swallowed. So great is the distress which accompanies these convulsions, that the patient becomes very reluctant to renew the trials, and refuses all nourishment; and it sometimes inspires him with even a dread of the sight of water.

As the disease advances, another set of symptoms appears, bringing with them a considerable increase to the sufferings of the patient. A sudden and violent pain is felt shooting from the lower extremity of the sternum to the spine, in the situation of the diaphragm. These spasms recur from time to time, at short intervals; and at each recurrence, give the signal for an immediate aggravation of all the other spasms. The muscles of the neck and jaw are immediately called into violent action; the head is pulled strongly backwards; and the jaw becomes firmly clenched. These periodical accessions of spasm become more severe, and their effects more durable; so that the head continues to be in a state of retraction, and the jaw is permanently closed, the teeth being so firmly set together, as not to admit of the smallest opening. Such constitutions what may be regarded as the first stage of the disease; which sometimes takes up three or four days. At other times the disease establishes itself, with its whole train of dreadful symptoms, in a few hours; in which case the danger is imminent; as death generally takes place in from twenty-four to forty-eight hours, and the patient very rarely passes over the third day.

The continuance of the disease, if the patient survive the immediate attack, is marked by the increasing spasm of the diaphragm, which now returns every ten or fifteen minutes, and is instantly succeeded by a stronger retraction of the head, and rigidity of the muscles extending down the back, along the spine, and affecting even those of the lower extremities. Their contractions increasing in force, the body is frequently raised in the form of a bow, resting upon the head and feet alone: a state which is more particularly denominated *opisthotonos*. The countenance is pale and contracted; the mastoid, coraco-hyoid, and sterno-hyoid, muscles, together with the others concerned in deglutition, and the deltoid and pectoral muscles, are most violently contracted, so that the shoulders are strongly raised forwards, and the arms are stretched out, or drawn across the body; but the wrists and fingers seem not to be affected. In a few seconds a remission takes place; the shoulders and arms recline, and the inferior extremities relax; yet not so entirely, but that generally such a degree of rigidity continues as to prevent their being bent, even when this is attempted by another person. The muscles on the sides and fore part of the neck continue still contracted, although not so strongly; but their action is overcome by the number and strength of the posterior ones; so that the contraction of the head constantly remains. The patient breathes quick for some minutes, as if he had been excessively exercised, and the pulse is small, fluttering, and irregular; but both become more calm and slow. The face is sometimes pale in the intervals, but oftener flushed; and the whole countenance expresses strong appearances of the most melancholy distress; as well on account of the terror the patient feels at the approaching paroxysm, as from the torture he has suffered from the last, of which the painful contractions he still feels perpetually remind him. He, for the most part, desires to lie still as much as possible, and to avoid all attempts at drinking, speaking, or any kind of motion; all of which are apt to occasion a return of the spasm in all its horrors. Some, indeed, are solicitous to try a change of position, in hopes of obtaining one of greater ease; but the act of turning the patient never fails to bring on an attack of the convulsion, by which the head is drawn back to the spine: and it is at length found, that the best means of avoiding this is for him to lie perfectly still on the back.

It may, in general, be observed, that the extensor muscles are affected with spasm before the flexors. In the lower extremities, indeed, both the flexor and extensor muscles are commonly at the same time affected, and keep the limbs rigidly extended: The flexors of the head, and the muscles that pull down the lower jaw, become affected in the progress of the disease, together with the abdominal muscles; so that the belly is strongly retracted, and feels hard, like a piece of board. The spasm of these and the other flexor muscles, becoming so powerful as to balance the action of the extensors, is a circumstance that marks the advance of the disease, and may be regarded as constituting the commencement of a *third stage*. In this situation the body and limbs are perfectly straight and rigid, and incapable of being moved in any way; and it is to this condition that the term *tetanus* has been more especially applied. It is a state of the most exquisite suffering: the patient is on the rack from the continual recurrence of the spasm, which has scarcely any remission. The recti muscles of the abdomen often contract unequally, producing the appearance of hard balls in particular parts. The whole belly is drawn inwards, and does not yield in the least to the descent of the diaphragm in inspiration. Although the lower extremities are always rigid at this period, yet their action is so violent during the height of the paroxysms, that, were it not for the standers-by, the patient would be projected feet-foremost off the bed; or would, at other times, be pushed upwards with such an impetus as to strike the head with great force against whatever might happen to be in the way. Occasionally, the flexor muscles acquire the preponderance over the extensors, and the trunk of the body is bent forwards, the chin being fixed to the breast. This is what has been called *emprostotonos*, and occurs only in the most violent, and of course the least frequent, form of the disease. It would appear from some cases reported by Sauvages, that these opposite states are disposed to alternate with one another.

In extreme cases, there are hardly any of the voluntary muscles that remain in their natural state. The face and eyes are distorted; the tongue is suddenly darted out between the teeth, and often miserably lacerated from their closing at the same moment. Even the small muscles of the ear partake of the spasmodic action, which so universally prevails in the system. While the tongue is thrust out, the muscular flesh, which is situated between the arch of the lower jaw and the upper part of the trachea, is drawn upwards within the throat. The countenance is much contracted; a general sweat breaks out; the eyes are watery and languid; and a pale or bloody froth bubbles out from between the lips. Tetanus, in these violent forms, is perhaps the most painful disease that can affect the human frame. So exquisite a degree of pain would scarcely be compatible with life, were it not occasionally assuaged by the short and imperfect remissions of spasm which occur. A more continued and severe spasm, or a general convulsion, generally finishes the tragedy, and releases the unhappy victim from all his misery: or, if already too exhausted by the severity of pain to admit of this mode of termination, delirium of sense ensues, protects the patient by a happy insensibility to further suffering, and smooths the avenue to death, which is then preceded by a general relaxation of the spasms.

Such are the symptoms which peculiarly belong to tetanus: and it is, perhaps, the most remarkable circumstance attending the disease, that hardly any function is primarily affected, except that of muscular action. The senses and appetites are perfect and entire; the intellectual functions are undisturbed; and the natural functions proceed in their usual course. Fever is neither an essential nor a common attendant on the disease. In the first stage, when the spasm is confined to a few muscles, the pulse is not affected: it becomes accelerated only when the spasmodic actions are general; and this merely in consequence, as it would appear, of the mechanical effect

effect produced on the blood-vessels by the contractions of the muscles, which will hurry on the circulation, and throw the blood upon the heart in larger quantity than usual, rendering the pulse contracted, frequent, and irregular. The respiration is hurried from the same cause, and the temperature of the body, as might be expected, is increased in the same proportion. That these symptoms are not the effect of fever, appears from the state of the blood, which is found to be of a looser texture than natural, and never exhibits the buffy coat, as in inflammatory diseases. On some occasions, indeed, when the disorder is very violent, the arterial actions are increased, and a febrile state prevails; and this appears to take place more frequently when the disease has originated from cold, than when it has been excited by wounds. The skin is at first natural, but, as the disease advances, is covered with a cold sweat. The tongue is always moist. Vomiting sometimes takes place early in the complaint, but it commonly subsides in the progress of it: it is even usual for the appetite of hunger to remain through the whole course of the disease; and what food can be got down appears to be sufficiently well digested. Some local effects seem to be attributable to the contractions of the abdominal muscles. The sphincter of the bladder is occasionally affected with spasm, so as to impede the discharge of urine, which is voided with pain and difficulty: at other times, its secretion is suppressed. When it can be observed, it is stated as being high-coloured; and somewhat turbid. The bowels are found to be, in every instance, obstinately costive, a state which may partly be accounted for by the effect of opiates, which are so generally administered for the cure; but which, independently of this cause, appears to be inherent in the disease itself. The bowels require the most drastic purgatives; and there is a great sense of uneasiness about the precordia. In the latter stages of this disorder, indeed, when the powers of life begin to decline from the vast expenditure of energy occasioned by the violent muscular actions, every function in the system partakes of the general disorder; the intellect gives way, and the patient sinks from exhaustion alone, if a general convulsion does not occur to hasten his end. It is mentioned by Dr. Cullen, that, in several cases, a miliary eruption has appeared upon the skin; but he expresses a doubt whether this was a symptom of the disease, or the effect of a certain treatment of it. It has not been observed, he adds, to denote either safety or danger, or to have any effect in changing the course of the distemper.

Tetanus arising from wounds is in general slower in its progress than that which proceeds from cold: but is attended with more danger to life. It is often eight or ten days, and sometimes much longer, after the infliction of a wound, before the first symptoms of tetanus make their appearance: and this frequently happens when the effects of the injury on the part itself appear to have subsided; when the wound has healed, and no pain or uneasiness has remained.

Sometimes the disease is very sudden in its accession, when it is also more severe. Generally, however, it makes its attack in the gradual manner before described. The most rapidly fatal case that has ever been recorded, is one that we have on the authority of the late professor Robison of Edinburgh. It occurred in a negro, who was a waiter at a tavern, and who happened to scratch his thumb with the broken edge of a china plate, and who died of tetanus a quarter of an hour after this apparently slight accident.

In the late campaigns of our armies in the peninsula of Spain and Portugal, according to the report of sir James Macgrigor, tetanus occurred in every description, and in every stage of wounds, from the slightest to the most formidable, from the healthy and the sloughing, from the incised and lacerated, from the most simple and most complicated. It occurred at uncertain periods; but it was remarked, that, if it did not commence before

twenty-two days from the date of the wound, the patient was safe.

As to the appearance of a fore which gives rise to tetanus, this is by no means peculiar. Some have stated that the fore is generally in an irritable and morbid state, and by no means disposed to suppuration. M. Larrey states that the wound is generally dry, or affords only a scanty serous exudation. Certain it is, however, that tetanus, as before noticed, is no uncommon attendant on wounds completely healed.

It has been supposed by many, that tetanus arose from the partial division of some nervous fibres, in consequence of which the undivided filaments were unequally and violently stretched: a state which would be remedied by their complete division. Experience, however, the stubborn enemy to so many hypotheses, has by no means proved favourable to this opinion. From the more violent forms of the disease hardly any instance of recovery has been known to take place. On the other hand, the mere protraction of the symptoms is an indication of the comparative mildness of the disease. Indeed it is a remark as old as Hippocrates, that, if a patient survives the fourth day without suffering an exacerbation of his complaint, he is safe. Dr. Parry has adduced the velocity of the circulation as an useful criterion of the danger of the disease; and observes, that, if the pulse be not above 100 or 110 by the fourth or fifth day, the patient almost always recovers; but, if it be quickened early, that it proves fatal; and yet there are a few instances of recovery where the pulse has risen to 120 on the first day. We must remark however, that, in upwards of twenty cases of this disease which Dr. Morrison witnessed among negroes, the pulse was in no instance accelerated in the manner related by Dr. Parry. This author never knew it above 98, whether the termination was favourable or fatal. The following prognostic passage we shall transcribe. "When the disease comes on gradually; when for the first three or four days the muscles of the jaws are solely affected, and that perhaps not in any alarming degree; when the abdomen is not preternaturally hard, or the bowels obstinately costive; when the skin is moist and moderately warm, and above all when the patient enjoys sleep; we may (by the means hereafter to be spoken of) entertain strong hopes of an eventual recovery. An increased flow of saliva, where mercury has or has not been used, is always to be regarded as favourable; the less the general air of the countenance is changed, the better. On the other hand, when the attack is violent and sudden; when the muscles of the neck, back, and abdomen, are rigidly contracted; when the patient complains of a shooting pain from the sternum towards the spine; when the belly feels hard like a board, and the least pressure thereon produces spasmodic twitchings or contractions of the muscles of the neck, jaws, &c. or when the same effect is brought about by the presentation of any substance (solid or fluid) near the mouth, we have much reason to fear a fatal termination. Spasmodic startings of the muscles set in sometimes early in the disease, and, recurring every eight or ten minutes, are to be regarded as very unfavourable."

The only disease which tetanus can be confounded with, is rabies contagiosa. In the latter, however, there is generally fever; frequently increased heat of the body. In rabies, vomiting is common at the commencement; not so in tetanus. The delirium, too, of hydrophobia, is absent in tetanus. The shooting pain from the sternum to the spine is seldom wanting in tetanus or present in the other.

Few patients fall a sacrifice after the ninth or tenth days, which period they never could have attained, unless the violence of the complaint had in a great measure subsided. In this milder form, however, it may be prolonged several weeks; and sometimes the spasmodic disposition remains even for months, before health is completely restored. The pulse, in these cases, continues

slow.

flow and hard, and the belly bound: but, if blood be drawn, it does not exhibit any difference from its usual state. Under every circumstance of recovery, indeed, the convalescent labours long under general debility, and cannot, for months, raise himself from a supine or recumbent posture without assistance, nor without pain.

Occasional deviations from the course above described are met with in different cases. The most singular of these anomalies is the one recorded by sir Gilbert Blane, in which tetanus prevailed to a very considerable extent, without affecting the patient with the least degree of pain. The spasms were, in this instance, accompanied with a tingling sensation, which was even rather agreeable than distressing. The case, however, terminated fatally; but, to the last, no pain was experienced. In two cases mentioned by the same author, the spasms affected only the side of the body in which the wound was situated.

The result of dissections of patients who have died of tetanus throws little light on the nature of this terrible affection. Sometimes there are found slight effusions within the cranium; but, in general, no morbid appearance whatever can be detected in the head. There appears to be always more or less of an inflammatory appearance in the villous coat about the œsophagus and stomach in the neighbourhood of the cardia. Besides the redness and increased vascularity of these parts, M. Larrey states that he found the pharynx and œsophagus much contracted, and covered with a viscid reddish mucus. Dr. McArthur found, in several cases, the intestines much inflamed; and in two of them a yellow waxy fluid, of a peculiar offensive smell, covering their internal surface: but whether the inflammation was primary, or only a consequence of the pressure of the abdominal muscles, which contract so violently in this disease, he is unable to decide. More recent dissections have displayed inflammation and its consequences in the spinal marrow; but the cases hitherto published are too few in number to allow us to draw general conclusions from them.

The obscurity which involves both the *ratio symptomatum* and the proximate cause of tetanic affections, has occasioned the practice in these disorders to be mostly empirical. The indication of cure which is generally applicable in all diseases, namely the removal of the exciting causes, has but little place in a morbid condition, which is the consequence of causes that in general have ceased to act, or which it is not in our power either to remove or control. In those cases where we could suppose local irritation to be still operating, the most effectual method of counteracting its effects on the system, would obviously be to intercept all communication between the seat of the irritation and the sensorium. If, however, the disease has already established itself, and the severe symptoms have come on, it does not appear that this would succeed in arresting the course of the disorder. Experience has but too fully shown, that amputation of the limb from the injury of which the tetanus had arisen, will very seldom procure even a mitigation of the symptoms, if performed after a certain period from their first appearance. This plan was fully tried in our army at Toulouse, and totally failed. In some instances, however, it is said that a favourable change has ensued, and that patients have even recovered by the sacrifice of the wounded limb: and it has been remarked, that the spasms relaxed immediately on the division of the soft parts by the knife, and before the saw was applied to the bone, in order to complete the operation. It is, therefore, highly probable, that *the free division of the parts above the wound*, or still more certainly the amputation of the limb, would, at a certain stage of the affection, secure the patient from the approach of tetanus. But the difficulty is here to estimate the probability of the patient's having the disease, as nothing short of the certainty of its being at hand could well justify the operation.

As it is matter of experience, that an early and highly irritable and painful condition of the wound has a ten-

dency to excite tetanus, as well as a state in which the discharge is of a peculiar unhealthy character, or is suppressed altogether, our immediate object should be to allay as much as possible the local irritation, and to re-establish a healthy secretion of pus. Mechanical causes of irritation should as much as possible be obviated, by early attention to remove splinters of bone, balls, or other foreign bodies that may be lodged in the wound. Poultices and soothing applications will answer the double purpose of quieting local inflammation, and bringing on healthy suppuration: the irritability of the surface may sometimes be most effectually destroyed by lunar caustic; after which, an emollient poultice may be applied. An opposite plan of treatment has been recommended by Dr. Rush; namely, that of exciting considerable inflammation in the wounded part, by epithems of turpentine, and other highly-stimulating applications; which, though it may in certain cases have succeeded in preventing tetanus, does not appear to be generally applicable, and seems accordingly to have been abandoned. On the contrary, it has of late been the universal practice in the navy, to add tincture of opium to the dressings applied to wounds, with a view of preventing tetanus. With the intention of re-exciting suppuration where there is no discharge, M. Larrey recommends the application of blisters as near as possible to the wound, and adduces instances of success from this mode of treatment.

But the cure of tetanus, when once it has commenced, is to be sought for more by the use of general than of topical remedies. The seat of the disorder has been transferred to the cranial and spinal nervous system, and our efforts must be directed to allay their inordinate action. Bleeding has received the fullest trials in tetanus. Occasionally this has cured the disease; occasionally it has mitigated the sufferings of the patient, and smoothed the way towards death; and so perfectly innoxious does it seem in all cases, that it may be fearlessly tried in all. A case has been related in which the application of leeches to the spine was attended with a good effect. It is given, however, on the authority of one who conceived that spinal inflammation and tetanus were the same.

The affusion of *cold water* has in general been attended with great benefit. It is a practice particularly recommended by Dr. Wright, in the London Medical Observations, and is sanctioned by the concurring testimonies of Dr. Cochrane in the Medical Commentaries, and of Dr. Currie in his Medical Reports, as well as by many other practitioners. A large pailful of cold water should be thrown upon the patient every two or three hours; he is to be immediately wiped dry, and laid in bed after each affusion, and an opiate draught administered. Some remission of the spasms will in this way be generally obtained; and many instances are upon record, of complete cures being effected by perseverance in this plan. Before the introduction of this practice, the warm bath was very commonly employed; the patient, after using it, being placed in bed, without being dried, between two blankets, with a view to bring out a sweat. It does not appear, however, that this plan was attended with any general or permanent advantage; and is certainly inferior in efficacy to the cold affusion.

But neither bleeding nor cold affusion offers so much to depend on in the cure of tetanus as active purging. The disordered state of the alvine discharges in this disease first led Mr. Abernethy to adopt the practice of purging for its cure; and of late the most unequivocal testimonials of its efficacy have arisen from all quarters. Mr. Abernethy asked what was the state of the bowels between the infliction of external injury and the coming on of tetanus? and the answer to this is pretty well known, the bowels are generally in a costive or otherwise morbid condition. And since this fact has been known, the proportion of tetanic cases from wounds has been much less than formerly. Under these circumstances, it

is therefore highly necessary to purge the patient as soon as the disease has made its attack. Should trifism be so great that the opening of the jaws is prevented, one or more teeth must be drawn, and purges conveyed by means of the elastic catheter and syringe into the stomach in large and repeated quantities; at the same time clysters must be given. Men of the best experience recommend salivating the system; as early as possible, with mercury; and consequently direct us to give calomel by the mouth, and rub mercury-ointment along the course of the spine and other parts, with a view to induce salivation; and this has often had a good effect. Opium is a very useful remedy; it allays the irritation of the nervous system in an extraordinary degree; and, though we have heard much of the stimulating effect of opium, we cannot but view it as directly sedative as far as regards the spinal marrow and medulla oblongata, notwithstanding it may have a stimulating influence on those superior portions which are considered by most philosophers to be the instruments of the mental operations. At all events, experience decidedly favours the use of opium in alleviating, if not in curing, tetanus. It must be given in large doses: from one drachm to half an ounce of laudanum may be prescribed according to circumstances; always providing that its operation be closely watched, and its repetition regulated by its effects.

We pass over a variety of drugs which have obtained a name for the cure of tetanus, because the cases related of their efficacy are so few as to warrant us in supposing them spontaneously cured. Reasoning from the sedative effect which the rubbing of belladonna on the forehead has upon the eye, we would suggest that this measure might be tried with advantage along the course of the spine for the relief of tetanus. Its internal exhibition might likewise be usefully resorted to.

The use of blisters has not been attended with much success in this disease. They are useful adjuncts applied along the spine. As showing in a strong light the good effects of counter-irritation in this disease, we shall probably be pardoned by our readers for presenting the following account of a barbarous remedy used in the Tonga islands. The inhabitants of these places adopt a remedy which they borrowed of those of the Fiji islands. It consists in the operation of *tocolósé*, or passing a reed first wetted with saliva into the urethra, so as to occasion a considerable irritation and discharge of blood; and, if the general spasm is very violent, they make a seton of this passage, by passing down a double thread, looped over the end of the reed; and, when it is felt in the perinæum, they cut down upon it, seize hold of the thread, and withdraw the reed, so that the two ends of the thread hang from the orifice of the urethra, and the doubled part from the artificial opening in the perinæum; the thread is occasionally drawn backwards and forwards, which excites very great pain and abundant discharge of blood. The latter operation Mr. Mariner saw performed several times; but only twice for tetanus, arising in both instances from wounds in the foot; in these cases the spasms, but particularly the convulsive paroxysms, were exceedingly violent, extending to the whole body, neck, face, trunk, and extremities; but in neither case was the jaw permanently locked, though on every case it was violently closed for a few seconds. In both cases the disease came on suddenly, three or four days after the wound was received, which was from an arrow not barbed. The moment the symptoms became evident, *tocolósé* was performed. In the short space of two hours, one of them was greatly relieved, and the other in about six or eight hours. The following day, the one was quite well, and afterwards had no other attack; consequently the thread was withdrawn; but the other, on the second day, was not quite free from spasmodic symptoms; and, a paroxysm coming on, the seton was moved frequently, which in two or three hours gave him great relief, and he afterwards had no other attack; it was thought prudent, however, to keep in the seton till the fourth or fifth day,

VOL. XIX. No. 1305.

when it was withdrawn. The effect of this operation was a considerable pain and tumefaction of the penis, but which gradually subsided in about five or six days. The artificial openings in both cases healed spontaneously, without any difficulty. (Mariner's Account of the Tonga Islands.)

6. Entasia acrotisus; failure or cessation of the pulse; with little or no disturbance of perception or voluntary power. Two varieties.

a. A. universalis; extending over the whole arterial system; and connected with sternalgia. The instances on record of this affection are few. The following list we copy from Dr. Good. "Suspensions of pulsation, without any other affection of the system. *Anecdotes de Médecine*, p. 199. *Marcell. Dom.* lib. vi. cap. 2.—For seven days, without other affection. *Riödlin*, *Lin. Med.* 1696.—Seven days before death. *Valisneri*, *Opp.* iii. p. 278.—Chronic, and continuing through the whole term of life. *Berryat Hist. de l'Acad. des Sciences à Paris*, 1748." See also Mr. J. Hunter's affection in Sir Everard Home's Life of him, prefixed to his Treatise on Inflammation, p. xlvi. consisting of a total suspension of pulsation for nearly an hour, with cessation of involuntary breathing for the same time; countenance pale and ghastly; faculties of the mind, and power over the voluntary muscles, perfect; internal stimulants useless. Notwithstanding the high authority last quoted, it does seem a circumstance contradictory to all the phenomena of life that have been observed, that the faculties of the mind, and the power of the voluntary muscles, could continue perfect while the circulation was suspended. It seems more reasonable to suppose (and indeed some warm advocates of Mr. Hunter's doctrines do suppose), that the action of the heart was not in his case entirely suspended, but at the same time so far lessened that no pulsation was conveyed to the hand. The cessation of pulsation might actually take place in the wrist from the feeble action of the heart. The case of Mr. J. Hunter is however one of much interest, and worthy of attentive consideration.

Dr. Cheyne, in one of his medical treatises, relates a case, the accuracy of which is established by an irrefragable combination of evidence, of a man who could die, to all appearance, at any time that he chose, and, after having lain for a considerable period exactly as a corpse, was able, as it should seem, by a voluntary struggle, to restore to himself the appearance and all the various functions of animation and intellect. It is to be inferred from the latter part of the story, that the unnatural and painful exertion by which this person assumed the semblance of disease, produced at length a really fatal result. Death would be no longer mocked with impunity. The counterfeit corpse, a few hours after its revival, relapsed into a state which was capable of no subsequent resuscitation. But the case is so interesting and remarkable as to deserve our giving it in all the detail with which Dr. Cheyne presents it to his readers. "He could die or expire when he pleased; and yet, by an effort, or somehow, he could come to life again. He insisted so much upon our seeing the trial made, that we were at last forced to comply. We all three felt his pulse first; it was distinct, though small and thready; and his heart had its usual beating. He composed himself on his back, and lay in a still posture for some time; while I held his right hand, Dr. Barnard laid his hand on his heart, and Mr. Skrine held a clear looking-glass to his mouth. I found his pulse sink gradually, till at last I could not feel any by the most exact and nice touch. Dr. Baynard could not feel the least motion in his heart, nor Mr. Skrine perceive the least sort of breath on the bright mirror he held to his mouth. Then each of us, by turns, examined his arm, heart, breath; but could not, by the nicest scrutiny, discover the least symptoms of life in him. We reasoned a long time about this odd appearance as well as we could; and, finding he still continued in that condition, we began to conclude that he had indeed carried the experiment too far; and at last we were satisfied that he was

4 K

actually

actually dead, and were just ready to leave him. This continued about half an hour. By nine o'clock in the morning, in autumn, as we were going away, we observed some motion about the body, and upon examination found his pulse and the motion of his heart gradually returning; he began to breathe gently and speak softly. We were all astonished to the last degree at this unexpected change; and, after some further conversation with him and with ourselves, went away fully satisfied as to all the particulars of this fact, but not being able to form any rational scheme how to account for it. He afterwards called for his attorney, added a codicil to his will, and calmly and composedly died about five or six o'clock that evening."

β. A. particularis; confined to particular parts of the arterial system. "Over the whole system except the heart, which pulsed violently. *Beggi* in *Pachioni* opp.—Confined to the arteries of a single arm. *Camerar.* Memorab. Cent. ii. p. 54." It is sometimes the result of aneurism or partial paralysis. This is by no means rare, certain irregularities with regard to particular arteries being often remarked.

7. Entasia systeremma, cramp. (*Tetanus dolorificus, Darwin.*) Sudden and rigid contraction and convulsion of one or more muscles of the body; mostly those of the stomach and extremities, vehemently painful, but of short duration. Chiefly produced by a sudden chill, as that of the night-air, or of water when swimming in it; often occasioned by an uneasy position, or undue distention of the muscles; and hence frequently attacking in sleep. Found also, as a symptom, in cholera; and occasionally in pregnancy and during labour.

Cramp, or spasm, is one of the most painful diseases we are liable to; at the same time it is the least dangerous. Change of temperature, and agents which increase the transmission of nervous impulse to the cramped part, readily effect a cure. Of course this does not apply to spasms arising from distant irritations (for these latter must then be removed), or to the spasms of the parturient state, which are induced by pressure on nerves or blood-vessels.

Genus II. *Neuralgia*, [from *νευρον*, a nerve, and *αλγος*, pain.] Contraction and distortion of a particular muscle or group of muscles, with partial trepidations, and acute lancinating pains in the course of the principal nerves; paroxysm short, recurring at irregular periods. There are two species described by Dr. Good, which however are perfectly analogous.

1. *Neuralgia faciei*, *tic douloureux*: contraction and distortion seated about the ala nasi and upper lip; pains shooting to the orbit; often to the ear, and over the cheek, palate, teeth, and fauces.

2. *Neuralgia pedis*: racking and intolerable pain seated about the heel; tremulously shooting in irregular directions towards the ankle and bones of the tarsus. This species is described from a very marked case which occurred to Dr. Good in a gentleman, otherwise of good health, about forty-five years of age, who had been long a victim to it. The pain during the paroxysm was so severe as nearly to make him faint, and was generally compared by him to that of scalding verjuice poured over a wound. Here the tibial branch of the ischiatic nerve seemed to be affected, and perhaps the peroneal.

In this disease (we speak chiefly of the first species), the pains vary in their degree of intensity; at one time exciting the most piercing cries, and distracted writhings and motions, in the miserable patient; while at another they are more bearable. When at the acmé of their violence, the parts affected are often convulsed, and sometimes various contortions and grimaces are observable. These are to be distinguished from the convulsive twitchings of the muscles with which the diseased nerves communicate, and which are occasioned by irritation from the excessive pain; while the contortions and grimaces are voluntary, being caused by the patient's writhing and winking from the agony of his torture, and may be pre-

vented by a firm resolution to resist any impulse of shrinking from the attack.

The pain does not always confine itself to the seat of the disease, but darts with the rapidity of lightning to the neighbouring parts, shooting in different directions like radii from a centre. It rarely gives warning of its approach, and often the first sign of an attack, is the patient's starting up in a state little short of phrensy. In this condition, some patients beat the part with violence, or forcibly rub it with some rough substance till excoriation takes place; and, in some instances, they have succeeded in thus diminishing the intensity of the pain.

The pains are more frequent during the day than in the night, probably from there being fewer causes of irritation during the latter season; and they are more frequent during conversation than in silence; and still more so at the time of mastication, when the attacks often succeed each other with such rapidity as to appear like one continued paroxysm, with scarcely an interval of cessation. The eye at times is red, inflamed, and watery, as we sometimes observe in severe tooth-ache; in other cases it is particularly dry; and in some patients a copious flow of saliva succeeds a paroxysm. In general, only one side of the face is affected with this dreadful malady; but, as there are cases recorded in which both sides suffered at the same time, we cannot lay it down as a certain characteristic of the disease. *Fouquet* observed at Montpellier two women who had both cheeks affected at the same time; and *Pujol* knew a lady, who, for several months, had the pain in one cheek, which after a while was free from pain; but the other cheek was immediately attacked in the corresponding place, the pain continuing for two months, and then resuming its former position.

When the disease continues for a great length of time with increasing violence, the patient can neither obtain rest by night nor by day, and his appetite fails. The complaint usually terminates without any apparent cause, leaving the patient for a time to enjoy the comforts of life. But whoever has had one attack may with considerable certainty anticipate another; and, though he is to-day well, and free from all pain, to-morrow's dawn may usher in a renewal of his torment. So varied is the duration of this affection, and so limited is our knowledge of it, that we can assign no determinate or even probable period for its continuance; and, unless a cure is effected, it returns at intervals more or less frequent, and with increased violence, till the great final catastrophe, which, however, it does not seem to accelerate. For, though *Dr. Bansch* is said to have died of it, we can place little reliance on the report; and subsequent cases and observations do not corroborate such a supposition.

This malady is confined to the nervous system, the patient seldom displaying fever or acceleration of the pulse. It is most generally remarked in persons who have an unusual degree of nervous irritability in general, and more especially when this nervous temperament is joined to bilious and gastric disturbance. It is increased by all circumstances which impair the tone of the digestive organs, or by any local irritation; in some cases even by the trifling one of shaving.

A variety of specifics for neuralgia have come in and gone out of fashion. They have generally been medicines of the narcotic and sedative class; as *cicuta*, *bella-donna*, &c. and might have deceived their employers less often than has been the case, had their exhibition been preceded by medicines which act on the alimentary canal, and its collatitious viscera. Indeed the state of the digestive organs is the first thing to be attended to in neuralgia, as in so many other diseases. *Mr. Abernethy* is said to have cured many patients by this alone; and, when it does fail to cure, it never we believe fails to mitigate. We should therefore urge most strongly the strict regulation of the digestive organs in *tic douloureux*. As the local detraction has a sedative operation on excited nerves

nerves, even when plethora is not the cause of the excitation, leeching or cupping should be also resorted to in all febrile cases. If the pain continues unabated, belladonna or conium may often be prescribed with advantage; and we give preference to the former, as being more powerful.

Many cases of Neuralgia have been cured by dividing the diseased nerve. Nevertheless it has so often failed entirely, in consequence of the intensity of some nervous fibril which has caused the irritation; its effects have been so little permanent, and the operation itself so painful; that it is of all others the last surgical operation we should undertake. It seems that in neuralgia, as in nervous irritation in general, the irritant being removed, the disease still continues from some internal change having taken place in the nerve itself. It is in such cases that arsenic is a useful remedy. The use of this powerful mineral has however lately been superseded by the carbonate of iron introduced by Mr. Hutchinson: it is given in doses of a half drachm or a drachm twice or three times a-day. It is in this advanced and habitual stage of the disease that electricity sometimes performs a cure.

Genus III. *Clonus*, [i. e. agitation, perturbation; from κλονεω, to shake.] Convulsive spasm. Generic characters—Forcible agitation of one or more muscles in sudden and irregular snatches. There are six species.

1. *Clonus singultus*, hiccuph: convulsive catch of the respiratory muscles, with sonorous inspiration; iterated at short intervals.

This disease is merely sympathetic of distant irritation. Flatulence of the stomach, disease of the liver, or indeed of any of the viscera contiguous to or situated near the diaphragm, will cause the symptom. It is often found to attend severe operations; and is well known as a fatal indication in mortifications. Otherwise it may sometimes exist for days without injury to the patient.—It is sometimes periodic. *Bonnet*, Sepulchr. lib. iii. Obs. 4.—Sometimes chronic; and has continued three months. *Schenck*, lib. iii.—Four years. *Bartholin*. Hist. Anat. Cent. ii. hist. 4.—Twenty-four years. *Alberti*, Dissert. Casus singultus chronici. Hall, 1743. See also *Hunter* on Blood, p. 410.

2. *Clonus sternutatio*, sneezing: irritation of the membrane of the nostrils, producing sudden, violent, and sonorous, expiration through their channel.—At times periodic. *Bresl. Sammlung*. 1725, ii. 82. *Eph. Nat. Cur. Cent. V.* Obs. 19.—Of long continuance. *Horstii* Opp. ii. 298.—Three hundred times in a paroxysm. *Eph. Nat. Cur.* ann. iii. obs. 138. It is particularly induced by phlogosis of the mucous expansion of the air-passages. Hence its frequency in measles, catarrh, &c.

3. *Clonus palpitatio*, palpitation: irregular and vibratory motion of the heart or arteries. There are three varieties; the most frequent of which is,

α. *P. cordis*, or palpitation of the heart alone.—The palpitation has sometimes been sonorous. *Castell* (P. V.) Exercit. et effect. thoracis. Tr. IX. Tolosa, 1616. *Al Vega*, de Arte Med. So violent as to dislocate the ribs. *Horstii*, ii. 137, 139.—To break them. *Schenck*. Obs. 215. ex *Fernelio*. *Victorius*, Consil. n. 97. In like manner the humerus has been dislocated by a convulsion-fit.

The most important circumstance to be understood in regard to palpitation of the heart, is whether it depends on nervous irritation or organic alterations. Its nature, when arising from the former cause, the reader will find discussed under *Dyspepsia*; and, when from the latter, under *Carditis*. The two following varieties appear to answer to the disease we have described under the title of *Arteritis*, p. 246.

β. *P. arteriosa*; of the arteries alone.

γ. *P. complicata*; extending from the heart more or less through the course of the arteries.

4. *Clonus nictitatio*, twinkling of the eye-lids: rapid and vibratory motion of the eye-lids.

5. *Clonus subfultus*, twitching of the tendons: sudden and subfultory elevations of the tendons. This seems to arise from a deficient supply of nervous powers to the muscles, or at least a supply suddenly applied and exhausted. It is found in most cases when the nerves have been much weakened, as after long fatigue, fevers, and towards the approach of death.

6. *Clonus pandiculatio*: transient elongation of the extensor muscles, with deep inspiration and sense of lassitude. Two varieties.

α. *P. maxillarum*, yawning or gaping.

β. *P. artuum*, stretching of the limbs, frequently noted as a symptom in fatigue, hysterics, restlessness, dyspepsy, and the accession of fevers. As an idiopathic affection, acquired chiefly from a habit of idleness.

Genus IV. *Synclonus*, [from συν, together, and clonus.] General spasm. Generic characters—Tremulous, simultaneous, and chronic, agitation of various muscles, especially when excited by the will. There are four species.

1. *Synclonus tremor*, trembling: simple, tremulous agitation of the head, limbs, or both; mostly on voluntary motion.

2. *Synclonus chorea*, St. Vitus's dance: alternately tremulous and jerking motion of the face, legs, and arms, especially when voluntarily called into action; resembling the grimaces and gestures of buffoons; usually appearing before puberty.

According to *Horstius*, the name of St. Vitus's dance was given to this disease, or more probably to a disease possessing some resemblance to it, in consequence of the cure produced on certain women of disordered mind upon their paying a visit to the chapel of St. Vitus near Ulm, and exercising themselves in dancing from morning to night, or till they became exhausted. He adds, that the disease returned annually, and was annually removed by the same means. But the French give to another faint the honour of exciting or of curing this disease: they call it *Dance de Saint Guy*.

Dr. Hamilton, in his work on Purgative Medicines, gives the following excellent history of this disease. "Chorea Sancti Viti attacks boys and girls indiscriminately; and those chiefly who are of a weak constitution, or whose natural good health and vigour have been impaired by confinement, or by the use of scanty or improper nourishment. It appears most commonly from the eighth to the fourteenth year. I saw it in two young women, who were from sixteen to eighteen years of age. The approaches of chorea are slow. A variable and often a ravenous appetite, loss of usual vivacity and playfulness, a swelling and hardness of the lower belly in most cases, in some a lank and soft belly, and, in general, a constipated state of the bowels, aggravated as the disease advances, and slight irregular involuntary motions of different muscles, particularly of those of the face, which are thought to be the effect of irritation, precede the more violent convulsive motions, which now attract the attention of the friends of the patient. These convulsive motions vary. The muscles of the extremities and of the face, those moving the lower jaw, the head, and the trunk of the body, are at different times, and in different instances, affected by it. In this state the patient does not walk steadily; his gait resembles a jumping or starting; he sometimes cannot walk, and seems palsied; he cannot perform the common and necessary motions with the affected arms. This convulsive motion is more or less violent, and is constant, except during sleep, when, in most instances, it ceases altogether. Although different muscles are sometimes successively convulsed, yet, in general, the muscles affected in the early part of the disease remain so during the course of it. Articulation is now impeded, and is frequently completely suspended. Deglutition is also occasionally performed with difficulty. The eye loses its lustre and intelligence; the countenance is pale, and expressive of
vacancy

vacancy and languor. These circumstances give the patient a fatuous appearance. Indeed there is every reason to believe, that, when the complaint has subsisted for some time, fatuity to a certain extent interrupts the exercise of the mental faculties. Fever, such as arises in marasmus, is not a necessary attendant on chorea; nevertheless, in the advanced periods of the disease, flaccidity and wasting of the muscular flesh take place, the consequence of constant irritation, of abating appetite, and impaired digestion, the common attendants of protracted chorea; and which, I doubt not, may, in some instances, although contrary to the opinion that chorea is not fatal, have been the forerunners of death."

In the old practice of antispasmodics and cordials, little good was done for chorea. Since the general promulgation of the grand fact, that, in nine cases out of ten, nervous diseases of all kinds arise from disorders of the abdominal viscera, this disease has been more successfully treated. Full purging is the chief remedy at present. The purges used should be rough and drastic, and should be continued for some time, even when their efficacy is not at first apparent. In chorea, as in neuralgia, where habit only keeps up the malady, medicines capable of powerfully influencing the nervous functions may be used; as, for instance, the arsenical solution.

3. Synclonus raphania: spastic contraction of the joints; with trembling and periodical pains. So called by Linnæus as being supposed by him to be produced by eating the seeds of *Raphania raphanistrum*, the wild radish, or jointed charlock. It is chiefly found in Sweden and the adjoining countries; and has hence been chiefly treated of by Swedish writers. There is a paper upon the subject by Dr. Rothman, in the *Amœnitates Academicæ*, vol. vi. who asserts that it is neither a new disease, nor confined to the Baltic countries. He has traced it, he says, as an affection common to Europe, in the works of various writers up to the year 1596. It seems to depend upon some deleterious vegetable intermixed with the grain employed in making bread: some species of *Lolium* or *Secale* (darnel or rye) have been suspected; but there is more reason (he says) for ascribing it to the *Raphania raphanistrum*. It is sometimes accompanied with cutaneous ulcerations, and extensive exfoliations of the cuticle and cutis.

4. Synclonus beriberia: spastic retraction of the knees on walking: trembling and painful stupor of the limbs; sense of formication; hoarse voice.

The beriberia has been found chiefly in the East Indies, and is a species of palsy, in which, according to Bonnius, patients seem to imitate sheep in lifting their legs when they walk. This palsy consists in a partial deprivation of the motion and sensation of the hands and feet, and sometimes of the body. Sagar once saw some sheep, observing a wolf, seized with this spasmodic affection; and they, whether standing still or walking, momentarily retracted their knees, which immediately returned to their natural situation. The cause is generally thought to be exposure to the cold vapours of the night too soon after exercise. Dr. Good supposes that the swallowing of some parasitic plant, or animalcule, in the food or drink, is the cause of it.

The disease is not mortal, except by seizing the muscles of the breast, so as to obstruct respiration and the voice. In the cure, moderate exercise and frictions are useful: the Indians use a femicupium made of water, in which is boiled an aromatic herb called *lagondi*; or, in want of it, camomile and melilot. The affected parts are rubbed well with a mixture of the oils of mace and roses. Bleeding is not required; but, on the contrary, stimulants and tonics are to be used, with an occasional gentle purge. Decoctions of sarsaparilla and guaiacum are also of service.

The term beriberi is still preserved in Ceylon, but applied to a different disease; a peculiar sort of dropsy, commencing with stiffness and œdema of the lower extremities, which shortly spread over the whole body,

producing dyspnoea, vomiting, *convulsive motions*, and death. The symptoms have been given at some length by Mr. Colhoun, and Mr. Christie, inspector-general of the hospitals in Ceylon. The English forces established at Ceylon are occasionally subject to it. See "Essay on the Diseases incident to Indian Seamen or Lafcars on long Voyages, by William Hunter, A. M. Member of the Asiatic Society of Calcutta, &c." In like manner lord Valentia, in his *Travels*, vol. i. p. 318. "a complaint, as far as I have learnt, peculiar to the island (Ceylon) is the *berri-berri*. It is in fact a dropsy that frequently destroys in a few days."

Order IV. SYSTATICA, [from *συστάσις*, I collect together.] Diseases affecting several or all the sensorial powers simultaneously. Irritation or inertness of the mind extending to the muscles or external senses; or of the muscles or external senses extending to the mind. It contains nine genera.

Genus I. *Agrypnia*, [from α , priv. and *υπνος*, sleep.] Sleeplessness. There are two species.

1. *Agrypnia entonica*: sleep retarded by an inordinate excitation of the mind to a particular subject; littlefness to surrounding objects.

2. *Agrypnia chronica*: habitual wakefulness; mind tranquil; attention alive to surrounding objects. Most commonly common to advanced age.

Genus II. *Dysphoric*, [from *δυσ*, difficulty, and *φορεω*, to bear, or endure.] Reflexlessness. Generic characters.—Troublesome and restless uneasiness of the nerves and muscles; increased sensibility; inability of fixing the attention. There are two species.

1. *Dysphoria simplex*, fidgets: general; and accompanied with a perpetual desire of changing the position.

2. *Dysphoria anxietas*, anxiety: chiefly affecting the præcordia; with depression of spirits, and perpetual desire of locomotion.

All the above symptoms, when not accompanied by the derangement of the system denominated fever, may be referred to some of the numerous forms of dyspeptic malady. *Anxiety* is more particularly referrible to excessive eating, or weakness of the muscular coat of the stomach. The *fidgets* are frequently observed in those who have nothing to do, and seem to be the result of want of exercise for the brain; in consequence of which, its energies are exerted on trifling subjects. On the other hand, *sleeplessness* is a common attendant on the literary character, the over exertion of the mind keeping up a continual state of irritation in the brain. Hence the sleep is broken, light, and troubled with dreams. For the cure, &c. see *Dyspepsia*, under which head this subject is somewhat copiously discussed.

Genus III. *Antipathia*, [from *αντι*, against, and *παθος*, feeling.] Antipathy. Internal and unaccountable horror at the presence of particular objects or subjects; with great external reflexlessness, or deliquium. Two species are noted by Dr. Good.

1. *Antipathia sensilis*: antipathy produced through the medium of the external senses. As, at the sight of a drawn sword in king James I. *Digby* Theatr. Sympathet.—Sound of music. *Eph. Nat. Cur.* Dec. I. obs. 134.—Smell of roses. *Id.* Dec. II. ann. x. obs. 8.—Of strawberries. *Id.* ann. v. obs. 214.—Taste or smell of cheese. *Zacut. Lust.* Frax. admir. lib. iii. Obs. 103. *Eph. Nat. Cur.* passim.—Erasmus, though a native of Rotterdam, had such an aversion to fish, that the smell of it gave him a fever.—Ambrose Paré mentions a gentleman who never could see an eel without fainting.—Joseph Scaliger and Peter Abono never could drink milk.—Cardan was particularly disgusted at the sight of eggs.—Uladissaus, king of Poland, could not bear to see apples.—Henry III. of France, could never sit in the room with a cat.

2. *Antipathia insensilis*: produced through an unknown medium. Chiefly in the case of cats, at hand, but neither seen, touched, smelt, nor heard.

Genus

Genus IV. *Lyssa*, [that is, madness; probably from *λυω*, to dissolve, because the senses are impaired or melted away.] Madness from the bite of a rabid animal, commonly called hydrophobia. Generic characters—Great restlessness; anxiety; hurry of mind; horror; and constriction of the muscles of the chest; supervening to the bite of a rabid animal; preceded by a return of pain and inflammation in the bitten part. There are two species.

1. *Lyssa felina*, feline madness: the paroxysm periodical, and returning with the full moon; produced by the bite of an enraged cat. *Anxietas à morfù felis iratæ. Morgagn. Ep. lxi. 14.*

In the case here referred to, the paroxysm took place four days after the bite: there was great anxiety of the præcordia, but no water-dread. Local and general bleedings were useless; frequent repetition of the warm-bath afforded relief; but it only yielded to an ephemera with copious sweat. It returned with the full moon for two years: the bitten part first becoming highly irritable; and the general symptoms succeeding, which were now relieved by bleeding. After this period it returned with every fourth full moon for two years more. See another case, which terminated fatally on the first paroxysm, in the *Trans. Med. Soc. of London*, vol. i. p. 78.

2. *Lyssa canina*, canine madness: (Pantophobia, *Cælar. Rabies canina, Boerhaave. Hydrophobia, Sauv. Linn. Sag. Cull. &c.*) The constriction extending to the muscles of deglutition, which are violently convulsed at the appearance or idea of liquids; produced by the bite of a rabid dog, and fatal on the first paroxysm.

The term *hydrophobia*, which has been so generally applied to the *Lyssa canina*, has been deservedly reprobated, because the "dread of water," the literal meaning of the word, is not a pathognomonic mark of the disease. The older writers used the terms *ærophobia*, or a "dread of air," and *pantophobia*, or a "fear of all things," as appropriate names for the disease, because the impression of cold air sometimes excites terror, and the disorder is marked by a singular degree of general timidity and distrust. The term *hydrophobia*, being erroneously applied to the rabies of the dog, has induced a supposition that no dog is rabid while he continues to drink; whereas he is constantly endeavouring to quench his thirst in that disease. And again, the appellation of *madness* has led to a belief that violence and fury are characteristic of rabies in the dog; but, though he is irritable and peevish, there is nothing of wildness in his disposition. In consequence of this mistake, dogs have been allowed to go about, fondled, and even slept with (see *Mem. of Swedish Acad. 1777*), in a rabid state.

Aristotle is the first writer who expressly mentions this disease. He says that all animals, *except man*, are infected by the bite of a mad dog, and destroyed by it. This imperfect state of knowledge respecting the malady, is a proof that it was a matter of recent observation; for, although several persons might be bitten without suffering the disease, and, from the length of time which commonly elapses between the infliction of the bite and the appearance of the symptoms, several cases might occur before it was referred to its true source; yet no very long time would be requisite to clear up these doubtful points. Accordingly, we find subsequent writers treating of the disease in a familiar manner. Plutarch affirms that the hydrophobia was first seen at Rome in the days of Æsclepiades; after whose time, we meet with frequent notices of this disease in the works of the ancients.

The symptoms of *Lyssa*, as they appear in the dog, have been inserted under the article *HYDROPHOBIA*, in our 10th volume. We proceed, therefore, to discuss the nature and origin of the disease. It is known, that animals of the dog-kind, including the wolf and the fox, are most frequently the subjects of *Lyssa*; and most writers have maintained that, although it may be received and propagated by other animals, yet it always originates with some of the canine race. It is likewise said, that the ge-

neration of *Lyssa* is confined to male dogs. Like the origin of many diseases emphatically called specific, as small-pox, syphilis, and itch, the origin of this in the simple inflammatory or irritative processes is unknown; yet we cannot but believe, that to such processes all specifics owe their first production. However this may be, it is a fact, that, at certain periods of the year, dogs are more prone to *Lyssa* than at others. The disease, however, has by no means the character of an endemic. It seems to require a very rare and peculiar combination of circumstances for its spontaneous development, though, when once formed, it spreads with the most alarming rapidity, in consequence of its infectious nature. Various measures have been stated for the prevention of hydrophobia in dogs; as vaccination, worming, &c. but, we believe, with no success. Of the exciting causes of this disease we know nothing. Great heat has been asserted as one cause; though it must be recollected, that the disease is less frequent in the tropical climates than with us. Boerhaave also enumerates "a very hot climate, or one exposed to the extremes of heat and cold; feeding upon putrid stinking maggoty flesh; want of water; worms bred in the kidneys, intestines, brain, or cavities of the nose." But the influence of these circumstances in producing the disease is not established by a sufficient number of observations.

All domestic animals, birds as well as beasts, are susceptible of the poison of the rabid dog. We do not find that there is any race of animals exempted from its effects. But whether every animal labouring under the disease is capable of infecting others, or whether this power is confined to a few only, we are yet to learn. Boerhaave affirms that the disease has been communicated by infection to others by dogs, cats, wolves, foxes, horses, asses, mules, swine, apes, cocks of the poultry breed, and men, when affected with rabies, (*Aph. 1132.*) and the cow has also been said to propagate it. Van Swieten has stated some instances, from old authors, of hydrophobia occasioned by the beak of an enraged cock wounding the hand and arm. But there is little doubt that, in such cases, the spasmodic and fatal disease, which ensued, was *tetanus*. It is certain, however, that not only animals of the canine species, but cats, have produced hydrophobia in the human species by their bite; and a supposed difference of symptoms has led Dr. Good, as we have seen, to separate *Lyssa* into two species.

It seems very natural to suppose, that every animal susceptible of the disease had the power of communicating it, provided their natural habits led them to bite and tear with their teeth such animals as came in their way, while in an enraged state. With respect to men under the influence of hydrophobia, although the popular notion of their general disposition to bite those around them is erroneous, yet there are instances on record in which hydrophobic patients did bite some of their attendants, but no ill consequences have been known to follow. From this, however, as Dr. John Hunter justly remarks, we can draw no positive inference; for it is but a small proportion (about one in sixteen), of such persons as are bit by dogs undoubtedly mad, who are infected with the poison. The experiments, however, of Mr. Cline, throw great doubt on the infectious qualities of the saliva of the human subject. He took particular pains in inserting this secretion, while fresh, into a dog, three rabbits, and several fowls: "but in none of these instances was there the least appearance of the disorder at the expiration of three months." Mr. Astley Cooper, on the other hand, inoculated a dog, a pig, a fowl, and a rabbit, with the saliva of a dog, which had recently died of rabies, by inserting, from the point of a lancet, between two and three drops under the skin of the inner part of the thigh of each. The dog and fowl were kept confined for nine weeks, and the pig seven, but without any appearances of hydrophobia. The dog afterwards became the property of a gentleman, who kept him nearly twelve months, and he

had never any marks of the disease. The rabbit was accidentally killed on the fourth day from the experiment. But the experiments of Majendie led to a result precisely opposite.

With regard to the activity of the poison of the rabid dog, the facts which have been collected have been so vaguely stated, that the inferences are quite inconclusive. Among the older writers, indeed, there was much credulity, and they have transmitted to us many fabulous histories in regard to the operation of the rabid virus. "Scarce any poison known (says Hillary, relying upon the truth of those tales) is so infectious, or so easily and readily communicated by so many and various ways, as this of a mad dog is: for the slightest bite, only tearing the skin, without drawing blood; or the smallest quantity of the salver of the mad animal, either fresh or dried for some time, taken upon the tongue or lips; or rending a person's clothes and leaving the salver on them to dry, has produced this disease; as a woman had her coat torn by a mad dog, which she a considerable time after sewed up, and bit off the thread with her teeth, and some time after died rabid from biting off that thread. (Hildanus *Obf. Chir.*) Also a man only kissing his children to take his leave of them when he had the rabies upon him, they all soon after died rabid. (Palmarius *de Morb. Contag.*) Kissing a favourite dog that was mad had the same effect, &c. and produced this most fatal disease." See Hamilton, vol. i. p. 98.

In the London Medical Repository for April 1814, are two cases, from which (if we could be certain that the disease was *Lysia*) it would appear probable that a dog, free from any characteristic mark of hydrophobia, and apparently in the highest state of health, may communicate by its bite this most dreadful malady. One of the cases was that of a dog, apparently ailing nothing, who had repeatedly licked a woman's chopped hands. The other of a dog, who afterwards continued in health, and remained in the family it belonged to, having bitten a boy severely in order to escape, when it was teased by that and other boys. This last case is so very remarkable, that we cannot refrain from giving it at length. It is related by Mr. Parkinson, surgeon, of Hoxton-square.

"The subject of this case was a boy, about ten years of age. He came to me, accompanied by four other boys older than himself, he having been bitten by a dog. The canine teeth had passed quite through between the metacarpal bones of the first and middle finger, and of the ring and little finger; the skin of the back of the hand and of the fingers was also torn in several places. By inquiry of the boy himself, apart from his companions, I learnt, that, as they were going along a rather narrow walk, one of the boys cried out, 'There he is!' meaning a dog which they had been in the habit of teasing; that, as they were between him and his home, they ranged themselves across the walk to stop him; and that the dog, after making one unsuccessful attempt, made a push between him and the wall; which he endeavouring to prevent by putting out his hand, the dog seized it, and then ran by and gained his home. As obtaining correct information was here of so much importance, I examined all the other boys separately, who all confirmed the account of the unfortunate boy, and were all satisfied that it was the same dog that they had been accustomed to tease. Discovering no circumstance whatever which would warrant a suspicion of the bite having been inflicted otherwise than defensively, I washed the wounds with spirits of turpentine, and dressed them with a terebinthinate liniment. Still anxious as to the state of the dog, I made additional inquiry respecting it; when I obtained every assurance of the dog being in perfect health.

"The wounds were dressed with red precipitate and a terebinthinate ointment, and healed in about five days. But, at nearly three weeks from the infliction of the bite, I was sent for to the boy, he having had some slight feverishness the night before, which was rather increased.

My son accompanied me, and we soon discovered that the dreadful malady was established. Ignorant of any measures that could be relied on, and as Pyrexia, with evident inflammation of the tonsils, existed, we agreed on the experiment of taking away blood, which was done to the quantity of six or seven ounces, by which a slight degree of faintness was produced, without any apparent amendment. The assistance of Dr. Yellowly was now requested, and immediately obtained; when, it being considered that no medicine had manifested any remedial powers in this disease, it was agreed to make trial of the effects of lead, and to endeavour to moderate the more urgent spasms by the employment of henbane. The experiment was fully made, the superacetate of lead and the extract of hyosciamus were had recourse to, but without the least advantage; the child, after suffering from every decided symptom of hydrophobia, being seized with convulsions so violent as to require two men to retain him in the bed; to which succeeded a state of quiet insensibility, lasting about half an hour, and terminating in his death, which took place on the third day from the attack.

"After this fatal termination, the dog, which had inflicted the bite, again became the subject of inquiry. Dr. Yellowly and myself immediately, therefore, went to its master, who regretted very feelingly the sad catastrophe, but at the same time said that he doubted how it could be attributed to his dog; since, although he had reason to believe, from the provocation the boys were perpetually employing, that he might have inflicted the bite; yet, as we should see, he did not appear to be in a state which would have enabled him to communicate so dreadful a malady. The dog, a fine healthy spaniel, now rushed in, and flew on his master's knees, licking his face and mouth with much fondness; his master permitting him thus to manifest his affection for several minutes, for the purpose of evincing his reliance on the healthiness of the dog. I then again questioned the other boys in the most particular manner, and found them all agreeing in the dog which we had just seen, and the dog which had inflicted the bite, being the same. Not satisfied even with this, I watched the dog during its continuance in the neighbourhood, which was for at least two years, without seeing reason to suspect it of a disposition to injure any one. Within these last five days I have repeated my inquiries, and have learnt that the dog was well a few months ago.—J. P. Feb. 1814."

According to the relater of a case quoted by Dr. Hamilton, the disease, which took place on the eighth day, and was fatal on the eleventh, arose from contact only of the rabid saliva, without any injury done to the person. The same author says, "A young woman had her apron torn and flayed by a mad dog leaping on her, and attempting to bite. Fortunately she received no other injury from him, by the timely assistance offered, and by the loose part of her clothing which he laid hold of. But imprudently, and without proper reflection, she began to mend the rent in her apron before the part was either washed or well dried; and as imprudently, or through habit, instead of cutting the thread with scissors, bit it off with her teeth. Lo, what followed! In a few weeks she was seized with hydrophobia, which proved fatal." There is good reason to believe, however, that there must have been some slight scratch, unperceived by the patient, in the first of Hamilton's cases, through which the virus made its entrance; and, in the second, it of course found its way into the constitution through the absorbents of the mouth. After all, these astonishing accounts are perhaps for the most part false; for an excessive fear of a disease often leads to extravagant assumptions as to its activity; as we know, from the caution which some old popular writers evinced, that we should not drink out of the same cup, use the same towel, &c. as that which has been used by a patient of Lues.

The part of the body which is bitten seems to have some influence on the probability of the attack. A bite in the

the face is said to be most generally followed by the disease; which might seem to imply, that parts much supplied with veins most rapidly propagated Lyssa. A bite on the hands, however, is equally formidable; so that we naturally conclude, that the exposed parts of the body suffer more readily from the bite than the covered parts; because, in the latter, the clothes rub off part of the virus from the teeth before they penetrate the skin. Some have supposed, that, if a gush of blood follows immediately on the bite, the chances of exemption are in favour of the patient; but, in Brera's *Memoria per la Cura dell' Idrofobia*, four cases are related in which this occurrence happened, and nevertheless the patients died.

It is a fortunate circumstance, that men are less disposed to lyssa than dogs: and of the latter scarcely one escaping, while, of the former, it is computed that only one in sixteen, who have been bitten, contracts the disease.

The wound inflicted by the bite of a rabid animal has nothing peculiar in its appearance, and heals as readily as the bite of an animal that is not rabid. From the time of the bite until the period when the symptoms appear, there is no derangement of health, nor any perceptible change in the constitution, provided the person bitten be not under the influence of fear. The interval between the infection and the commencement of the disease varies considerably in different instances: the most common period appears to be about forty days or six weeks. Dr. Hamilton draws the following conclusions, as to the interval between the bite and the occurrence of the disease, from a table of 131 cases. Only three took the disease before the 18th day, none before the 11th—from the 18th to the 30th, seventeen were seized: sixty-three began to be ill from 30 to 59 days after the bite; twenty-three were attacked from two to three months inclusive; nine from three to four months; two at five months; one at five months and eleven days; one at six months; one at seven months; two at eight months; one between eight and nine months; two at nine months; one at eleven months; one at fourteen months; two at eighteen months; and one at nineteen months. The last-mentioned interval is, he thinks, the longest to which any credit can be given. On the other hand, a case is related by Dr. Bardley of Manchester, which proved fatal, as is usual; and every inquiry respecting which corroborated the patient's repeated assertion, "that he had never suffered the least injury from any animal, except the bite, inflicted *twelve years since*, by an apparently-mad dog." (*Memoirs of the Lit. and Phil. Soc. of Manchester*, vol. iv. p. 431.) In this instance, the nature of the disease was perfectly clear, and the evidence as to the bite not less satisfactory.

At an uncertain time, then, after the infliction of the bite, the patient feels a degree of pain; or uneasy sensation, in the bitten part, which is sometimes compared to a scorching by heat, is sometimes attended with itching, and sometimes supposed to be rheumatic. This pain, when the bite, as is most frequent, is in the hand, spreads up the outside of the arm to the shoulder (not affecting the axilla) and the neck. In some cases the cicatrix left by the bite is said to become inflamed, and even to discharge. These pains are soon succeeded by a general depression of spirits, and especially a sense of undefinable listlessness and anxiety. Sometimes a general rigour or chill occurs, as in the commencement of a fever. The night is passed in the same restless state, without sleep. The appetite begins to fail, and some thirst is present. And now the peculiar symptom which gives the disease its name, the *dread of liquids*, is discovered, often accidentally, on attempting to take drink; as the liquid approaches the lips, a sudden convulsive sob, or catch in the breath, with a momentary sensation of choking, takes place, which is renewed at every attempt. As the disease advances, this attempt is not thought of without horror, and the very

idea excites these spasmodic fits of choking in the throat, and catching of the breath.

This dread of liquids is, as we have before stated, not always present, nor is its presence a certain sign of the disease; and in dogs and other animals is so far from being general, that they often swim through rivers, and drink copiously. The cause of this symptom, in man, has engaged the attention of many pathologists. It can only be referred to two causes: first, an actual experience of difficulty of swallowing, which renders the patient fearful to attempt an action which gives him so much pain; or, on the other hand, a dread of the water itself from some fearful association connected with it, an association, as it would seem, quite unconnected with the will. For our own parts, we cannot conceive the hydrophobia to arise from experience of the difficulty of swallowing, because in the most violent cases no difficulty of swallowing food attends; because also the symptom often comes on suddenly, on the sight of water, before any difficulty has been experienced; consequently before the patient can have had any experience on the matter. Moreover, a stream of air, a flash of light, nay the reflection of light from a looking-glass, has sometimes filled the patient with an equally severe emotion of horror as water has; and often again, when the sight of water was painful, wine has been freely drunk. It is not, however, an easy task to explain how the hallucination of mind in lyssa should be particularly directed to water. It may be that the nervous system, excited to the highest degree, acknowledges, with a quickness and intensity amounting to pain, those *undulating* motions which are so peculiarly manifested in almost all the natural phenomena which impress our nerves. Hence the undulating motion of a candle excites uneasiness; the sight of water excites the recollection (unacknowledged by the will) of the roaring of the sea, the dizzy whirl of the current, or perhaps of the danger to which we are often exposed on this element. That on some occasions wine has been swallowed when water could not, may arise from the different recollections to which wine gives rise. That it is the sight of water, and not the difficulty of swallowing it, that produces hydrophobia, is corroborated by this; that a child requested his father to put some tea in a tea-pot, so that he might be able to drink it out of the spout, *without the pain of looking at it*.

But the dread of swallowing liquids, although the most singular symptom of the disease, constitutes but a small part of this distressing malady. The state of disorder into which the nervous system is thrown, is evinced by the extreme irritability of the whole frame, mind and body, and the excessive susceptibility to all impressions. Hence the constant watching and inquietude; and the sudden fits of anger and impatience, arising from the most trifling causes, as the patient himself readily allows, and even wonders at, and apologizes for, in the succeeding moments of composure. Hence also the distress, and even the recurrence of his spasms, occasioned often by the slightest motion of the air, as from opening the door, from the approach of any person, or even of a person's hand, in front of him; or even by the buzzing of a fly. This morbid excitability of the nervous system is farther manifested in the extreme timidity and suspicion of the patient, in the imaginary objects of terror and uneasiness which the senses frequently represent to him, and in the occasional delirium and incoherence of ideas, from which, however, he easily collects himself.

There are some other circumstances belonging to the disease, of less note, which remain to be mentioned. One of these is a constant collection of a thick ropy tenacious saliva in the fauces, which is often productive of extreme distress; for, as the miserable sufferer is unable to make the smallest attempt to swallow it, without exciting the convulsive choking, he spits it out incessantly, and with great vehemence and difficulty, often cautioning the bystanders to keep out of the way. The pulse in the beginning

ginning is not quick, nor is the skin hot; and there is none of the muscular debility so remarkable in fever; but, as the disease proceeds, there is some feverish heat, and the pulse becomes quick; varying, however, exceedingly as slight causes of irritation influence the patient: as death approaches, it usually becomes very quick and tremulous. Sickness and vomiting often occur, when a little phlegm, tinged with brown or yellow bile, is brought up. There is often a sense of great oppression and stricture about the breast, or what has been called anxiety about the præcordia; and which is probably an affection of the heart; for it is accompanied with sighing and deep irregular inspirations, and the patients find some relief from motion, as running and walking, which show the lungs not to be the seat of the oppression. The countenance is generally sorrowful, and often expressive of a great degree of horror and distress.

There is a considerable variety in the symptoms in different constitutions: even the hydrophobia, or dread of swallowing liquids, occurs in very different degrees. But there is no part of the disease that admits of greater variation than the degree of mental derangement, which in some does not amount to more than extreme irritability and impatience; in others to muttering and incoherent talking, yet giving rational answers when questions are asked; and in a few it rises into short fits of the most violent rage and fury, in which the patients bite and tear themselves and every thing near them. In general they manifest no disposition to mischief; yet popular prejudice is still on the watch for the "barking and biting like a dog," as the disease advances. In a case related by Dr. Marcet, the bystanders confidently expected the symptom of *barking*, which they "thought at last to have clearly discovered in the peculiar noise which he made in breathing." Dr. Wavell, speaking of this sort of respiration, says, "the noise he made in drawing air into his lungs was undoubtedly peculiar; but neither in my opinion, nor in that of any other medical gentlemen who attended him, did it bear the least resemblance to the barking of a dog." (Med. Records and Researches, p. 151.) Were this notion of the canine metamorphosis, which the disease has been supposed to effect in man, merely speculative, it would be less important to confute it; but it is to be lamented, that the practical result of it, in the cruel and murderous plan of suffocating the patient, has been followed, both in France and in this country, within the last twenty years of the eighteenth century. See Hamilton on Hydrophobia, vol. ii. p. 140. and App. p. xxviii.

The duration of life, after the commencement of the symptoms of hydrophobia, has been on an average about *four days*; it varies from thirty-six hours to five, six, or many more, days. The termination of life is likewise various in different instances: death is often very sudden, being produced by one of the convulsive attacks, such as occur on the attempts to drink; at other times, more general convulsions carry off the patient; while in other instances, again, the strength sinks gradually, and the patient dies comatose.

Dissection of hydrophobic cases displays inflammation of the spinal marrow, and, in a slight degree, of the membranes of the brain. The stomach, especially at its cardiac extremity, and also at the œsophagus, is usually found in the same state. The observance of redness and other marks of phlogosis on the mucous membrane of the bronchiæ has induced Trollet to infer, that this membrane is the seat of hydrophobia, and that the infectious matter is a morbid secretion from it: but this opinion, like every other on the etiology of *Lyssa*, rests on very slight grounds. Some other inconsiderable changes have been observed; but they seem to have been mostly adventitious.

From the peculiar nature of the symptoms above detailed, it might be conceived that no difficulty could occur, in distinguishing *rabies canina* from every other

disease to which the human body is liable. But this is very far from being the case; for many histories are related, in which, although the disease was the consequence of a bite, it partook more of the nature of tetanus; and others are detailed, in which no bite had preceded the disease, or had occurred at so distant a period as to render its influence in exciting the disease extremely questionable. It must be observed, however, that the *tetanic spasms* generally commence within a few days after the injury, or in a much shorter period than those of rabies; that the jaw is commonly rigidly locked in tetanus, and the muscles of the neck and back most particularly affected; that the spasms are of a more fixed or "tonic" species, (in the language of Cullen,) consisting of rigid and long-continued contraction, rather than of short convulsive action, and are relieved rather by remission of their violence than by a complete solution of the spasm; that there is less feverishness, quickness of pulse, and thirst, in tetanus; and, above all, that there is little of that extreme mobility of feeling, and anxious, impatient, and apprehensive, state of mind, which marks the hydrophobic condition.

It must be observed, that many instances are recorded of patients who have actually frightened themselves into a state very closely resembling hydrophobia. Indeed, Dr. Percival has remarked, that it has sometimes been brought on by the imagination alone; and Dr. Ferriar says, "I met with an instance of this kind lately, in which it was very difficult to prevent a person from rendering himself completely hydrophobic. Himself and his wife had been bitten by a dog which they supposed to be mad. The woman thought herself well; but the man, a meagre hypochondriacal subject, fancied that he had uneasiness in his throat, and that he could hardly swallow any thing. When he first applied to me, a medical friend who was present, asked him whether he had any sensation of heat at the pit of the stomach. He answered in the negative, doubtfully; but, next day I found him in bed, complaining of heat in the pit of the stomach, difficulty of swallowing, tremors, and confusion in the head. He continued to persuade himself he was ill of rabies, and confined himself to bed, expecting death for near a fortnight. At last I remarked to him, that persons who were attacked by rabies never survived more than six days; this drew him out of bed, and he began to walk about. By a little indulgence of his fears, this might have been converted into a very clear case of spontaneous hydrophobia, and the patient would probably have died." We are inclined to doubt the fatality of this spontaneous hydrophobia, which is, in fact, nothing more than a nervous disorder.

As to the *treatment* of *lyssa*, we have but one remark to make; viz. that the bitten part must be cut out as soon as possible; for on that practice only can we rely. As to the time at which it is expedient to perform this operation, little can be said with certainty. Of course it is of no use when hydrophobic symptoms are manifest. Often it is of use before that period; and so irregular are the cases of the absorption of animal poisons, that we are justified in cutting out the part at any period before the coming-on of the symptoms. With regard to the operation itself, we should first ascertain the extent of the wound, and the direction it has taken; and, as a precautionary measure, the puncture may be stuffed full of lint. The part is to be dried from blood; and the incision carried completely under the punctured or lacerated wound. The excised piece must then be examined, lest the knife should not have completely taken away the whole of the lacerated cavity. Should more than one wound be made, they can be cut out separately, using the precaution to take a clean knife for each cut, lest that before used, having touched the part imbued with the canine virus, should again inoculate the sufferer with the disease. As to prophylactics for hydrophobia, we entirely disbelieve their existence; and of remedies not one

is yet known that has been able to arrest the progress of this terrible disease. Majendie has made numerous experiments, even by injecting the most famous drugs into the veins, (a much surer means than giving them by the mouth;) and the result of these experiments shows convincingly, that no known substance has the least control over the disease; and that the discovery of a specific is scarcely even to be expected. But the same distinguished pathologist has made one experiment, which seems to show that there may yet be discovered a more direct method of relieving hydrophobia than any yet adopted. The experiment consisted in emptying a dog of a large portion of his blood, and throwing in warm water instead of it. The dog was effectually rendered quiet by it; but, in consequence of the proportion of water being over great, effusion took place in the lungs, and the animal died.

It may be asked, Are we then to give up to certain destruction every patient who is seized with symptoms of hydrophobia? We reply, No; but the hope of cure is so small, that no one bitten by a mad dog should be allowed to refuse the excision of the bitten part: the most urgent remonstrances, nay, when it can be done, force should be employed, to prevent this fatal procrastination. When the disease is once formed, the exhibition of mercury till salivation is induced, with the belladonna in doses so large and so often repeated as to produce the most alarming effects on the system, seems to afford the best chance of success. Four patients thus treated by Dr. Brera recovered. Bleeding, the warm and cold bath, mercury, blistering, belladonna, opium, the scutellaria, the *Alisma plantago*, chlorine, cantharides, arsenic, with a host of drugs so inert that they could under no circumstances have influenced the human frame in the slightest degree, have been lauded, from the recovery of individual cases, as cures for *Lyssa*. The last remedy which has reached us is the oxygenated muriatic acid, which Dr. Previali of Pavia has prescribed with success, (as he says,) where the symptoms were advanced, in a liquid form, from a drachm to a drachm and a half daily, in citron water, or syrup of citron. These trials were made so recently as the month of January, 1822.

Genus V. *Cephalæa*, [from *κεφαλή*, the head.] Head-ache. Generic characters—Aching pain in the head; intolerance of light and sound; difficulty of bending the mind to mental operations. There are five species, besides varieties.

1. *Cephalæa gravans*, stupid head-ache: pain obtuse; with a sense of heaviness extending over the whole head; sometimes intermittent.

2. *Cephalæa intensa*, chronic head-ache: pain vehement, with a sense of tension over the whole head; periodic; often chronic.

3. *Cephalæa hemisphærica*, megrim: pain vehement; confined to the forehead, or one side of the head; often periodic.

4. *Cephalæa pulsatilis*: pain pulsatory, chiefly at the temples; often with sleeplessness and a sense of drumming in the ears.

5. *Cephalæa spasmodica*, sick head-ache: pain partial, spasmodic; often shifting from one portion of the head to another; chiefly commencing in the morning; with sickness and faintness.

All these species are mere symptoms of other diseases: chiefly plethora and indigestion.

Genus VI. *Dinus*, [i. e. whirling round.] Dizziness. Generic characters—Apparent giration of objects, with hebetude of the sensorial powers. Three species.

1. *Dinus vertigo*, swimming of the head: dizziness; sense of undulation in the ground; unfitness for mental exertion.

2. *Dinus illusorius*: dizziness, with dimness of sight,

and imaginary objects before the external senses. Two varieties.

α. *Phantasmatum*: ocular spectres in the semblance of net-work, dark spots, dazzling or rainbow hues before the eyes; murmuring or whizzing in the ears.

β. *Mutationis*: real objects changed in their natural qualities, by error of form, of motion, or of number.

3. *Dinus scotoma*, nervous head-ache: dizziness with blindness and tendency to swoon; often succeeded by head-ache.

These species are mere symptoms of plethora or dyspepsia.

Genus VII. *Syncope*, [from *συνκοπή*, to cut down.] Fainting. Generic characters—Motion of the heart and lungs feeble or imperceptible; diminished sensibility; inability of utterance. Five species.

1. *Syncope cardiaca*: returning at irregular periods: occasional palpitation of the heart during the intervals. Divided into,

α. *Plethorica*: from surcharge of the cardiac or neighbouring blood-vessels.

β. *Vitiosa*: from polypous concretions, or other morbid affection of the cardiac or neighbouring blood-vessels. See *Carditis*.

2. *Syncope inanitionis*: accompanied with a sense of inanition, and extreme general debility. Two varieties.

α. *A fame*; from hunger or long fasting.

β. *A fluxu*; from sudden and immoderate flux, whether of blood, pus, or any other fluid.

3. *Syncope doloris*: preceded by pain or irritation of body.

α. *Interna*; from internal pain or irritation; produced by poisons, worms, or other similar causes.

β. *Externa*; from external pain or irritation; produced by wounds, or other accidents or injuries.

4. *Syncope pathematica*: preceded by the exercise of some sudden and overwhelming passion.

5. *Syncope metastatica*: accompanied with retrocession or repulsion of gout, exantheas, or other diseases.

Fainting, or swooning, is a symptom in so many disorders that it cannot be necessary to treat it as a separate disease.

Genus VIII. *Syspasia*, [from *συσπασσω*, to draw or contract.] Convulsions. Generic characters—Clonic spasm; diminished sensibility; inability of utterance. Three species, and many varieties.

1. *Syspasia convulsio*, convulsion-fit: muscular agitation violent; teeth gnashing; hands forcibly clenched; transient.

In assigning convulsions a place in nosology, we are evidently and confessedly describing a symptom of a great many other diseases, and a mere symptom in all; since the muscular agitation which constitutes convulsion forms no part of the disease, and indeed seems to be one of those salutary processes, which, though depending on disorder, tend nevertheless to remove it. The diseases in which this symptom is most found are teething, worms, and other intestinal irritations; affections of the kidneys, parturition, and labour; various fevers, wounds of the head and other organs. Dr. Good makes five varieties.

α. *C. erratica*; shifting irregularly from one part to another.

β. *C. universalis*; attacking every part simultaneously: occasionally protracted or habitual.

γ. *C. intermittens*; returning after intervals, regular or irregular.

δ. *C. ejulans*; accompanied with shrieks or yellings, but without pain.

ε. *C. infantium*; occurring in infancy; sensibility nearly suspended; features of the face for the most part hideously distorted.

In all these cases we must endeavour to discover the irritated nerves, and excite them to a new kind of action. In the last variety, the infantile convulsion, we should look chiefly to the teeth and bowels. If any irritation seems likely to exist about the former parts, they must be freely lanced; if about the latter, purgatives must be given. If, on the other hand, pain and dizziness of the head be very severe, leeches may be applied. The warm-bath is the first thing to be had recourse to when a child has a convulsion-fit; and the attendants should be cautious not to forcibly open the clenched hands, or in any other way attempt to counteract the muscular motions, since resistance merely increases their exertion.

2. *Sympasia hysteria, hysterics: convulsive struggling, alternately remitting and exacerbating; rumbling in the bowels; sense of suffocation; drowsiness; urine copious and limpid; temper fickle. Two varieties.*

α. H. atonica; from debility of constitution; without any evident proximate cause.

β. H. irritata; from sudden emotion of the mind, or irritation of the stomach or bowels.

In tracing the nervous diseases which grow out of dyspeptic ailments, we have been very full and explicit on that form of hysteria which has its origin in gastric irritation, and especially that which is generally called the *irregular forms of hysteria*. Hysteria, as it arises from uterine irritation, will now be discussed; and this for the purpose of introducing the symptoms of an hysterical fit. The treatment will in no means deviate from that before laid down. The state of the uterine system will be of course looked to; but so great is the sympathy between the uterine and assimilating organs, that irritation in the former generally impairs the functions of the latter; consequently the general plan of treatment cannot be different.

The paroxysm or fit of hysteria is commonly preceded by a sense of lassitude, coldness of the feet, and a copious discharge of pale limpid urine: often by pain in the head, loins, or stomach; which latter organ, as the fits commence, is sometimes affected with vomiting. The paroxysms commonly begin by some pain and fulness felt in the left side of the belly. From this a ball seems to move, with a grumbling noise, into the other parts of the belly; and, making as it were various convolutions there, seems to move into the stomach, and more distinctly still rises up to the top of the gullet, where it remains for some time, and by its pressure upon the larynx gives a sense of suffocation. There is occasionally much difficulty of breathing, and a palpitation of the heart at the onset. By the time the disease has proceeded thus far, the patient is affected with a stupor and insensibility, while at the same time the body is agitated with various convulsions: the trunk of the body is writhed to and fro, and the limbs are variously agitated; commonly the convulsive motion of one arm and hand is that of beating with the closed fist upon the breast very violently and repeatedly. The whole of the belly, and particularly the navel, is often drawn strongly inwards; sometimes there is a violent working, or alternate rising and falling, of the belly, attended with considerable noise. The sphincter ani, during the fit, is sometimes so firmly constricted as not to admit a small clyster-pipe; and there is at the same time an entire suppression of urine. This state continues for some time, with some remissions and renewals of the convulsive motions; but they at length cease, leaving the patient in a stupid and seemingly sleeping state. More or less suddenly, and frequently with repeated sighing and sobbing, together with a murmuring noise in the belly, the patient returns to the exercise of sense and motion, but generally without any recollection of the several circumstances that had taken place during the fit.

Such fits are very liable to recur from time to time, and during the intervals the patients are subject to in-

voluntary motions, to fits of laughing and crying, with sudden transitions from one to the other; while sometimes false perceptions and some degree of delirium also occur, as well as all the various incongruities of the disease to which we alluded above. The preceding account is that of the most common form of the *hysterical paroxysm*; but this is considerably varied in different persons, and even in the same person at different times. It differs chiefly by having more or fewer of the circumstances above mentioned, by the greater or less degree of violence of these, and by the different duration of the whole fit. See Cullen, *First Lines*, par. 1514.

The hysterical paroxysm scarcely resembles any other affection of the body, except occasionally the paroxysm of *epilepsy*; but in epilepsy, the convulsive motions are generally much more violent, and the insensibility more complete; there is foaming at the mouth, and a state of coma, or profound sleep, follows the fit; on the contrary, there is no globus rising into the throat, no agitation of the abdomen, no screaming, laughing, or crying, nor any copious discharge of limpid urine, as is common in the commencement of the hysterical fit.

For the relief of hysterical fits, our means will vary according as the peculiar mobility of the nervous system, on which the disorder chiefly depends, is connected with a plethoric habit, and a purely sanguine temperament, or with an habit the reverse of plethoric, in which a considerable degree of debility, and a pale and phlegmatic temperament, prevail. If the patient be of a robust and plethoric constitution, *blood-letting* is the most effectual antispasmodic that can be employed; and, when the convulsions are severe, or long continued, with a flushing or fulness of the vessels of the face and external parts, it is the only antispasmodic that can be administered with safety. At the same time, the turgescence and activity of the blood-vessels, and the consequent over-irritation of the nervous system, may be diminished by the application of cold to the head and abdomen, or to the body in general. The use of nauseating emetics has also been recommended for this purpose. Where the plethora is not so considerable as to warrant general blood-letting, cupping from the neck, or from any part in pain, may be substituted.

But in those habits which exhibit no marks of plethora or of considerable strength, evacuations of blood, so far from being beneficial, are extremely detrimental, and are absolutely enumerated among the causes which induce the disease. In such constitutions, the hysterical paroxysm is to be diminished or cut short by stimulant and antispasmodic medicines. Of these, opium, in its various preparations, is one of the most effectual; and its efficacy is considerably aided by a combination with the more diffusible stimulants, especially with æther and ammonia, or the volatile alkali. It is most commonly not difficult to force the patient to swallow twenty or thirty drops of sulphuric æther and of tincture of opium, in any liquid, at the commencement or during the continuance of the fit; and this is frequently followed by a speedy cessation of the spasmodic motions. Various other stimulant medicines, especially those of strong and pungent odour, may be administered with good effect under the same circumstances; such are the preparations of valerian, musk, castor, camphor, *assa-fœtida*, oil of amber, *oleum animale*, &c. At the same time, any strong impression made upon the nervous system will frequently arrest the progress of the paroxysm; as the application of any strong-smelling substance to the nostrils, such as burning feathers and volatile salts. The stimulus of heat may likewise be resorted to for the relief of the paroxysm, when it is obstinate; and it may be applied to the whole body, by means of the warm bath; or to the lower extremities, in the way of pediluvium.

After the paroxysm is over, the complaint requires a steady regulation of the circulating and digestive system, of the muscular motions, &c. in the manner before ad-

verted

verted to. This disease is without danger, except when it terminates in epilepsy, a termination by no means uncommon to this and other nervous maladies. This remark naturally leads us to,

3. *Syſpafia epilepſia*, the epilepsy, or falling ſickneſs: general muſcular agitation, without ſenſation or conſciouſneſs; recurring at regular or irregular periods.

Of the two firſt propoſitions contained in the above definition, we have to remark, that they are liable to much uncertainty. The muſcular agitation is of various kinds. In the more common form, in which the attack of the diſeaſe is ſudden, it conſiſts in a convulſive or twitching agitation; in another form of the diſeaſe, the muſcles are in a ſtate of fixed rigidity, like tetanus. The limbs are ſtretched, and the whole trunk extended and fixed by a rigid ſpaſm; the eyes are widely open; not reverted, but ſtaring frightfully; the pupils contracted, and quite inſenſible to the ſtimulus of the ſtrongeſt light: "Erigitur quoque penis in infantibus; in adoleſcentibus ſemen ejicitur, et ſæpius urina ad magnam diſtantiam prorumpit." In other caſes, again, the muſcular ſyſtem is perfectly relaxed throughout the epileptic fit. Sometimes one ſide of the body is more convulſed than the other; ſometimes irregularity is obſerved. Some of the muſcles of the face being more affected than others, exhibit various and violent diſtortions of the countenance. The tongue is often affected, and thruſt out of the mouth, while the muſcles of the lower jaw are alſo affected, and, ſhutting the mouth with violence, often wound the tongue grievouſly. A ſymptom much leſs variable than the muſcular agitation before adverted to, is the ſtate of ſtupor or inſenſibility during the paroxyſm. In a very great majority of caſes this amounts to complete coma; but, in others, a ſlight degree of ſenſibility or conſciouſneſs remains during the paroxyſm. This ſtupor generally comes on ſuddenly, and without any premonitory ſymptoms. Sometimes dizzineſs and pain in the head, and viſual deceptions, are felt before the attack. Sometimes the remarkable ſenſation called *aura epileptica* precedes the attack: this is a ſenſation of ſomething moving in ſome part of the limbs or trunk of the body, and from thence creeping upwards to the head; and, when it arrives there, the perſon is immediately deprived of ſenſe, and falls into a fit. It is deſcribed ſometimes as reſembling that of a cold vapour, ſometimes as like a fluid gliding, and ſometimes like the ſenſation of a ſmall inſect creeping, along the body; and very often the patients can give no other diſtinct idea of their ſenſation, than as in general of ſomething moving along. It might be ſuppoſed that this ſenſation aroſe from ſome affection of the extremity or other part of a nerve, acted upon by ſome irritating cauſe; and that the ſenſation, therefore, followed the courſe of ſuch nerve. But it is not found to follow the courſe of any nerve diſtinctly, and it generally ſeems to paſs along the integuments.

During the epileptic convulſions, the face becomes red, then livid and ſwelled, from the interruption to the circulation through the head; and there is commonly at the ſame time a frothy moiſture iſſuing from the mouth; and in the moſt ſevere caſes the urine and alvine excrements are involuntarily diſcharged. In ſome inſtances a hiſſing or ſtertorous noiſe is emitted. The convulſions have for a few moments ſome remiſſions, but are ſuddenly again renewed with great violence. Generally, after no long time, this terrible ſtruggle ceases altogether, and the patient remains for ſome time without motion, in a ſtate of abſolute inſenſibility, and under the appearance of a profound ſleep. After ſome continuance of this ſeeming ſleep, he ſometimes ſuddenly, but for the moſt part by degrees only, recovers his ſenſes and power of motion, but without any memory of what had paſſed from the firſt ſeizure of the fit; and complaining of head-ache, and exceſſive pain in all the limbs, as if from ſevere fatigue. During the convulſions, the pulſe and reſpiration are hurried and irregular; but, when they

cease, theſe return to their uſual regularity and healthy ſtate.

It is a remarkable and diſtreſſing fact, that epileptic attacks happen much more frequently during ſleep than in waking hours. The diſeaſe pretty equally affects males and females; nor are there any temperaments, habits, or conſtitutions, exempt from its attacks. There are periods of life at which epilepsy is more prone to occur than at others. Infants are ſubject to the diſeaſe; but in them it generally ariſes from irritation in the bowels, and diſappears with the exciting cauſe. The firſt dentition alſo is a critical period; but, if the diſeaſe appear then, it generally goes off when the dentition is completed. Epilepsy often appears, for the firſt time, about the eighth, tenth, or twelfth, year; in which caſe there is a danger of its becoming habitual. Still there is a proſpect of its ſubſiding at puberty; but, if this period paſs without amendment, there is little hope afterwards. In females, the coming forth of the catamenia ſometimes aſſiſts the conſtitution in getting rid of the diſorder; but it much more frequently gives riſe to it; at leaſt there is no period of life in which females are ſo frequently attacked with epilepsy as the period of firſt menſtruation. The intimate connexion between epilepsy and other nervous diſorders we have before adverted to.

The pathology of this diſeaſe is obſcure. Many eminent writers have contended that epilepsy conſiſts in an unuſual fulneſs of the veſſels; and they inſtance the ſuſſing and turgidity of the countenance, the pulſation of the carotids, the dilatation of the pupils, the relief afforded by blood-letting, the appearances on diſſection, &c. in proof of their opinion. We may remark, however, that while we admit that plethora of the head is a very frequent condition of epilepsy, and that it is almoſt always the ſole cauſe of its fatal termination, we cannot allow that epilepsy ariſes from plethora of the brain. If that ſtate were indeed the cauſe of epilepsy, how happens it that epilepsy is not a frequent occurrence in fever, where there is evident cranial plethora? How happens it that it is not more obſervable in caſes in which a mechanical hindrance is oppoſed to the return of blood from the head? How happens it that the ſymptoms of epilepsy vary from thoſe of apoplexy, which is evidently a diſeaſe of fulneſs of the head?

To the appearances on diſſection we ſay, that theſe appearances are not uniform; that frequently no turgence of veſſels is found on necrotomy, eſpecially if the ſubject be young. If, on the contrary, plethora were the cauſe of epilepsy, ſhould we not always find it on diſſection? Granting that *ſome part* only of the brain was affected with *vascular fulneſs*, ſhould we not find that part always and undeviatingly the ſeat of turgence on diſſection? But we do not find this. We find a fulneſs of blood in the head; but we do not perceive it more remarkable on the baſe than on the top of the brain, nor do we find it in all caſes any-where. The fact that bleeding does good in epilepsy, is no proof of the inflammatory origin of the diſeaſe, becauſe bleeding may do good by diminiſhing nervous excitability generally, or by diminiſhing the action of the ſecernents; in which caſe they may ſcrete leſs of the fluid; which, it may be preſumed, irritates ſome part of the nervous ſyſtem. In a word, ſo many are the effects of bleeding on the ſyſtem, that we cannot found any theory on its effects; and if we were to do ſo, the event would not bear us out in it. Bleeding often fails in epilepsy, eſpecially in protracted caſes; and we ſcarcely have heard of a caſe in which bleeding alone was ſucceſſful.

For our own part, we ſhall attempt no theory of this diſeaſe. We believe that the ſtate called irritation (a ſtate we are ignorant of the nature of, but which is manifeſted to us by exaltation of the cerebral functions) is the firſt diſeaſe of the brain; that the intensity of this gives riſe to cerebral plethora, a ſtate which, by over-diſtending the capillaries, paralyzes the movements of the
superior

superior parts of the brain, which are already debilitated by the over-excitement of that part of the brain (the base and spine) from which the nerves of voluntary motion are derived; the phenomena of epilepsy evidently displaying exaltation of one set of nervous functions, with diminution or complete loss of others. The appearances of dissection, as we have before hinted, are generally those of inflammation; redness of the membranes or substance of the brain, slight adhesions and affusions in the same part, are the most remarkable. Irregularity in the bones of the cranium, some of their projecting parts pressing on the brain, tubercles and ossification of the investing membranes, are sometimes met with.

In the *treatment* of epilepsy, we have two objects in view. The first to diminish the sanguineous plethora which is the immediate cause of the fit: hence bleeding may be practised during the fit, or as soon after as may be, especially if fulness of pulse be felt, if vertigo or muscæ volitantes have preceded, or if pain in the head has followed it. The degree to which this evacuation is to be carried must be regulated by circumstances. Cases which arise from idiopathic cerebral irritation, will generally allow of more copious abstractions of blood than those which arise from sympathetic or distant irritations. These cases, of what may be called idiopathic cerebral irritation, are comparatively rare. The more frequent forms arise from irritation in the liver, bowels, or stomach. In these cases, local plethora will still require to be obviated. But our attention must chiefly be directed to the treatment of the malady during the remission, by means of regular and sparing diet. Free purging may at first be used in all cases; but, in those under immediate consideration, this must shortly give way to milder laxatives, lest the over-action of the bowels become a fresh cause of irritation. When uterine irritation occasions the epilepsy, (and when we consider the high importance of this system in the female economy, we shall not be surprised at the frequency of this cause;) emmenagogues if the catamenia are suppressed, or sedatives and tonics according to other circumstances, must be resorted to. The main indication being still, as in all other cases, to keep a certain balance of excitement; by diminishing local plethora, and exciting the secreting and motive organs.

The insufficiency of this plan alone suggests the adoption of other measures in addition to them. These measures, however, we have no faith in, unless the digestive organs and the state of the cerebral circulation be at the same time attended to. The first measure is counter-irritation. This may be done by setons in the nape of the neck; perhaps more favourably by issues or setons on the sacrum, or above the knees. If these applications are too troublesome, an issue in one or in each arm will have a similar effect, in a certain degree. If there are any constitutional disorders which may act as drains or diversions, they should be encouraged. A seton in the scalp has been found useful.

Among the medicines which seem to alter the action of the nervous system, and which consequently do good in protracted epilepsies, arsenic and the nitrate of silver hold the first reputation. The former drug has often cured this disease: it is given in the usual moderate dose of ten drops of Fowler's solution, to be gradually increased. It is certainly not so much to be depended on as the nitrate of silver, but is free from an unpleasant effect which we shall presently note as belonging to the latter medicine. The nitrate of silver is a medicine of great power; and, given when the constitutional treatment has been strictly pursued for some time, will, we believe, rarely fail. The unpleasant effect above alluded to consists in a remarkable blackness or discolouration of the skin which has in some cases followed its use, and which, when once formed, lasts for life. It is said, however, that this may be obviated by keeping out the rays

of the sun during the exhibition of the medicine. It is also stated, that a period of from three to six months' continuance in the use of the argenti nitras has always preceded this discolouration: it is therefore advised that we should never continue the medicine for many weeks together; and in fact, if its good effects are not apparent in a month or six weeks, we believe it will be found quite useless.

Dr. Good makes four varieties of this disease.

α. E. cerebialis: attacking abruptly, without evident cause, except sometimes a slight giddiness. The remote cause is external violence to, or internal injury, malformation, or disease, of the head.

β. E. rigida: the limbs fixed and rigid, with agitation of particular organs.

γ. E. sympathetica: catenating with some morbid action of a remote part, with a sense of a cold vapour ascending from it to the head.

A remarkable but authenticated fact is, that the tourniquet applied round the limb before this *aura* has ascended, often stops its progress, and wards off the disease; but, as mental emotion has great effect in keeping off epilepsy, (as the well-known story of Boerhaave, who threatened his patient out of it, testifies,) we should be inclined to attribute this effect to the influence of the imagination.

δ. E. irritata; from sudden emotion of the mind, or irritation of the stomach or bowels.

Genus IX. *Carus*, [*καρος*, deep heavy sleep; from *καρος*, the head.] Torpor. Generic characters—Muscular immobility; mental or corporeal torpidity; or both. There are six species.

1. *Carus asphyxia*, suspended animation: total suspension of all the mental and corporeal functions. Four varieties.

α. *A. suffocationis*; from hanging or drowning; countenance turgid and livid.

β. *A. mephytica*; from carbonic acid gas, or other irrespirable auras, by the miners called *damps*, (from the German *dampff*, vapour, exhalation.) In asphyxy from this cause, the countenance, instead of being livid, is pallid.

γ. *A. algida*; from severe cold: limbs rigid, countenance pallid and shrivelled.

The three grand organs, the brain, lungs, and heart, support motion and secretion by their action and reaction on each other; and the functions of any one of them cannot be suspended without the suspension of the other two. If the action of the heart ceases, the brain ceases to transmit the nervous energies necessary to the action of the respiratory muscles, necessary perhaps also to the oxygenation of the blood. If the action of the nervous power be suspended, the heart retains its powers a short time; but, the respiratory process being suspended, the exertion of those powers is prevented; and so on.

From these premises it follows, that all cases of death are traceable to the suspension of the use of these functions. In most cases this suspension depends on actual *destruction* of the *powers* or *properties* of the part; and consequently revival is impossible. In many cases the *powers* remain unimpaired, but latent; and are quiet only because the stimulus to them is absent. The wheel of motion, kept up by the action of the heart, lungs, and brain, on each other, has been stopped; but, the powers of action still remaining in those parts, if it is once set going, their reciprocity of action will keep it up. We consequently find sudden death usually from suspension of the function of breathing, as from hanging, drowning, or the like; or from rupture or stoppage, or from mechanical impediment, of the heart; or, lastly, from some unknown change in the brain; presumptively, and indeed certainly in many cases, from rupture of blood-vessels, or general pressure from distention of vessels. To the first of these classes we shall confine ourselves; the second is of course

course remediable; and the third class will be treated of under apoplexy, with the exception of a brief notice in this place.

In the resuscitation of persons drowned or hanged, or rendered insensible by mephitic vapours, the first object will be to place the system in that state of temperature most favourable to the development of the nervous function; viz. that of warmth. The same remark is applicable to cases of suspension of life from cold. It is to be strictly observed, however, that the restoration of heat to the body be not suddenly effected; for, if *stimulation be disproportionate to excitability*, excitation will not be manifested, consequently the increase of temperature should in all cases be at first very small, and gradually augmented. With respect to the quickness with which the increase of heat is to go on, this must vary according to circumstances. We may go on much quicker when suspended animation arises from hanging, drowning, or breathing foul air, than when the body has been frozen. We also begin with a higher temperature at once; for, in the latter case, the friction of the body with water, or even snow, must be the prelude to higher degrees of temperature, while in the former we may at once put the patient into a warm bed, or immerse him in warm grains or water, or whatever may be at hand.

A flexible pipe being introduced through the pharynx into the stomach, a little warm wine and water, with a very minute dose of ammonia, may be injected; some advise also injection per ano. While this is doing, the lungs are to be inflated: this is best done by cutting a hole in the front of the trachea, and introducing a tube affixed to Hunter's bellows; or, if they are not at hand, a common bellows may suffice; the lungs being alternately filled with air, and then exhausted of it by pressure on the chest. Oxygen may be usefully employed when procurable, especially in cases of *A. mephitica*. If a sigh beat at the heart, if the slightest change in the colour of the skin, should indicate an effort on the part of the heart to resume its functions, a little blood should be drawn from the arm, and a shock of electricity of the most insignificant degree passed through this organ. The force of the electricity may gradually be increased.

The above rules embrace all that is requisite for the resuscitation of life. With respect to the *time* at which they are admissible, no rule can be laid down. We may reasonably hope for success when the patient has not been more than a quarter of an hour deprived of air. Seldom do they recover after twenty minutes. Yet so many astonishing cases of resuscitation, after the most extraordinary lapse of time, are on record, (e. g. sixteen or eighteen hours, three days, fifteen days, see Parr's Medical Dictionary, p. 627.) that we should use some measures even in any case within the bounds of probable restoration. But, after twenty minutes' hanging, or three or four hours of submersion, we should be careful not to revive the hopes of the sufferer's relatives merely to plunge them into deeper affliction, by commencing any plans of resuscitation. We cannot pass over, on this subject, a neglect very common among practitioners in general; viz. the desertion of persons suddenly falling (apparently) dead in a fit. It is usual to open a vein or artery; and, if no blood flow, the patient is given up for lost. This practice, deservedly reprobated by the higher orders of the profession, and by no means trusted to in our hospitals, chiefly belongs to the general practitioner. It is acknowledged that these sudden visitations are often irremediably fatal; but nevertheless we are wrong in supposing them to be always so. Often when the veins do not bleed, and the heart remains perfectly quiescent, both these phenomena will appear if stimulating inflations be thrown into the stomach and intestines, and a shock of electricity passed through the heart. On this account, these salutary measures, as well as inflating the lungs, should never be neglected.

This gross abandonment of our fellow-creatures has

been feelingly and forcibly dwelt upon by Mr. White in his work on the "Disorder of Death." This author inculcates the adoption of resuscitative measure in all cases of sudden death. We should, for obvious reasons, not have recourse to it, however, in any but doubtful cases. Dr. Good gives us another variety of Carus, quite beyond the reach of the art of medicine.

δ. *A. electrica*; from lightning, or severe stroke of electricity: limbs flexible; countenance pale; blood uncoagulable. In this variety the system seems to be totally exhausted of its irritable and contractile power.

2. Carus ecstasis, ecstasy: total suspension of mental power and voluntary motion; pulsation and breathing continuing; muscles rigid; body erect and inflexible. Said to be produced by profound contemplation or attention of mind, or overwhelming passion; in which case it is reverie with a spastic diathesis. Dr. Cullen regards it as a modification of apoplexy.

3. Carus catalepsia, trance: total suspension of mental power and voluntary motion; pulsation and breathing continuing; muscles flexible; body yielding to and retaining any given position.

In this species the countenance is said to be florid, and the eyes open, and apparently fixed intently upon an object, but without vision. It is a disease of rare occurrence; and varies in its duration from a few hours, or even minutes, to two or three days. It returns sometimes at stated periods. Forty grains of tartar emetic have been given without effect. (Behrends, in Baldingen N. Magazin, Band ix. p. 199.) In the case of a school-boy, aged eleven years, the paroxysms recurred ten times in twenty-four hours, and never exceeded three minutes in duration. If the attack commenced while walking, the same pace was maintained, though without the direction of the mind. (Stearns, Americ. Med. and Phil. Regist. v. i. viii.) The nosologists, however, mention a variety, in which the powers of deglutition and digestion continue, the food being thrust into the mouth. It has been found to be produced by the same causes as the preceding species; and in these cases is perhaps reverie with a spastic diathesis. Cullen ranks this also as a modification of apoplexy; but, like the preceding, it is destitute of stertorous sleep. The existence of catalepsy may however be reasonably doubted. It has been often feigned by impostors.

4. Carus lethargus, lethargy: mental and corporeal torpidity, with deep quiet sleep. The term is applied by the Arabian physicians, not only to the varieties enumerated below, but to comatose affections generally.

α. *L. absolutus*: without intervals of sensation, waking, or consciousness.

β. *L. cataphora*, somnolency: with short remissions or intervals of imperfect waking, sensation, and speech.

γ. *L. vigil*, apparent sleep: perfect lethargy of body, but imperfect lethargy of mind; wandering ideas, and belief of wakefulness during sleep.

Each of these varieties is found as a symptom in fevers of various kinds; concussion or other injuries of the brain; and repelled gout, or other supposed humours or exanthems.

5. Carus apoplexia, apoplexy: mental and corporeal torpidity, with stertorous sleep. Dr. Good notes two varieties.

α. *A. sanguinea*, sanguine apoplexy; with a hard full pulse and flushed countenance.

β. *A. serosa*, serous apoplexy; with a feeble pulse and pale countenance.

The varieties of Dr. Good we shall not adopt. The recent light which the continental physicians have thrown on the subject of apoplexy by their dissections, and the experience of our own practical authors, unite in overturning the above distinction. A number of arrangements have been made from the few facts known, which will as inevitably be discarded. In the mean time we may remark, that the dividing a disease into many

varieties answers no good purpose. It makes the pathological student expect to find diseases exactly to correspond with the varieties laid down by his nosologist, while every one knows that will never be the case; consequently it seems better to us to describe the various forms of apoplexy under one head, when the student easily perceives their connexion, and the probability of his meeting with many intermediate forms.

We usually find the apoplectic patient in a state in which, as Dr. Cooke accurately says, "the animal functions are suspended, while the vital and natural functions continue; respiration being generally laborious, and frequently attended with stertor." According to Serres, the stertorous respiration is often slowest when the pulse is quickest; and this want of correspondence between the two functions of circulation and respiration this author considers to be a pathognomonic sign of apoplexy.

Although the attack is often sudden, yet, where patients have paid attention to their own sensations, there have usually been some of the following premonitory symptoms; as, pain in the head, ringing in the ears, vertigo, disposition to somnolency, numbness of the limbs, or sense of formication; dimness of sight; flashes of light before the eyes, with swelling and watering of those organs; flushing of the face; turgidity of the jugular veins; trembling and faltering of the voice; failure of the memory; deep breathing, &c. After more or less of the foregoing premonitions, the attack is ushered in, according to Dr. Abercrombie, in one of the three following forms.

"In the first form, the patient falls down suddenly, deprived of sense and motion, and lies like a person in a deep sleep; his face generally flushed; his breathing stertorous; his pulse full, and not frequent, sometimes below the natural standard; in some cases, convulsions occur. In this state of profound stupor, the patient may die after various intervals, from a few minutes to several days, or he may recover perfectly without any bad consequences of the attack remaining, or he may recover with paralysis of one side. This paralysis may disappear in a few days, or it may subside very gradually, or it may be permanent; other functions, as the speech, may be affected in the same manner; and, sometimes, recovery from the apoplectic state is accompanied by loss of sight.

"The second form of the disease begins with a sudden attack of violent pain in the head; the patient becomes pale, sick, and faint, generally vomits, and frequently, though not always, falls down in a state resembling syncope; the face very pale, the pulse very small. This is sometimes accompanied by slight convulsion. In other cases, he does not fall down, the sudden attack of pain being only accompanied by slight and transient loss of recollection. In both cases, he recovers in a few minutes; is quite sensible, and able to walk; continues to complain of intense head-ache; after a considerable time, perhaps some hours, becomes oppressed, forgetful, and incoherent, and thus gradually sinks into coma, from which he never recovers. In some cases, paralysis of one side occurs; but in others, and I think the greater proportion of this class, there is no paralysis.

"In the third form, the patient is suddenly deprived of the power of one side of the body, and of speech, without stupor; or, if the first attack is accompanied by a degree of stupor, this soon goes off; he appears sensible of his situation, and endeavours to express his feelings by signs. In the farther progress of this form of the disease, great variety occurs; in some cases, it passes gradually into apoplexy, perhaps after a few hours; in others, under the proper treatment, the patient recovers perfectly in a few days. In many cases, the recovery is gradual, and it is only at the end of several weeks or months that the complaint is removed. In another variety, the patient recovers so far as to be able to speak indistinctly, and to walk, dragging his leg by the most

painful effort, and after this makes no further improvement. He may continue in this state for years, and die of some other disease, or he may be cut off by a fresh attack. In a fifth variety, the patient neither recovers nor passes into apoplexy; he is confined to bed, speechless and paralytic, but in possession of his other faculties, and dies gradually exhausted, without apoplexy, several weeks or months after the attack." These two last varieties belong to palsy, properly speaking.

In the severer degrees of this disease, the function of respiration is generally much embarrassed; slow and laborious at the beginning of the paroxysm; frequent, weak, and irregular, towards the fatal termination. Stertor, though not always, is very commonly present; and some of our ablest physicians measure the violence and danger of the disease by the degree of the stertor. This last remark is equally applicable to the frothy saliva, or foam, excreted from the mouth, and sometimes blown away from the lips with considerable force. In respect to the pulse, it is observed by Dr. Cooke, that it is "at first regular, strong, full, and slow, beating from fifty-five to sixty-five times in a minute; but, as the disease advances, it becomes weaker, and more frequent; and, in the end, irregular or intermitting." Dr. Gregory, in his Lectures, observes, that "it is a fatal sign when the pulse is first small, and afterwards becomes very full." When apoplexy terminates fatally, as the disease proceeds, the abolition of sense and voluntary motion seems to become more complete; the respiration and pulse more weak and irregular; cold clammy sweats affect the face and whole body; the features shrink, and convulsions supervene, which terminate in death.

The predisposing causes are, age, (few patients suffering apoplexy before the age of 40,) cold and moisture, plethora, and intense thinking. Any circumstance indeed which fills the blood-vessels inordinately, prevents their due activity in the general circulation of the body, or causes extraordinary action in the brain, may predispose to or actually cause apoplexy. We should also mention, among the causes of apoplexy, disease of the heart, whether this arise from excessive action of this organ generally or from disproportionate action of one of its cavities. The connexion between cardiac and apoplectic disease, which has recently been much dwelt on by the French, is worthy of particular attention. The pathology of apoplexy usually laid down, is that it arises from confusion of the brain, its fatality being caused by a coagulum of blood or an effusion of serum, forming the compressing body. Many dissections, however, discovered no kind of lesion of the above-mentioned sort; and M. Serres, in his experiments on animals, found that compression did not produce apoplexy; and in his dissections of the human body, he sometimes found coagula of blood in the brain without the antecedence of this disease. Hence it became allowable to doubt the correctness of the established doctrine. M. Serres, from numerous dissections, infers, that apoplexy, in all instances except those attended with paralysis, is a disease of the membranes of the brain; hence he calls it *meningeal apoplexy*. That the inflamed, and consequently thickened, and generally effusing, state of the membrane may produce apoplexy by its uniform and extensive pressure over the surface of the cranium, cannot be denied; but it may reasonably be questioned whether apoplexy is membranous inflammation, when we consider the extreme pain usually attendant on that sort of disease; nor do we find that the appearances represented by M. Serres are corroborated by the testimony of other authors. It should be recollected also, that we are not obliged to admit, that, because pressure from a clot of blood does not produce apoplexy, (as stated in the experiments and dissections of M. Serres,) therefore pressure is not the cause of the disease. For the distention of the blood-vessels must induce a very great pressure, and one which is uniformly exerted through the whole substance of the brain. Of course, when we consider the compact

compact and unyielding structure of the cranium, and the incompressibility of the substance of the brain, we shall perceive, that a very slight increase in the momentum of the blood must exercise a powerful pressure on some part or other; and it seems to us, that this part will be the *extreme terminations of the arterial branches*. These terminations, having a strong tendency to diminish their caliber in a ratio increasing with the diminution of their size, naturally exert this power in a much greater degree than the larger arteries, which possess not only less of this power, but are so much nearer the heart as to suffer in a greater degree from its impulses: consequently they will be emptied by the pressure of the larger arteries to a degree that will counterbalance all vis a tergo; so that the circulation of the brain will be kept up solely by the middle-sized arteries and veins. That this is the case does not admit of direct proof; yet it is supported by strong inferences, for it is allowed by all, that the brain cannot be diminished in its volume by pressure, except by the emptiness of its vessels. It is also allowed, that the pulsations of the arteries going to the head manifest vigour and fulness; and it is also pretty generally believed, that the blood comes back freely enough through the jugulars; and hence we have the strongest reason to believe, that the capillary system, and that only, is emptied of its blood in apoplexy.

This hypothesis explains the phenomena of apoplexy in a very clear manner. It explains the loss of consciousness that attends this disease; a phenomenon always depending on want of due supply to the arterial terminations of the cerebrum, as we see in syncope from bleeding. It explains how apoplexy is cured by venesection, which, by restraining the action of the heart and the plethora, diminishes the pressure. It shows how, when effusion of blood takes place, and paralysis comes on, there is some amelioration of the apoplectic symptoms; i. e. because the general pressure is removed, and one merely local remains; consequently affecting only particular nerves and their dependant functions. That there are exceptions to the last fact only shows, that the effusion of blood may not always be followed by the dilatation of the capillaries; a fact not more surprising than that emptied arteries do not always contract on their contents, as we have reason to believe happens in phlogosis unrestrained by bleeding.

The appearances on dissection are various. M. Serres states, as we before hinted, that in all simple apoplexies (i. e. unaccompanied by paralysis) the membranes of the brain are alone affected. The disease of membranes is sometimes attended with effusion, which is serous, sanguineous, or sero-sanguineous. Sometimes it consists only of redness, distention of the vessels, of the pia mater, shrinking of the dura mater, and opacity, sometimes accompanied with whitish granulations, of the tunica arachnoides. Most authors state, that the blood-vessels in the substance of the brain are always found much distended. It is in the substance of the brain that sanguineous extravasation from rupture of the vessels is usually met with; the corpus striatum and the thalamus nervorum opticorum being the precise situations of this lesion.

When apoplexy terminates by paralysis, and the latter in convalescence, the changes which the diseased structure undergoes are very numerous. In the first place, the apoplexy terminates in paralysis, in consequence of the rupture of an artery or vein, which renders the pressure, before general, merely local; and consequently, when death does not speedily follow, allows the cerebrum to resume its functions in some part. The extravasated blood after a time becomes surrounded with a cavernous pouch, somewhat like an aneurismal sac, and which frequently opens by a rent into the ventricles, or on the surface of the cerebrum. The parietes of this cavern is very soft, tinged strongly by the blood, about a line or two in thickness, unequal, anfractuous, and evidently

lacerated on its internal surface, and presenting flaky filaments when agitated in water. It is surrounded by a layer of cerebral substance, about three lines in thickness, of a pale yellow colour, and the consistence of thick cream, scarcely miscible with water: this layer becomes gradually blended with, and lost in, the surrounding healthy brain.

From this cyst, absorption of the effused blood gradually takes place; or at least the brain gradually accommodates itself to the impressing body. "After the absorption of the blood, (says M. Rochoux,) the parietes of the cavern, or pouch, above described, approximate, and in some measure cicatrize, by the intervention of a cellular and vascular connexion, forming various areolæ, between which is found a reddish ichorous fluid, more or less abundant, and sometimes glutinous. These parietes are much denser than the rest of the brain, about a line or two in thickness, and of a yellowish-brown colour. I affirm that these caverns are constantly found after apoplexy terminating in paralysis; and their number always corresponds with the number of attacks." This last remark of Rochoux's agrees with that long since made by our illustrious countryman Hunter. See Hunter on the Blood, p. 213.

The treatment of apoplexy varies as it is accompanied with symptoms of paralysis or as these are wanting. In the first attack of the disease, however, the treatment is the same in each variety. The object is to deplete the cerebral vessels. For this purpose the jugular vein should be opened, the patient fixed in an erect posture, and blood drawn until some return of sensation is manifested. Frequently, however, this relief is expected in vain. Seeing the difficulty, therefore, of removing apoplexy, when once formed, it should be the care of the practitioner to notice its premonitory symptoms with peculiar attention. The occurrence of visual deception, the most trifling aberration of the cerebral functions, if attended with sanguineous fulness, or if occurring in patients predisposed to apoplexy from age or formation, will warrant us in taking a large quantity of blood from the arm, and exhibiting a strong drastic purge. The latter being repeated from time to time, and low diet enjoined, by these means an attack of this formidable malady may in almost all instances be warded off.

To return to the treatment of the disease when formed. Instead of the jugular vein, some practitioners have strongly recommended arteriotomy, and have selected the temporal artery for this purpose. It does not seem of much consequence whether the temporal artery or the jugular vein be opened, provided a sufficient quantity of blood be drawn, and that quickly. The smallness of the temporal artery, however, often prevents a sufficient flow of the blood; and no such objection is in force against the jugular vein. When from one of these sources a sufficient quantity of blood has been drawn, our attention must be directed to the state of the alimentary canal. If a large meal has been taken within five or six hours of the attack, or if the patient has been known to suffer under dyspepsia for some time previous to the occurrence of apoplexy, a full dose of ipecacuanha, with copious draughts of warm water, may be administered. In the nervous apoplexy described under Dyspepsia, this measure might precede or supersede blood-letting. Unfortunately, however, the diagnosis between nervous and sanguineous apoplexy is very obscure. When the emetic has operated, aperient clysters are to be given; and these may be followed by drastic purges. The peculiar kinds it is scarcely worth while to specify, as they are sufficiently known. We may remark, however, that the oil of croton, from its intense and sudden action, promises much benefit in apoplexies. If under these circumstances the disease in some measure goes off, restoring consciousness and feeling to the patient, it will be right to prevent the recurrence of the fit by counter-irritating distant parts; as blistering the legs, giving drastic

tic purges, and exciting the kidneys by turpentine or small doses of tinctura lyttæ. As to the time it may be said to persevere in these measures, or in bleeding, when little apparent amendment is produced, no general rule can be given. The termination of apoplexy is generally rapid; but, as we have before noticed, exceptions occur sufficiently often to justify the adoption of every measure till the latest period. When the disease terminates in paralysis, it will be necessary to bear in mind the manner in which a cure is effected. But we shall not enlarge on this subject, because it has received full consideration in another part of this work. See PALSY, vol. xviii. It may be right, however, to remark, that we should keep up a brisk action of the bowels, and take every means to obviate sanguineous fulness and gastric irritation, as measures most likely to procure absorption. In palsy strictly local, or in cases of such old standing that we have reason to consider the morbid deposition no longer the cause of the disease, and that the paralysis depends on inertness of nerves from mere habit, electricity will be found useful.

6. Carus paralysis: corporeal torpitude, and muscular immobility, more or less general; without somnolency. Three varieties.

α. P. hemiplegia; affecting, and confined to, one side of the body.

β. P. paraplegia; affecting, and confined to, the lower half of the body on both sides.

γ. P. particularis; affecting, and confined to, particular limbs.

Palsy is found also, under one of these varieties, occasionally as a symptom in fevers; exanthems; colic, and other affections of the intestinal canal; gout, rheumatism, struma, syphilis, trichoma; diseases of the external organs of sense; wounds, and other external injuries. We do not find that we have any thing material to add to what has been stated in the recent article PALSY, vol. xviii. p. 301-3.

CLASS V. GENETICA, [from γενναίαι, to beget.]

DISEASES of the SEXUAL FUNCTION.

Order I. CENOTICA, [from κενωσις, an evacuation.] Affecting the Fluids. Morbid discharges; or excess, deficiency, or irregularity, of such as are natural. This order contains five genera.

Genus I. *Paramenia*, [from παρα, bad, and μνη, the menses.] Morbid evacuation, or deficiency of the catamenial flux.

The catamenial flux is a secretion from the mucous membrane which lines the uterus and superior part of the vagina. It differs from the ordinary mucus secreted in these parts, in coagulating, in occurring periodically (for it appears in health only once a-month), and in its possessing the colour of blood. Its red colour is however the only property which it has in common with blood, it being in every other respect totally different from that fluid, as Hunter has very clearly shown. See Hunter on the Blood, p. 88. In warm climates, women begin and leave off menstruating at a much earlier period of life than in cold ones. The quantum of catamenial discharge, allowing for great varieties dependant on climate and constitution, may be fixed at a mean ratio of five or eight ounces, and the time of its flowing at from four to six days. Nothing is known as to the intimate processes of the human economy by which this monthly action occurs in the female; but it is known that the menstrual flux is in ordinary cases necessary to fit the uterus for conception, and that its interruption or irregularity exerts a very unpleasant influence over many of the functions of the body. The immediate situation of *Paramenia* is of course, as before stated, the uterus and superior part of the vagina. But these parts are often affected by distinct maladies, which we must remove be-

fore remedies acting on the secretions of the uterus will avail. This genus contains five species, besides varieties.

1. *Paramenia obstructio*. In this complaint the catamenial secretion is *obstructed* in its course; sometimes altogether, sometimes only to a certain degree. From the retention of a large quantity of fluid in the blood, symptoms of plethora are often present; and, from the strong sympathy between the stomach and uterus, the former organ becomes disordered, and draws into disorder the rest of the chylopoietic viscera; consequently the usual dyspeptic symptoms of acid and rancid eructation, load at the pit of the stomach, costiveness, low spirits; &c. are hardly ever entirely absent. There are two varieties.

α. *Emanatio*, retention of the menses: obstructed on their accession, or first appearance. Feet and ankles edematous at night; eyes and face in the morning; with other chlorotic symptoms.

β. *Suppressio*, suppression of the menses: obstructed in their regular periods of recurrence. Head-ache, dyspnoea, palpitation of the heart.

From these symptoms it is sufficiently obvious, that *suppression* of the menses is attended with stronger marks of plethora than *retention* of the menses, while in the latter disease the dyspeptic symptoms are more predominant.

Retention of the menses arises from an inactive state of the uterine secretions; (excepting, of course, cases of imperforate hymen.) This inaction may be the result of an insufficient flow of blood to the uterine system, or from a debility which the secretions in general always suffer when those of the skin and alimentary canal are debilitated. Some have said that the disease arises "from a want of power in the system to propel blood into the uterine vessels with a force sufficient to open their extremities;" but surely this pathology is overturned by the fact, that *vigour* of pulse is sometimes met with in retention of the menses. We must therefore look to the disordered state of the secretions for the cure of this disease. It is to be remarked, that, while some women begin menstruation without any unpleasant feelings, others suffer much pain and illness previous to their accession. Moreover the discharge is often irregular, both in quantity and time of occurrence. The first appearance of them is generally at the age of fifteen or sixteen, sometimes not till eighteen or nineteen. These facts are mentioned in this place to guard against the use of medicine for the relief of these natural irregularities, (if we may be allowed the expression,) while general ill feelings are absent. They do not of course arrest the adoption of remedial measures when unpleasant symptoms arise in consequence of the retention.

The treatment of the first variety is sufficiently simple. It consists in exciting the secretory system generally, and that of the uterus in particular. In the first place, the treatment of dyspepsia must be put in force. The usual palliatives, alkalies and opiates, must correct the diseased secretion of the stomach; slight mercurials must be made to operate on the liver; the bowels must be kept in a regular and healthful state by means of laxatives and appropriate diet; and exercise must be regularly taken. After this, the skin is to be excited by means of the cold bath, followed by friction to produce re-action; and moderate doses of stimulating medicines, as gentian, and more particularly steel, may be given. The indications of exciting the uterus is to be effected by the usual popular means of the warm bath applied to the feet or over the hips; and the milder laxatives may give way to purges somewhat drastic. To these measures may be added, in obstinate cases, mild emmenagogues, as the misturæ myrrhæ comp. or decoct. aloes conf. in the usual doses. The addition of ten or twelve drops of tincture of blistering-fly, or of the black

black hellebore, to each dose of the above mixture, will aid their effect. Emmenagogues may be done without in most cases; and they are of little use, unless the dyspeptic treatment precedes or accompanies their administration.

The two following species of mis-menstruation, and the treatment of suppression of the menses, we shall discuss together, because, as we shall presently show, a few simple principles will better accord with our practical information as to their treatment, than any artificial details drawn from external appearance.

2. Paramenia difficilis, laborious menstruation: catamenia protruded with great local pain, and especially in the loins; part of the fluid coagulable.
3. Paramenia superflua, excessive menstruation: catamenia excessive, and accompanied with hemorrhage from the menstrual vessels. Two varieties.

- α. Crebra; excessive from a too frequent recurrence.
- β. Profusa, profuse menstruation; (*Issue of blood*, Matth. ix. 20.) Excessive from too large a flow at the proper periods.

Of that species of mis-menstruation which is characterized by a more frequent return of the complaint than natural, we can afford no satisfactory pathology, because we are unacquainted with the cause which brings on the catamenia even during health, and consequently cannot be supposed to know the cause of its more frequent occurrence. The improvement of the general health will be generally attended with the cure of this malady. As to suppressed, painful, and profuse, menstruation; the first is sometimes, and the two last frequently, attended with symptoms which characterize a certain degree of periodical inflammation in the parts affected. This is peculiarly the case in these coagulating discharges which are met with in painful menstruation, and which for the most part are of lymphatic construction, and accurately coincide with the surface from which they are exuded. The latter fact is not however perceived, unless the coagula are placed in water, where they gradually display a placental or a tubular form, evidently corresponding with some portion of the uterus. Again; profuse menstruation is sometimes attended with a quick and full pulse, and more especially when an actual hemorrhage takes place. In each of these cases it will be necessary to deplete the system in a moderate degree; in suppression of the menses, by leeching, and to excite the relaxation by a warm hip-bath and brisk cathartics; in painful menstruation, it may in some cases be allowed to take blood more generally; and, in addition to the warm bath, &c. opiates should be given in somewhat ample doses. When the uterine discharges become profuse, the very nature of the complaint itself forbids the use of bleeding; but nevertheless, by low living and by the exhibition of digitalis or plumbi superacetatis, we must in some measure imitate the practice laid down with reference to phlogosis of the mucous membrane, or active hemorrhage.

In the greater proportion of cases, the profuse and the impeded action of the menstruating organs will be found connected with debility of the uterine secretions, and of the body generally; and will require a stimulating treatment. The diet must be regulated so as to ensure general vigour of the constitution, and the bowels and chylipoietic viscera in general excited to secretion. At the time proper for the menses to come on, the usual means of warm bathing of the lower extremities, emmenagogues, and, lastly, electricity passed through the womb, will ensure the accession of the flux; while narcotics and astringents, as opium and sulphuric acid, &c. with rest, will generally be successful in restraining an excessive *passive* discharge.

4. Paramenia erroris, vicarious menstruation: catamenia transferred to, and excreted at, remote organs.

Vicarious menstruation is curable only by such remedies as excite and irritate the uterine secretions. This

disease offers curious examples of that process called metastasis. Dr. Good enumerates many varieties; viz.

- α. Ex oculis fluens. *Dodonæi* Obs. cap. xv. *Bœrh.* Aph.
- β. Ex naribus. *Paræi*, xxv. 12. *Brassavol.* Aph. xxxiii.
- γ. Ex alveolo dentis. *Ronfsei* de Hom. primord. c. 28.
- δ. Ex auribus. *Brassavol.* Aph. xxv. sect. 4.
- ε. Ex mammarum papillis. *Amat.* Cent. ii. cur. 21.
- ζ. Ex vomitu. *Hipp.* de Morb. Mul. *Aræti*, lib. ii.
- η. Per intestina. *Galen.* in Aph. xxxv. f. v.
- θ. Ex podice. *Paræi*, lib. xxiii. cap. 12.
- ι. Per urinam. *Brassavol.* Aph. xxx. f. v.
- κ. Ex umbilico. *Nicolai Florent.* Serm. ii. c. 8.
- λ. Ex digito. *Mercat.* de mulier affect, lib. i. c. 7.
- μ. Ex cute. *Huller.* comment. 667. p. 87. See also Cruikshank on Absorb. 4to. p. 54. *Phil. Transf.* vol. xiv. 121. *Richerand's Elem.* de Phyiol. Aph. clxxi.

5. Paramenia cessationis: catamenial flux irregular at the term of its natural cessation; occasionally accompanied with symptoms of dropsy, glandular tumours, or spurious pregnancy.

The cessation of the menses is, from the unusual quantity of fluids thrown into the general circulation, often attended with a variety of acute and chronic inflammations. These are best obviated by occasional bleedings and purgatives. When they make their appearance, counter-irritants, as setons, &c. are highly useful. On this account we are directed not to heal ulcers and breakings-out in the lower limbs at this period of life. The uterine discharge generally stops at about the forty-fifth year; but it has sometimes continued to a very late period of life. To the age of 71; *Holdesfreund*, *Erzählungen*, n. 4. To the age of 80; *Bourgeois*, *Hebammenb.* part. ii. cap. 6. To the age of 90; *Hugendorn*, cent. ii. obs. 84. See, for various cases, *Pelargus*, *Med. Jarh.* iii. 347, and following.

Genus II. *Leucorrhœa*, [from λευκος, white, and ῥεω, to flow.] Fluor albus, or whites. Generic characters—Mucous discharge from the vagina, commonly without infection; disappearing during menstruation.

The discharges from the female organs of women have been for the most part indiscriminately treated of under the term *whites*. The impropriety of this sweeping designation is evident from the variety of diseases of which a discharge of this kind may be a symptom. The common causes of discharges from the vagina are the same as those of mucous phlogoses in general; viz. cold debilitating the functions of the skin, mechanical irritation (hence the occurrence of leucorrhœa from excessive copulation), diseased secretions poured over the surface of the vagina, as when the uterus is diseased, or distant irritation. The vagina is also exposed to increase of its mucous discharge from relaxation of its muscular coat; for this, of course, allows a greater afflux of blood to pass to the mucous membrane, and hence more copious secretion follows. The discharge has in so many instances been traced to this last source, that most people consider *whites* as the result of weakness, and prescribe stimulating medicines without caution. It should be remembered, however, that all mucous membranes are liable to similar kinds of diseased action; and that inflammation is perhaps of all others the most common affection they are subject to.

The distinction which has been made by Dr. Clarke of the different varieties of this disease are taken from the appearance of the discharge. It appears that a transparent or a white mucous discharge is the result of inflammation of the mucous membrane in the vagina, uterus, meatus urinarius, or bladder; and that a more purulent discharge has its origin from the same source in more violent cases. On the other hand, we find the *purulent* discharge, especially when mixed with blood, a symptom of the corroding or the carcinomatous ulcers of the cervix

vix uteri, of abscess of the womb, or abscess in some part of the vagina. Lastly a *watery* discharge, according to Dr. Clarke, accompanies the cauliflower excrescence of the os uteri, hydatids of the womb, and the oozing excrecence of the labia. There are three species.

1. *Leucorrhœa communis*, simple inflammation of the mucous membrane of the vagina, is characterised by a discharge of a transparent mucus of a gelatinous nature, which does not render water turbid, and which, when it arrives at the external labia, acquires from friction with the air a white colour. This discharge may be produced by two different kinds of action in the mucous membrane, which bear a close analogy to two diseases of a similar but distant structure; viz. acute and chronic bronchitis. Thus in one instance this discharge is caused by cold, full living, and idleness; attacks robust and above all corpulent persons, who for the most part menstruate in great quantities; is attended with much disorder of the hepatic functions; with vertigo, musci-volitantes, and other symptoms of undue circulation in the head, and with a full pulse. In a word, all the symptoms of plethora are sufficiently manifest. The treatment is in this case sufficiently obvious. It consists in removing the general plethora by bleeding from the arm, and the local fulness by leeches or cupping. The bilious disorder is to be remedied by regular doses of calomel; the bowels kept open by brisk saline, but not drastic, cathartics; and a low diet enjoined. At the same time, the discharge, as it is a consequence of plethora, and as it tends to cure more violent maladies, as hæmorrhage and apoplexy (to which the patients under consideration are very liable), must not be suddenly restrained. At first indeed the warm bath and the frequent injection of warm water into the vagina will be proper, not only to cleanse the acrimonious discharge, but to make it flow more freely; and it will not be till some time after the plethoric, biliary, and indeed all unpleasant symptoms except the discharge, are gone, that we may venture to order an astringent application. This may be a weak solution of sulphate of zinc, or of super-acetate of lead.

But the other form of the complaint which, as we before stated, depends on the relaxation of the muscular structure of the vagina, and so connected with actual debility, attacks weak and dyspeptic patients, those who live in a moist atmosphere (hence its frequency in Holland), those who keep bad hours, inhabit hot rooms, and lie long and late in bed, or who suckle their children for too long a time. Pallor, and a yellowish exanguious state of the skin, with a doughy feel, and in the feet and legs slight œdematous swellings of the integuments, mark the patients of this malady. The pulse, small and sometimes quick, is liable to acceleration from occasional nervous palpitations. Anorexia, flatulence, costiveness, and irregularity in the secretion of bile, pave the way to a more or less marked degree of hectic fever, which eventually leads to other and more eventful maladies.

The treatment of these sort of cases must of course be different from that before described. The removal to a drier atmosphere, the interdiction of late hours, the substitution of a daily nap on the sofa for late indulgence in bed, are the first and most obvious measures. Passive exercise must be used in the early stages of the malady; and active muscular motion must be reserved for cases in which the system has recovered, or has not lost, a certain degree of vigour. The food must be at first light, and requiring little power in the stomach to digest it; as soups, jellies, &c. but these must be succeeded by solid animal food before the vigour of constitution will be quite restored. The bowels must be kept open by mild laxatives; the liver, if inactive, must be operated on by a few grains of blue pill every other night. Gentian and carbonate of ammonia will tend, in conjunction with proper diet and a free state of the bowels, to excite the powers of the system in a very salutary manner. As soon as some material amendment has taken place in the gene-

ral health, and not till then, should we turn our attention to the restraining of the discharge. For this purpose the gentian and ammonia may be advantageously changed for the exhibition of some preparation of iron, combined with an alkali, and occasionally with myrrh. Cold bathing and astringent injections may now be used. For the latter, solution of alum or sulphate of zinc are the most proper, their strength being, as in other cases, gradually increased.

2. *Leucorrhœa nabothi*, labour-flow: slimy, and for the most part tinged with blood. Secreted by the glandulæ nabothi situate on the mouth of the uterus; and chiefly on the beginning of labour.

The same parts are however liable to another discharge, coming at a different time, and possessing characters quite different from the above description. In some cases of vaginal discharge, the fluid seems to come from the superior parts; and hence, though probably mixed with the common mucus of the vagina itself, exhibits characters somewhat different. It is described by Mr. Clarke, who calls it the *white mucous discharge*, as being "opaque, of a perfect white colour, and resembling in consistence a mixture of starch and water made without heat, or thin cream." This discharge is easily washed from the finger after an examination; and it is capable of being diffused through water, rendering it turbid. Mr. Clarke is of opinion, that "a morbid state of the glands in the cervix of the uterus probably gives rise to this discharge; at least, the cases in which it comes away are those in which the symptoms are referred to this part; and, when pressure is made upon the cervix uteri under such circumstances, the woman complains of considerable pain."

It seems from the causes and symptoms of these diseases, and from the nature of the curative agents found most useful in its treatment, that the above morbid state of the cervix uteri is chronic inflammation. With regard to the pathognomonic sign, tenderness of the os uteri, this of course is only known by introducing the finger into the vagina. In doing this, little irritation is excited in the vagina itself; but, as soon as the os uteri is touched, a great degree of uneasiness is felt. The same sensation is also felt during the passage of an evacuation along the rectum. The cervix uteri feels polished and smooth; and this distinguishes the disease from carcinoma, in which *hardness* is felt; and from ulceration, in which of course some breach of surface is felt. In this affection few symptoms are present. The patient complains of uneasiness in the back, and lower part of the abdomen, which gradually becomes actual pain. Riding, or other motion tending to induce pressure, increase this pain in some degree; but the straining required to evacuate indurated fæces renders it very acute. The same attempt often squeezes from the vagina the mucous secretion, which is always accumulated there in a greater or less quantity in this disease; and, as it falls down on the motion, is apt to lead persons to suspect that some disease in the rectum has given rise to the discharge. A certain degree of strangury also is generally present; and sometimes cystic tumors in the vagina have been met with, when they have probably been caused by the same inflammatory action which gives rise to the tenderness of the os uteri. The presence of a mucous discharge, the absence of pain when the lower part of the belly is pressed on, and the absence also of periodical exacerbations of pain, distinguish this disease from hysteritis, or inflammation of the substance of the womb.

The *treatment* differs little from that laid down for leucorrhœa dependant on inflammatory action. Local blood-letting, by cupping or leeching the back or groins, repeated according to circumstances, forms the basis of the treatment; and, where symptomatic fever presents itself, venesection is proper, though seldom necessary. The hip-bath is a useful remedy, and the patient may fit in it twice a-day, at the temperature of 90°. Where this last cannot be procured, fomentations to the back or abdo-

men are serviceable. Tepid water thrown into the vagina, constitutes a direct fomentation to the part affected. Mild laxatives, and, at bed-time, five grains of Dover's powder, and three of camphor, may be resorted to with advantage. If strangury be considerable in degree, a large dose of opium will be necessary, such as 60 or 80 drops of laudanum, and smaller doses frequently repeated afterwards, with mucilaginous drinks. Whenever the bladder is unequal to the expulsion of its contents, the catheter should be used; for it will be in vain to trust to diuretics. Although it is not often necessary to keep the patient in bed, yet the horizontal position should be persisted in for some time, and all new causes of irritation (especially copulation) avoided.

The next appearance to be noticed in vaginal discharges is that of pus. This fluid is sometimes *secreted* from the mucous membrane of the uterus and vagina in consequence of inflammatory action. It is distinguished from the fluid which flows from an ulcer or abscess by this circumstance; that the pus poured from an ulcerated cavity in the uterus is frequently mixed with blood, while that secreted from the unaltered membrane during the inflammatory process is rarely discoloured by the sanguineous fluid: it is in fact a muco-purulent discharge. Now the symptoms of this complaint are, generally speaking, not very different from those which attend the mucons discharge which inflammation induces in the parts in question. When the vagina is particularly affected, itching of the external parts, and a sensation of *burning*, extended from the labia "up the body" (as it is expressed by patients), are experienced; and, when the os uteri is open, little difference is found between this and common phlogoses of its lining, except perhaps that the pain in the last is more violent. Add to this, that in all cases of purulent discharge, even when this is in small quantity, hectic fever and weakness and emaciation are seldom absent.

It is to be remembered, however, that the structure of the vagina and of the uterus renders them liable to some peculiar symptoms from the disease in question. Thus the cellular substance of the vagina, being much furnished with vessels, and liable to many sources of irritation, is liable also to have abscesses formed, when the mucous membrane has been so much diseased as to produce pus. These abscesses are of course only to be detected by manual examination; and to be treated by the practice usually followed in other abscesses. It is first discovered on the part of the patient by a sudden breaking of some internal part, followed by a copious discharge.

When pus is secreted in the womb, and the os uteri, from its closure by means of coagulable lymph or from the firmness of its contraction, denies an exit to this fluid, a peculiar set of symptoms arise. The uterus swells in a rapid manner; so rapidly indeed, that it might be taken for pregnancy, if the tenderness of the belly, the acute pain in the back, the general disease of the patient, and the occasional passing of menstrual mixed with purulent discharge, did not forbid such a supposition. Sometimes the os uteri opens in consequence of the distending form of the enclosed fluid; but on some occasions this has been here so far from taking place, that the pus has only found exit by an ulcerated passage through the stricture of the diseased organ into the rectum. It is scarcely necessary to add, that the usual means of moderating vascular action, soothing the nervous irritability of the part by fomentations, and of the system by narcotics, and inducing an healthy state of blood by proper diet and medicine; are required in this disease to be conducted in the same manner as in abscess, or in inflammation of the mucous membranes.

3. Leucorrhœa senescentium: thin, acrid, frequently excoriating and fetid.

Under this term we shall include those diseases which, according to Mr. Clarke's arrangement, are attended with a *watery* discharge. In doing this, we fear we pay too

little respect to the nomenclature of Dr. Good; but the fact is, that we find no evidence of this kind of discharge as an idiopathic disease; and moreover, we do not find that all the diseases of which it is a symptom are specified in our system. To leave them out on this account would be unpardonable.

1. A discharge resembling clear water, containing very little or no glutinous matter, results from cauliflower excrescence of the os uteri, hydatids of the uterus, or oozing excrescence of the labia.

The cauliflower excrescence is so named from its striking resemblance to the upper surface of a cauliflower, or a head of brocoli. The surface is granulated, and consists of a great number of small projections, which may be picked off from the surface, as the granules may be detached from the vegetable. The firmness of the tumour agrees also with that of the plant: here the granules will be large and irregular, there small and equal. From a very fine membrane spread over the surface of this tumour is poured out the aqueous secretion. As the tumour occupies the upper part of the vagina, it is concealed from view; but in some cases, where it attained a considerable size, Mr. Clarke had seen it, and asserts that it had a bright flesh-colour. It pours out arterial-looking blood very plentifully, if injured during examination, and sometimes spontaneously in plethoric habits. This excrescence has little or no sensibility; can never be traced into the cavity of the uterus; is sometimes rapid in its growth, but much influenced by the contractile power of the vagina, being more rapidly developed in married women who have borne children than in single women. It is highly vascular, and is of a structure analogous to the placenta.

A perception of moisture, and then gradually an inconvenient discharge, are the first symptoms. The discharge increases; but, being unattended by pain or fever, the complaint is neglected, until a tinge of blood is perceived, or the colour of the cheek begins to change, with a corresponding loss of strength. Then the alarm is taken. A discharge of blood almost always succeeds sexual intercourse; the digestion begins to be impaired; hysterical symptoms are produced, and all that host of inexplicable phenomena consequent on derangement of the chylopoietic viscera, increasing the patient's stock of bodily and mental misery. Increase of debility is accompanied with decrease of absorption, and, of course, with depositions of fluid in different parts of the body, producing œdema of the feet at night, and puffiness of the face and eyelids in the morning. On this account, hydrothorax may destroy the patient long before she would have been exhausted by the disease itself. An alarming hæmorrhage sometimes induces a fatal syncope. No great degree of emaciation, in general, attends the complaint. On the contrary, in several dissections, a layer of fat, of considerable thickness, has been found covering the abdominal muscles. This fat state of the subject of such an excrescence, forms a remarkable contrast to the extreme emaciation which attends carcinomatous tumours. The feel of this tumour by the finger distinguishes it from the hardened cervix uteri of the incipient carcinoma, and from the irregularity of surface met with in the ulcerated state of the same organ. The discharge also differs; yet, as in this complaint a discharge is present, as now and then it is fetid, as a tumour is found upon examination, and as the disease has always, sooner or later, a fatal tendency, it has been too frequently confounded with carcinoma. The prognostic, as to the *ultimate event*, it is true, must be nearly the same; but there is reason to believe that the size of the tumour may be *diminished* by judicious management, particularly by diminishing the action and fulness of the blood-vessels of the neighbouring parts. At all events, enlargement of the tumour will be greatly retarded.

With this view, local blood-letting from the region of the sacrum and hips is a most valuable remedy. The quantity

quantity of blood to be taken away must be regulated by the size and degree of resistance in the tumour, and by the quantity of watery discharge (always a measure of the extent of disease), regard being paid to the strength of the patient. At the same time it must be recollected, that if, by the loss of eight or ten ounces of blood by cupping, the quantity of the watery discharge can be diminished from four ounces to two ounces daily, the patient will, at the end of a fortnight, possess more power than if she had lost four ounces of blood by cupping, and the quantity of the watery discharge had been diminished to three ounces daily.

Local bleeding, however, when intemperately employed, may hasten the patient's dissolution. It should not be prescribed when much œdema of the feet is present, nor during the prevalence of much debility; in fact, it should not, at any time, be carried farther than just to produce the intended effect, as there are many other auxiliary arts in reserve. If the patient should be a strong woman, and if the disease has not been of long duration, twelve or fourteen ounces of blood may be taken away: if she should possess less strength of constitution, it may be sufficient to order the removal of six or eight ounces only; and to repeat this once in three weeks or a month. The application of leeches to the pudendum is also serviceable. All general and local stimuli are of course to be avoided; the diet to be of the mildest kind, as puddings, white fish, and vegetables. Wine and sexual connexion to be entirely proscribed. The bowels should be so managed, that one easy motion be daily procured; all straining efforts in evacuating the rectum being as injurious in this as in other uterine complaints. The sulphate of magnesia in infusion of roses will be found a mild laxative.

The enlargement of the tumour may be greatly diminished, and the discharge consequently lessened, by the application of cold to the outside of the pelvis, and by the injection of cold fluids into the cavity of the vagina. Cold water may be applied to the external parts of generation, to the pubis, and to the loins, by means of a sponge; and this may be done, not once or twice only in the twenty-four hours, but several times: by keeping the parts in this way constantly chilled, the blood vessels will be contracted, and the advantages resulting from such a mode of treatment will soon be made evident, in the diminution of the quantity of the discharge, and in the improvement of the constitutional health. The recumbent posture ought to be insisted upon; and, in injecting fluids, care should be taken that the syringe does not touch the excrescence, otherwise blood will flow. A cylindrical syringe, the diameter of which is about three quarters of an inch, the extremity being rounded off, may be used for this purpose; and the patient should be cautioned not to introduce it farther than an inch, or an inch and a half.

In that aggravated form of the disease, where the tumour nearly protrudes, the patient should lie down upon the bed with her hips raised, and a small quantity of the astringent fluid should be poured in between the labia, with a common butter-boat. When the tumour has actually protruded, compresses dipped in an astringent fluid may be applied, or a sponge wetted with it may be lightly drawn over the surface. The astringent injections recommended, consist of sulphate of zinc and water in various proportions, or alum and water. Solutions of the mineral astringents in decoctions of astringent vegetables, constitute applications possessed of great power: such as, *cort. granat. contus. ꝑss. aq. distillat. ꝑxiiij. coque per sextam partem horæ et cola, dein adde liquoris colati aluminis ꝑij.* Galls, or oak-bark may be substituted for the pomegranate. The efficacy of the latter formulæ in a great measure depends upon the tannin. As this principle has the power of coagulating albumen, so as to form an insoluble precipitate, it becomes necessary to prepare the patient for a circumstance which may

otherwise occasion great alarm in her mind, the appearance of thin, whitish, or ash-coloured, flakes, which will come away from time to time. These are frequently thought to be portions of the body, and the agitation of the patient's mind has been very considerable, until it has been quieted by some explanation. Where irritable vagina exists, a mixture of decoction of oak-bark and linseed tea, forms a less irritating lotion.

In many cases, where the constitution has suffered, the powers of nature require to be recruited, and we must employ some light tonic. The muriatic and sulphuric acids are appropriate medicines. Sulphate of zinc, in such doses as do not excite vomiting, and combined with an essential oil to reconcile the stomach to its use, is recommended as occasionally useful. Say as follows: Sulphate of zinc, gr. xv. extract of hop, ʒi. oil of cinnamon, gt. iij. ℞. in pil. xv. one to be taken every night.

In some instances the resources of the medical art fail, and then the ligature holds out a prospect of relief, which has now and then been realized. True it is, that the fungus may, and probably will, be regenerated; but a considerable time may elapse before a tumour of large size forms; and in the interim, by the removal of the feccreting surface, the discharge will be restrained, and time will be afforded for the powers of the patient to recruit.

z. Hydatids of the uterus are connected with the uterus and with each other by small filaments and by portions of substances partly bloody and partly gelatinous. A similar substance is attached to the internal part of the uterus, from which the footstalks of the hydatids grow. The number of these hydatids increasing, the cavity of the uterus enlarges; and, when the organ has attained a large size, it contracts upon its contents. When the pelvis can no longer contain the enlarged uterus, that viscus rises into the cavity of the abdomen, and may be felt as a circumscribed tumour through the parietes. The function of menstruation is usually interrupted.

In the examination of a patient labouring under hydatids of the uterus, the body of this viscus will be found enlarged, and suddenly bulging out from the upper part of the cervix. All these symptoms attend other enlarged states of the uterus; but there remains to be mentioned one other symptom which serves to distinguish this disease from all others, and from pregnancy,—and this symptom is the discharge of an almost-colourless watery fluid. This watery discharge is to be distinguished from that which attends the cauliflower-excrecence, by the irregularity and suddenness of its appearance and cessation; being produced by a rupture of one or more of the coats of these hydatids, in consequence of the occasional contraction of the uterus upon them, or of any sudden violence, as in the act of coughing or sneezing; whereas the discharge from the cauliflower-excrecence, being a secretion from its surface, is constantly escaping. The fluid watery discharge may be distinguished from those splashes of urine which sometimes come away from pregnant women, by being wholly inodorous.

Sooner or later a parturient nifus takes place: the os uteri opens; the hydatids are expelled by periodical pains; and then, for the first time, danger presents itself in the form of a frightful hæmorrhage. The reason of this last is obvious. The placenta covers only a limited space of the internal surface of the uterus, whereas the hydatids spring from every portion of the cavity. No means of curing or arresting the progress of this disease have hitherto been discovered. The patient is to be apprised of the nature of the complaint, and the event is to be patiently waited for, treating occasional symptoms as they arise. When the time arrives at which the uterus struggles to unload itself of its contents, then all the skill and energy of the practitioner will be necessary to control the hæmorrhage, and sustain the powers of the constitution. Perfect quietude in the horizontal posture should be en-
joined,

joined, and all stimulating food and drink denied. Cold applications are to be used to the loins, abdomen, and external organs; and portions of ice (their acute edges being rounded off by being held in the hand) may be introduced into the vagina, or into the uterus. "Let it not, however, be forgotten, (says Mr. Clarke,) that the great remedy for uterine hæmorrhage is uterine contraction; and every possible mode of exciting this is to be put in practice. The application of a bandage round the abdomen has sometimes the power of exciting this contraction: but, if the hæmorrhage should continue profuse, and if any portion of the hydatids should remain in the uterus, an attempt should be made to remove these, in order to produce complete contraction of the muscular fibres. Two or three fingers, or the whole hand, covered with pomatum, should be carefully introduced into the uterus, and carried up between the sides of the uterus and the hydatids, which are to be detached from the part to which they adhere by the most gentle means. The mass, being now included in the hand of the operator, is to be brought out of the uterus, the surgeon recollecting always, in the performance of this operation, that the degree to which the os uteri is dilatable without laceration, is in proportion to the size of the whole uterus, both in pregnancy as well as in this disease. So that, supposing the uterus in this disease to be enlarged to the size of that viscus in the sixth or seventh month of pregnancy, the whole hand of the operator may be, if necessary, introduced through the cervix; whereas, in smaller dimensions of the uterus, if any attempt is made to introduce the whole hand through the cervix, however carefully it may be attempted, a laceration of it may ensue, and thus the patient may be involved in a new danger. The expulsion over, and hæmorrhage restrained, the constitution must be invigorated by suitable means, particularly by the cinchona and mineral acids.

3. *Oozing Tumour of the Labium.* In this, the discharge arises from the surface, or rather from the interstices of the tumour. The fluid is of a watery nature, and sometimes very abundant in quantity, being renewed almost immediately after the surface has been dried by a napkin. Blood never issues from the tumour, so that it has no analogy with cauliflower excrescence. The tumour is sometimes so large as to occupy the whole of the labia, extending even to the mons veneris. It seldom projects more than a line or two above the plane of the surrounding skin. The colour of the tumour varies little from that of the cuticle of the neighbouring parts. In the immediate neighbourhood of the tumour œdema is occasionally met with, but the tumour is not œdematous; soon after the surface of the tumour has been wiped quite dry, a watery fluid begins to ooze from it, and to form drops, which, having become large, at length run off, and keep the surrounding parts in a state of constant humidity; sometimes soreness and excoriation take place, as upon the upper lip when the secretion from the nostrils is increased, but the tumour itself is seldom rendered more sensible.

The secretion from this tumour corresponds, in appearance, with that from the cauliflower excrescence. The disease having begun, it continues to enlarge; and insulated patches of it appear in the neighbouring parts, at length running into each other. The complaint seldom attacks young women. The principal inconveniences of this disease are, an itching, sometimes preternatural sense of heat, and a watery discharge. When excoriations of the neighbouring parts are present, or an erysipelatous blush appears upon them, more advantage will be derived from the internal exhibition of the cinchona in substance than from any other medicine; but no impression will be made upon the disease itself by this valuable remedy; and even the symptoms above mentioned will frequently recur, and call for the employment of other remedies.

A nutritious diet, and a moderate allowance of wine,

should be prescribed. External applications may mitigate, but never cure, the complaint. Common starch-powder, repeatedly sprinkled over the parts till it cakes upon them, is a very efficient remedy; but it will be necessary to keep the patient in the horizontal posture during its use; a position indeed which has a beneficial influence in itself. A mixture of starch-powder and cupri sulphas, very finely levigated, has been found serviceable; or a solution of cupri sulphas, or of argentum nitratum, may be used. A solution of gum arabic in decoctum quercus may be tried. Cold water is also a valuable remedy, and there are no cases in which it will not afford much temporary comfort. Perhaps the most effectual applications are of a spirituous nature. Strong new port-wine has afforded great relief; and, when this has failed, brandy or arquebuse may be employed, or even alcohol. The complaint, upon the whole, is very rare.

Genus III. *Blenorrhœa*, [from *βλενω*, mucus, and *ῥεω*, to flow.] Muculent discharge from the urethra or vagina; generally with local irritation, and dysury; not disappearing during menstruation. (*Gonorrhœa*, *Sauv.* and *Cullen.*) Three species.

1. *Blenorrhœa simplex*, (*Gonorrhœa pura*, *Sauv.* and *Cull.*) Simple increased secretion from the mucous glands of the urethra.

That a mucous secretion may arise from the meatus urinatus of the female without specific venom, is well known; and hence, were not cases on record to prove the fact, we should still infer the possibility of a gonorrhœa existing without copulation. We may remark, however, that this is perhaps one of the rarest diseases we are subject to. It would of course require the very simple means of plentiful dilution and mild purgatives.

2. *Blenorrhœa luodes*, (*Gonorrhœa impura*, *Cull.*) Clap. Muculent discharge from the urethra or vagina intermixed with specific venom; burning pain in micturition; produced by impure coition; infectious.

We shall enter into no speculations as to the nature of clap, whether it be lues, owing its character to the peculiar structure it occupies, or whether it be a distinct disease. At all events, its appearance and its cure are quite different; and, whether the mucous membrane is unfavourable to the absorption of the virus, or whether the virus of clap is not capable of affecting the constitution at large, secondary symptoms do not follow this disease. It comes on from forty-eight hours to four days after copulation; and is usually preceded by tingling and itching of the penis. The above definition embraces all the characters of *Blenorrhœa* in men. In women the disease is apt to be confounded with some forms of *Leucorrhœa communis*. We must distinguish the diseases chiefly by considering the life and habits of the patient, and whether any cause has been present which was likely to bring on *Leucorrhœa*. The *Leucorrhœa*, as Dr. Good observes in his definition, stops during menstruation, which is not the case in *Blenorrhœa*. It is also said, that in women the early stage of *Blenorrhœa luodes* is marked by an unusual desire for sexual intercourse, and an itching of the labia. Pain in micturition, so common in clap, is seldom felt in *Leucorrhœa*. The nature of *Blenorrhœa* is this. A peculiar stimulus, acting on the secretions of the mucous membrane of the vagina or urethra, excites them to an action which elicits from the blood the same material as this stimulus itself consisted of. This diseased state of the secretions induces an inflammatory affection of the blood-vessels of the same part, which inflammation seems to be actually necessary to keep up the diseased secretion. *Gonorrhœa* therefore is cured in two ways. First, by reducing the inflammation, when we shall merely have secretion from laxity of vessels to contend with. Secondly, by inducing a stimulus of so opposite a kind in the diseased secretions, that they at once lose the property of secreting morbid matter. With the first view, cold applications to the exter-

nal surface of the penis, or *mons veneris*, act by sympathy in restraining internal inflammation: low living and keeping the penis tied up towards the belly act in the same manner. Large quantities of water or tea, and diuretics, by diluting the salts of the urine, render them less irritating, and consequently act as a sedative on the inflamed membrane when this fluid passes through it. The action of soda, in neutralizing any free acid in the urine, operates also in the same way. Under this plan, the inflammatory stage of *Blenorrhœa* generally goes off; the *pain in making water* (which is always a sign of inflammation) subsides; and a mere chronic discharge, from laxity of vessels, remains. This is curable by the use of injections, as solutions of sulphate of zinc or alum, and by the exhibition internally of *copaiba*. In very obstinate cases the *copaiba* may be applied locally, by means of a bougie. In this stage the malady is called a *gleet*, is often very troublesome, and requires frequently to have a variety of stimulants tried before any one will succeed in altering the action of the secretants.

We have before said, that certain stimulants applied even in the earliest stages of *Blenorrhœa* had the property of so affecting the secretants as to stop their secretion, and consequently the inflammation which arose out of them. Thus some patients have used astringent injections as soon as the tingling sensation at the end of the penis (the first symptom) made its appearance, and with success. This, however, is a very hazardous experiment; for, if the tendency to inflammation be, from constitutional or other causes, very strong, orchitis is apt to ensue, and prove a troublesome malady.

A more soft and efficient stimulus is the *cubeba*, a drug taken internally in doses of from one to three drachms three times a-day. This medicine sometimes indeed totally fails; but at all events never has appeared injurious, and in the majority of cases cures the *Blenorrhœa* without leaving behind it any gleet or other unpleasant symptom. If its good effects are not apparent in about a week, it is proper to leave it off, and commence the antiphlogistic plan before laid down. The tincture of *cubebæ*, combined with equal parts of the balsam of *copaiba*, is a very excellent medicine in old-standing gleet. From the above statement it very clearly appears, that *Blenorrhœa* is in itself a disease of no great danger or importance, and one which is easily cured; but it is occasionally accompanied by diseases which are the effect of an inflammatory character, and are troublesome both to the patient and the practitioner. These are, inflammation of the testicle, simple bubo, chordee, and stricture.

The inflammation of the testicle generally comes on when the discharge from the urethra is stopped, and subsides as the latter returns. It is treated in the same manner as *Empressina orchitis* in general, which see, p. 264. The bubo which accompanies *Blenorrhœa*, does not seem, like the true venereal bubo, to depend on the absorption of matter, but rather to owe its origin to an irritation conveyed along the absorbents. This also requires the same treatment as simple bubo, which see.

Chordee is used to express an affection in which the penis is curved downwards at the time of erection, the under surface of this organ having a hard line running along, and being attended with the most excruciating pain. This symptom arises from an unusual degree of inflammation affecting the corpus spongiosum of the inferior part of the penis, which consequently is permanently contracted, and cannot follow the dilatation of the corpora cavernosa, or superior parts. Leeches to the penis or perinæum are proper, with cold bathing of the affected part when the irritation comes on. If nothing be done, the patient, after suffering the most intolerable torment for some days, is relieved by the spontaneous resolution of the inflammation, or by a rupture of vessels, from which copious bleeding and ultimate relief follow.

Stricture of the urethra is the most serious disorder

which is liable to attend on *Blenorrhœa*. It comes on, however, from other irritation besides clæp; but is treated in the same way, whatever may have been its first cause. There is some difficulty in explaining what a stricture is. It has been generally supposed to be a contraction of certain muscular fibres surrounding the mucous membrane of the urethra. Mr. Shaw, in a paper in the tenth volume of the *Medico Chirurgical Transactions*, has shown, however, that the muscular structure of the urethra cannot be demonstrated in man or in the larger animals. Yet we cannot infer that contractile fibres do not exist because *red* muscular fibres are not found; neither can we allow, that, because they are so diminutive, they must have no power, when we consider the favourable position in which circular muscles act. Moreover it seems to us, that the complete expulsion of both semen and of urine indicates a contractile power in the urethra; and it seems also, that no other assumption explains the form of a stricture; for if, as Mr. Shaw seems to infer, it is merely an inflammatory process of the mucous membrane, we should naturally expect to find the morbid thickening on one side, and a somewhat extended surface of the membrane, and not in this peculiar round form. As far, however, as practical facts are concerned, we are quite ready to agree, that our treatment should never be directed to the dilatation of a contracted muscle, for that no stricture can arise from this cause alone. It seems probable that the irritation which exists in the mucous membrane of the urethra calls forth a spasmodic contraction of some filament of contractile fibre. It must be granted, indeed, that at first this contraction will not, on account of the weakness of the fibre concerned, impede the flow of urine. It seems to us, that this latter effect will not take place till inflammation and thickening of the mucous membrane ensue; this inflammation being viewed as a consequence of the contraction of the contractile fibre on the one hand, and the irritation the contracted portion is subjected to by the dilating force of the urine on the other. This thickening of the mucous membrane will of course be liable to some variations; it may undergo spasmodic action, in consequence of a contraction of the arteries which enter in the composition of the thickened structure; but it is in that part of the urinary canal (*viz.* the neck of the bladder) which is evidently furnished with muscle, that spasmodic stricture is most commonly found. The precise nature of the irritation that brings on stricture is not very apparent. Stricture is certainly more common in hot climates, and with intemperate persons, than under other circumstances. It is also more frequently a consequence of clap than of any other kind of urinary stimulus; but it does not seem to have any proportion to the violence of the clap. Strictures are often produced by the incautious use of injections, and are aggravated by copulation. A stricture of the urethra often produces other diseases, as a paraphimosis, or a swelled testicle.

The symptoms of a stricture are rather obscure. There is a slight diminution in the size of the flow of urine, often with a degree of twisting or bifurcation of it; and on some occasions the stream is scattered in various directions; on others it is completely stopped, or at least with the exception of a little dribbling. A discharge of thin mucus also attends, which is liable to be mistaken for a gleet. The impediment to making water is always increased by the patient's catching cold, or indulging in a debauch. A pain at the end of the glans penis is often found in strictured persons; and in old cases a variety of disorders are engendered. These are at first merely irritative diseases, as unusual irritability of the bladder, nocturnal emissions, pricking and shooting sensations about the fundament, &c. but in some cases actual inflammation of the bladder and its investing peritonæum has come on. In almost all cases, the resistance caused by a long-standing stricture causes the bladder to acquire a great increase of thickness and muscular power.

Much may be learnt of the precise situation of a stricture by means of the bougie. This instrument passed down to the stricture shows its situation. The impression it receives from the stricture, when it has passed through, shows the size and form of the latter; and the resistance it meets with in passing shows the degree of the stricture. A stricture is, *cæteris paribus*, more dilatable when the body is in a state of general relaxation than at other times: this arises from the loss of contractile power which all the contractile fibres undergo; for, though it may be doubted whether a stricture dilates or contracts in itself, still it is certain, that, when irritated, a spasmodic resistance is afforded to the passage of an instrument. But we should rather refer this circumstance to the sympathetic contraction of the healthy fibres of the canal.

From the statements we have made concerning the probable structure and mode of formation of a stricture, its treatment clearly follows. Viewing the mere contraction of some contractile fibre as an action which is always antecedent to and coexistent with that resistance to the discharge of urine which we call stricture, it is obvious, that local and mechanical means of removing that contraction must be put in force, in most cases, before a cure can be effected. At the same time, the removal of the morbid thickening of the mucous membrane of the urethra by absorption should be chiefly attended to. For the former purpose, *bougies* are generally used. Of these instruments we shall speak presently. The latter is to be effected by constitutional remedies; and, when we consider the very small portion of membrane affected, and the little sympathy this membrane altogether seems to hold with the general system, we cannot fail to be surprised at the great benefit these remedies afford to the malady in question. Attention to the bowels, and to the state of the secretions in general, with mild diet and copious dilution, will often cure recent strictures without local application; and, whenever it does become necessary to use the latter, their efficacy will be diminished or increased in proportion as the general health is deranged or the reverse. Now the advantageous employment of a bougie will depend much on the manner of its introduction. The bougie should be of a sufficient diameter to resist entanglement in the lacunæ of the urethra; and the grand principle which should direct its introduction, should be to pass it through the stricture so as to dilate it, and thereby cause absorption of its membranous substance; and also relaxation of the contractile fibre, if indeed we can bring our minds to believe that that fibre has any thing to do with the continuance of a stricture once formed. If much force be used, we shall stand a chance of injuring other parts of the membrane besides the strictured one, and thereby cause much mischief. At the same time, much pressure is sometimes required to dilate a stricture. But on this head we shall not enlarge. A great deal of tact, and an attention to many minutiae, are requisite to the safe introduction of instruments through the urinary passage; and we shall defer further notice of the passing of bougie, the simple and caustic or armed, the catheter, &c. till we come to the article SURGERY.

It must be remembered, that, when the simple bougie has failed, caustic has been applied to the urethra with success. Used as an agent which is to eat through a stricture, and consequently employed of great strength, it has no doubt often done harm. Viewed as a local stimulus which excites the injured part to ulceration and absorption, and consequently used in *weak proportion*, and in such a manner as to ensure its exact application to the strictured surface, and to that only, we will venture to assert, that it is a valuable auxiliary to the treatment of this troublesome disease.

3. *Blenorrhœa chronica*, gleet: slimy discharge from the mucous glands of the urethra, without specific venom or infection; slightly irritating; chronic. (*Gonorrhœa mucosa*, *Cull.*)

Mostly a sequel of the preceding; and usually accom-

panied with stricture or enlarged prostate gland. Though without specific venom, occasionally so acrimonious, as to produce great local inflammation on the person cohabited with, while the secreting organ which has undergone the morbid change is torpid, or nearly so, to its virulence. Its treatment has already received due notice under the preceding species.

Genus IV. *Spermorrhœa*, [from *σπέρμα*, seed, and *ῥέω*, to flow.] Involuntary emission of femal fluid without copulation. There are two species.

1. *Spermorrhœa atonica*, (*Gonorrhœa libidinosa*, *Souv. G. laxorum*, *Cull.*) Involuntary emission of a dilute and nearly pellucid femal fluid; with libidinous propensity, but without erection. The last symptom is, however, not always observable.

This disease is generally accompanied with much mental disturbance; lowness of spirits, in a remarkable degree, generally attending it. It seems most commonly to owe its origin to the indulgence of solitary vice, and is extremely difficult of cure. This may however be effected, in less severe cases, by stating to the patient the dangerous consequences of his vicious propensity, and cautioning him to resist at all times the first approaches of sensual ideas. In violent cases it is absolutely necessary to combat the disposition for solitude by every kind of dissipation; and indeed it may be a question whether it might not be allowable to lead the sufferer into the haunts of libidinous females rather than suffer this much more dangerous disease to gain ground. The writer of this article once attended a young man, over whose mental energies this horrible propensity acquired so extreme an influence, as to induce, on repeated occasions, attempts at suicide. Advice was thrown away upon one in whose bosom religious feeling was strong, and who nevertheless abandoned himself to this vice in utter despair of overcoming it. Nor could the less-excusable measure of inculcating *natural* sin be used with one whose copulative desires failed on the approach of a female. Two or three furious attempts at self-destruction induced the writer to adopt bleeding; and for the bad state of the bilious secretion he was obliged to prescribe calomel. The success of the depletory plan caused it to be continued frequently; and, the calomel being persisted in, the mouth became affected with violent ptyalism. After this, the patient returned to his profession (the law) with renewed health and spirits, and has never since been afflicted with this malady. The above case is narrated as a curious one; but the practice is by no means held out to general example.

When this disease is merely local, it probably is inflammation of the epididymis. Counter-irritation by blisters to the perineum, with occasional bleeding, generally cure it.

2. *Spermorrhœa entonica*: involuntary emission of proper semen, with erection; mostly from indulgence of libidinous ideas.

This species is not worthy of particular consideration; it seems rather an effort of nature to relieve glandular fulness than a disease, and is not of frequent occurrence or of dangerous consequence. Indeed a famous physiologist has asserted that it is a perfectly natural and salutary process.

Genus V. *Galactia*, [from *γάλα*, milk.] Morbid flow or deficiency of milk. Five species.

1. *Galactia anticipans*: efflux of milk during pregnancy. A pint and a half has sometimes been poured forth daily as early as the fifth month. *Souv. ii. p. 412.* See also *Timæus Caf. p. 220.*

2. *Galactia impotens*: inability to suckle upon childbirth. Two varieties.

α. *Atonica*; from want of secretion.

β. *Organica*; from imperfect nipple, or other organic defect.

3. *Galactia*

3. Galactia depravata; efflux of a dilute or vitiated milk. Two varieties.

α. Serofa; weakened by too large a proportion of serum.

β. Complicata; deteriorated by intermixture with some foreign material.

See Ephemer. Nat. Curios. in which we have examples of a flow of black, green, and yellow, milk. Probably in most instances discoloured by an union with effused blood. Occasionally the quality betrays its source. Of the nature of beer, or of wine. See Eph. Nat. Cur. Dec. i. ann. iv.

4. Galactia erroris: transferred to, and discharged or accumulated at, remote organs, often under a different form. Here we have eight varieties.

α. Transferred to the fauces; and discharged in the form of a pyralism. Puzos. Ephemer. Nat. Curios.

β. Discharged from the general surface of the mammae in the form of sweat. Idem.

γ. Discharged from the navel. Sauvages.

δ. Discharged from the kidneys in the form of urine. Journ. de Med. 1758.

ε. Discharged from the eyes in the form of a milky epiphora. Sauvages.

ζ. Discharged from the thigh on scarification. Weikard, Verm. schr. i. 47.

η. Discharged from the veins on bleeding. Sauvages.

θ. Discharged from the vagina. Journ. des Scavans, 1684. Paulini Obs. cent. i.

Like the menstrual flux, there is scarcely an organ to which it has not been transferred. "The blood during the time of suckling is often loaded with milk, and evinces a milky appearance; as are also several of the fluids secreted from the blood; and hence probably many of the above peculiarities." Good's Nosology, p. 387.

5. Galactia virorum: secreted in males, and discharged from the proper emunctory. See Collectio Acad. iii. p. 63.

"A milky serum often distils from the nipples of newborn babes of both sexes: but various authors, as Scholtz, P. Borelli, Lauremberg, have given cases of genuine milk discharged in like manner by adult males; occasionally continuing for a long time; and in some instances enabling them to perform the office of nurses." Good ut supra.

Order II. ORGASTICA, [from *orgasm*.] Diseases affecting the Orgasm. Organic or constitutional infirmity, disordering the power or the desire of procreating. This order contains six genera.

Genus I. Chlorosis, [from *χλωρος*, green.] Green Sickness. Generic characters—Pale lurid complexion; languor; listlessness; depraved appetite and digestion; menses. menstruation.

1. Chlorosis plethorica: habit plethoric; pain in the head, back, or loins; frequent palpitations at the heart; flushes in the face; pulse full, tense, and frequent.

The orientalists, and especially the Persians, make a male variety of this species, which they call bimariy kodek, or *morbus puerorum*, and is designed to include the affections which often peculiarly mark the stage of puberty.

2. Chlorosis inops: habit debilitated; great inactivity and love of indulgence; dyspnœa on moving; lower limbs cold and edematous, especially at night; pulse quick and feeble.

Both these species of Chlorosis have already received due notice. The former under *retention* of the menses; the latter under *Limosis dyspepsia*, p. 139.

Genus II. Præotia, [from *πρωι*, premature.] Premature development of sexual organization or power. Two species, of course.

1. Præotia masculina: development of sexual precocity in males. See Journ. des Scavans, 1688. Leske Auf. Abhandl. Band. ii. p. 354. Various cases, and particularly that of Philip Haworth in his second year, in the Me-

dico-Chir. Transf. vol. i. p. 276. A boy has been for some time past shown in the neighbourhood of Leicester-square, who is a surprising example of Præotia. At six months old signs of puberty appeared, and at three years of age (when the writer saw him) the parts had attained both in magnitude and in external appearance the form of manhood.

2. Præotia feminina: development of sexual precocity in females.

Cases.—Menstruation in infancy common. See Plouquet.—Pregnancy at nine years of age. Ephemer. Nat. Cur. Dec. iii. ann. ii. obs. 172.—See a second case at the same age; Schmid. Eccl. Helvet. iv. 167. and again, in Germany, G. E. von Haller, in Blumenbach Bibl. i. 358.—See also Eccyesis ovaria, Ord. iii. Gen. ii. of the present class, Dr. Baillie's case.—Two cases are given in the Medico-Chir. Transf. vol. ii. 115, by Dr. Wall; and vol. iv. 204, by Mr. Astley Cooper. See, for other instances, Haller's Elem. Phys. lib. xxviii. sect. iii. Kundman, Rar. Art & Nat. p. 823, &c. &c.

Genus III. Lagnesis, [from *λαγνεις*, lascivious.] Inordinate desire of sexual commerce, with organic turbulence and erection. (Nymphomania, Satiriasis, Sauv. et Auct. recent.) Two species.

1. Lagnesis salacitas, salacity: appetency capable of refraint; excitation chiefly confined to the sexual system. Four varieties.

α. S. pubertatis, of puberty. Excess of stimulus produced by the season of adolescence.

β. S. senilium, of old age. From local irritation, produced by debility, or topical malady; as diseased ovaries; calculus in the bladder or kidneys; leucorrhœa; or inflammation of the womb, or neck of the bladder.

See a singular case by Mr. Norris in the Transf. of the Medical Society, vol. i. produced by a blow received a few months before near the prostate gland, followed by a small, but nearly-indolent, tumour on the part affected. The patient was a married man of sixty-seven; and during the violence of the erethismus, from local irritation, which had continued for two months, was reduced to a state of the most wretched and squalid emaciation. The following are Mr. Norris's words: "Nunquam memini, inquit ægrotus, me in venerem propensiofem fuisse, nedum insanâ et insatiabili libidine permotum, ante hos duos menses, quando me diro hoc et teterrimo correptum esse morbo sensi; cujus vis tanta est et tam effrænata, ut expleri nequeat; et ad coitum cum uxore me singula nocte, quindecies saltem, imo vicies nonnunquam, impellat. Hic vero cum ægrotantem meum priapismo laborantem se fallere augurabar, et fortasse, nullâ feminis jacturâ in venerem ruere, paulo curiosus id ab illo quaesivi. Affirmat autem se vix in lecto decumbentem corpus uxoris contingere, cum tanquam œstro percitus, in repetitam venerem properat, neque unquam nisi pleno coitu res peragitur: feminis quidem emissio potius angere quam voluptatis afficere visa est." The wife, a matronly woman of great modesty, was herself hereby rendered extremely ill from local inflammation. By supporting the system with tonics, and bringing the tumour to suppuration, the disease was effectually cured.

γ. S. plethorica, from plethora, or entonic action; especially in a sanguine temperament.

δ. S. ad assuetudine; from habit or immoderate indulgence. The collectors of medical curiosities give various cases of divorce obtained against a husband on account of ungovernable salacity. See Eph. Nat. Cur. Dec. ii. ann. ii. obs. 121. Plater Obs. lib. i. p. 257. Riedlin. Lin. Med. 1697. Timæus, 52.

2. Lagnesis furor: appetency unbridled, and breaking the bounds of modest demeanour and conversation; morbid agitation of body and mind. Two varieties, of course.

α. Masculinus; in males. Pollutiones centum per diem. Bartholin Epist. iii. p. 145.

β. Fæmininus, in females. (Nymphomania furibunda, Furor uterinus, Auct. Var.)

The symptoms of this dreadful disease are too apparent to require us to enter into its disgusting history. From the slight lascivious manifestations of leering and sighing, the female ultimately passes to a state of the most distressing and shocking intemperance of voice and manner, so much so, indeed, as to lose all modesty, to expose the naked body, and plainly solicit from strangers the act of copulation. Nothing that we are acquainted with has been done for the cure of this malady; but every circumstance of dissection tends to show, that it is the effect of a morbid secretion on the vaginal nerves. We should therefore use every means to change the action of these secretents. With this view, injections of belladonna and the salivation of the system with mercury, hold out some prospect of relief. Those to whom this subject is interesting, will find much information, delivered in a very florid style, in Dr. S. Wilmot's translation of Bienville's work on *Furor Uterinus*. In this treatise the superacutate of lead in the usual doses is strongly recommended.

Genus IV. *Agnesia*, [from α , priv. and $\gamma\iota\upsilon\mu\alpha\iota$, to beget.] Impotence, or male sterility. (*Anaphrodisia*, *Sauv.* and *Cull.*) Three species are noted.

1. *Agnesia impotentia*: imperfection or abolition of generative power. Two varieties.

α . I. atonica; from imbecility or want of tone. Chiefly produced by excess of indulgence; long-continued gleet; or paralytic affection of the generative organs.

β . I. organica; from morbid organization, natural or accidental; as amputated, injured, or enormous, penis; testes impaired or destitute.

Albinus gives a case of divorce obtained against a husband from inability to enter the vagina, *ob penem enormem*. Plater relates another from a similar cause.

2. *Agnesia dys-spernia*: imperfect emission of the seminal fluid. (*Dyspermatismus*, *Sauv.* and *Cullen*.) Six varieties.

α . D. entonica; from super-erection, or priapism.

β . D. epileptica; from incursion of an epileptic spasm produced by sexual excitement during the intercourse.

γ . D. anticipans; discharge ejected hastily, prematurely, and without due adjustment.

δ . D. ignavis; discharge unduly retarded from hebetude of the genital organs.

ϵ . D. refluxus; the discharge thrown back into the vesiculae feminales or the bladder before it reaches the extremity of the penis.—Semen retrogradum in vesicam ex angustatione urethrae. *Petit Mem. de l'Acad. de Chirurgie*, tom. i. p. 434. See a curious case by Mr. Home in the *Phil. Transf.* 1795.

ζ . D. organica; the discharge obstructed by mechanical pressure; as that of stricture or hardened mucus in the urethra; indurations in the corpora cavernosa; or a prepuce nearly imperforate. This is, of course, the only variety capable of cure. The indications for this purpose are obvious enough.

3. *Agnesia incongrua*, doubtful impotence: the seminal fluid inaccordant, in its constituent principles, with the constitutional demand of the particular female.

Genus V. *Aphoria*, [of α , priv. and $\phi\epsilon\rho\omega$, to bear.] Barrenness, or female sterility; i. e. inability to conceive offspring. Five species.

1. *Aphoria impotens*: imperfection or abolition of conceptive power. Of two kinds, or varieties.

α . Atonica; from imbecility or want of tone, as in the preceding genus, sp. 1.

β . Organica; from organic defect, whether natural or accidental, as imperforate vagina, defective fimbriae, or ovaria; want of ova, &c.

An imperforate vagina does not always preclude conception. It has taken place where the vagina itself has been so narrow as not to admit the penis. *Ephem. Nat. Cur.* Dec. iii. ann. vii. viii. obs. 83.—Where, with the same impediment, a rigid and unbroken hymen has of-

fered an additional obstacle. *Hist. de l'Acad. de Paris*, 1748. An imperforate hymen does, however, in the majority of cases, preclude conception. For the mode of perforating this membrane, see *SURGERY*.

2. *Aphoria paramenica*, barrenness from mis-menstruation, Three varieties.

α . Obstructionis; produced by menstiation, or retention of the catamenia.

β . Difficilis; produced by laborious secretion.

γ . Superfluitatis; produced by profuse discharge.

The means before laid down for the treatment of obstructed, painful, or profuse, menstruation, must of course be used when we wish to remove barrenness produced by these maladies.

3. *Aphoria impercita*; barrenness from personal aversion or want of appetency.

4. *Aphoria incongrua*: the conceptive power irrespondent to the constituent principles of the seminal fluid received; as in the preceding genus, sp. 3.

5. *Aphoria polyposa*: the cavity of the uterus or vagina, or both, so filled and obstructed by a polypous excrescence as to preclude the action of the seminal fluid. See *Baillie's Morb. Anat. Fasc. ix. pl. 4*. See also the next genus, sp. 5.

Genus VI. *Cedoptosis*, [from $\alpha\iota\delta\iota\omega\upsilon$, the genitals, and $\pi\lambda\omega\iota\varsigma$, fall.] Protrusion of one or more of the genital organs, or of excrescences issuing from them, into the genital passage; impairing or obstructing its course. (*Hysteroptosis*, *Sauv. Vog. Sag.*) Five species.

1. *Cedoptosis uteri*, protrusion of the uterus into the vagina. (*Prolapsus uteri*, *Procidentia uteri*, *Auct. Var.*) Three varieties.

α . Simplex; the uterus retaining its proper posture and figure. Different names are frequently given to different degrees of this variety. If the descent be only to the middle of the vagina, it is called *relaxatio uteri*; if to the labia, *procidentia*; if lower than the labia, *prolapsus*.

This dislocation of the uterus may take place from two causes. The first, relaxation of the broad and round ligaments of the womb; the second, relaxation of the muscular coat of the vagina. These two causes are commonly united. Whatever debilitates the body generally, or more particularly the vaginal structure, may cause relaxation of the vagina. Hence, among general diseases, we may reckon severe hæmorrhages, and long-continued dyspeptic ailments; and, among particular ones, leucorrhœa and excessive vomiting. It is pretty obvious, however, that relaxation of the vagina would not be sufficient to bring on *procidentia uteri*, except in the most trifling degree, unless the ligamentous connexions of the uterus were also weakened. Now, as to the causes of this latter affection, it seems, when we consider how little the ligaments seem to suffer in general debility of the constitution, that constitutional malady cannot very suddenly or generally induce it. It is to mechanical injury, therefore, that *procidentia* is commonly traceable. Thus blows may sometimes bring it on: more generally, however, it follows parturition, when the ligaments, in a stretched and weakened condition, are prevented from recovering their natural dimensions in consequence of the imprudent practice of rising from bed early after confinement; a practice the more prejudicial, not only because at the period in question the uterus is more loosely connected and of much greater weight than usual, but because the vagina is more relaxed, and consequently offers less resistance to the descent of this viscus.

In the beginning of this disease, the falling of the womb is often very slight. The natural projection of the cervix uteri into the vagina is about one inch; the distance between the os externum and os uteri is about four inches; and, when the os uteri has approached but one inch lower, we meet with very troublesome symptoms. Among the earliest of these is a pain in the back,

a symptom which often continues a long time without any other. In more advanced stages, this pain is described as of a bearing-down or dragging kind, a sensation as of a weight dropping into the top of the vagina; pain in the groins extending towards the labia is also felt, with a transparent vaginal discharge, and a sensation of fulness in all the parts of generation. Strangury likewise is occasionally present; and a separation of the bones of the pelvis has been met with by Mr. Clarke in one case. The sympathy between the uterus and stomach also gives rise to much abdominal irritation. Anorexia, borborygmus, lowness of spirits, and languor, are very remarkable. The bowels are irregular in their action; and this state of disorder, re-acting on the uterine secretions, so far impairs their powers, that they admit red blood, and hemorrhage sometimes takes place. Hiccough also sometimes attends this malady.

As most of the above-mentioned symptoms may be simulated by other maladies, it is indispensably necessary, when procidentia uteri is suspected, that we should make a manual examination. As the uterus goes up to its natural situation, in early cases, when the patient lies down, it is obvious that the only posture in which we can place her, to gain any information from examination, is the erect one. We need scarcely advert to the delicacy of touch which even in these circumstances will be required on the part of the practitioner; a tactus eruditus only to be learnt, however, by very accurate information concerning the structure of the parts, and still more by midwifery practice. When the cervix uteri has fallen down as low as the external labia, it often rests on the perineum, and the disease remains stationary. In making this descent however, and still more as the uterus begins to form an external tumour, the dragging of this organ on the peritoneum exerts a very injurious influence on the abdominal viscera; and from the same cause chronic and sometimes acute inflammation, ending in adhesion, has been known to attend this disease.

Besides impairing the functions, it also very materially alters the structure, of the intestines and of the bladder: the rectum, instead of taking the sweep of the sacrum, first dips down into the tumour, and afterwards ascends into the pelvis; the fallopian tubes and ovaria are dragged down with the uterus, as are also the small intestines and omentum; the former of which fill up part of the tumour when it becomes external to the body. Under the same circumstances, the bladder, falling into the tumour, drags down the meatus urinarius, and so far alters the direction of this passage, that, in order to introduce a catheter, it will be necessary to hold the instrument almost horizontally. Months and even years often elapse whilst the uterus is making its descent. While the procidentia is internal, a very profuse mucous discharge sometimes comes from the vagina. When this happens, the patient suffers great debility. When, however, the uterus has fallen out of the body, the mucous membrane of the vagina loses its secreting disposition, and from exposure to air, and from the stretching it suffers from the tumour, takes on the appearance of external skin, loses its rugæ and its nervous irritability, sensible indeed to pressure, but not to sexual desire. After a time, the prolapsed part, especially the cervix uteri, becomes affected with spots or patches of ulceration. These, however, are not deep, and seldom of an unhealthy character: they readily heal on the replacement of the tumour in its natural situation.

Other tumours are met with in the same situation as prolapsus uteri; but the latter disease is distinguished from all others by the *horizontal* opening of the cervix uteri; a mark which, contrasted with the *perpendicular* opening of the urethra in the male subject, has served to detect the imposture of those who, having a prolapsus uteri unusually oblong, have endeavoured to impose on credulity by the assumption of an hermaphrodite formation.

In the *treatment* of this disease, we have two indications to perform. The first is, to get the uterus back into its natural situation; and the second to keep it there. In early cases, the first indication is effected by merely putting the patient in a recumbent position, this being attended with a remission of all painful symptoms. In the early stages of this disease, all therefore that will be necessary for the first indication will be to keep the patient generally lying on a mattress (in the day-time on a sofa), and obviating all muscular movements likely to press on the uterus; as coughing or straining at stool. The indications of strengthening the relaxed state of the vagina embrace a wider field. It is obvious to every one, that, if the muscular system be in a weak state generally, it is quite impossible to render any one muscle strong by local applications. Now, as it is the muscular structure of the vagina which we here wish to operate upon, we must attend to the state of the muscular system throughout the body. The diet must be regulated in such a manner as to have the most perfect assimilation: warm drinks, as tea, &c. forbidden; the bowels kept open by the mildest laxatives, and the cold bath used regularly. We need not dwell upon the concomitant disorders which will prevent the use of the cold bath; these having been so often adverted to. We have before stated as a general rule, that this measure is never to be persisted in unless followed by re-action. A shower-bath impregnated with salt is useful for persons of good stamina, when the simple bath loses some of its influence. Medicines of the tonic kind, as improving the digestive powers of the stomach, are also recommended; as bark, gentian, &c. It is desirable to join with these, medicines which have a power of astringing the vessels of the mucous membranes. We are rather sceptical as to the control of any particular medicine over local disorders, except when applied directly to the structure affected; but it is stated on respectable authority, that certain medicines taken into the stomach do relieve relaxation of the vagina, a circumstance referrible, of course, to the known sympathy which exists between the stomach and the mucous expansion in general. Cinchona and sulphuric acid is a formula much employed. In persons much debilitated it will not be found safe to use the cold bath so frequently, or to give such powerful astringents as we have recommended above; but of course all rules of this kind must vary with particular circumstances.

In early stages of procidentia, the sponging or dashing of cold spring or salt water on the loins and pudenda, and the injection of astrigent lotions, are the local means to be chiefly relied on. The astrigent applications are to be applied to the interior of the vagina by means of a syringe, to the construction of which it behoves the practitioner to pay some attention. The pewter instruments in common use are many of them next to useless; it is indispensable that the pipe present a sufficient curve to allow to use the instrument with ease; that the piston is perfectly adapted to the barrel, and moves with celerity; and that the holes at the extremity of the pipe are small, and situated at the point, and not laterally. The astringents best recommended are, a mixture of solutions of alum and sulphate of zinc, or one or both of these salts dissolved in a decoction of oak-bark. These applications should be thrown up twice or three times a-day.

When procidentia uteri is so far advanced as to render the attempt at reduction by the above-mentioned measures useless, we must endeavour to give mechanical support to the displaced uterus. For this purpose an instrument called a *peffary* is used. It is various in form and substance. The form must vary with the stage or peculiarity of the complaint. The most proper substance at present used for the formation of a peffary is *box-wood*. The *circular* peffary is adapted to those cases in which the disease has not made great progress, and where the relaxation of the vagina is not considerable. Its adaptation to the

the exact size of the vagina is a matter of great moment. We have before shown, that the contraction of the vagina is one of the means by which the disease is cured. It is therefore obvious, that any substance which would prevent this contraction, or would in the slightest degree dilate the canal, must be improper. At the same time the pessary must be large enough to fill the canal, or it will slide out of it. Dr. Clarke states, that it is seldom proper to use a pessary of more than two inches and a half in diameter, on account of the pressure it would exert on the meatus urinarius and rectum. When, therefore, the calibre of the vagina is larger than these proportions, it is proper to use the oval pessary, which, as its long diameter rests transversely in the vagina, may receive support from the sides of this canal, without pressing on the urinary passage before, or the rectum behind. Should the vagina be so dilated that a smaller one cannot be retained, we may use an oval pessary nearly as large as four inches in its long diameter. The chief objection to this instrument is, that it is disturbed by sexual intercourse. This objection is of the more force, because pregnancy is a desideratum in proclidentia uteri, inasmuch as the ascent of the womb during that state cures the disease.

The following are the directions for passing these instruments, given by Mr. Clarke in his Observations on the Diseases of Females. The woman should be placed upon her left side, and close to the edge of the bed; and her knees should be drawn up towards the abdomen. The practitioner is then (having previously examined the size of the vagina) to select a pessary, according to his judgment, of a proper size. This instrument is then to be covered with some simple unctuous matter; and, if its form be circular, it is to be placed between the labia, so that one edge will be turned towards the os pubis and the other to the rectum: it is then to be moved in a circular direction on its own axis, pressing it at the same time towards the perineum, till it has fairly entered the vagina. As the instrument passes the edge of the external parts, some little uneasiness is always felt by the woman; but this ceases as soon as it has reached the vagina, to the upper part of which it is to be carried, and it is to be so placed that the uterus may rest upon one of the broad surfaces of it. The instrument is now to be left in the vagina, and a syringe full of some cold astrigent injection should be thrown into the parts, to give tone and contraction to the dilated os externum, as, in cases where the vagina is very much relaxed, it may make a smaller pessary answer the purpose of support than would be required if no such means were resorted to. Whatever may be the shape of the pessary introduced, the woman should continue for some minutes in the recumbent posture.

An oval pessary requires great care in the mode of introduction, and is either a very good or a very bad instrument, according as it is well or ill applied. In the choice of it, the size of the vagina is to be first compared with that of the instrument, the extremities of which should not be too acutely pointed, lest they should injure the parts. The instrument being covered with some unctuous substance, one end of it is to be placed between the labia, with the short diameter running from before to behind; and in this direction it is to be carried up into the vagina. The practitioner is then to insert the point of his fore-finger into the opening in the centre of the instrument, and to place it across the vagina so that the extremities may be turned towards the spinous processes of the os ischium: if the direction of the opening in the pessary is made to correspond with that of the long diameter itself, this will be easily accomplished. The pessary is now to be passed as high into the vagina as it can be without giving pain, and to be left there.

Proclidentia uteri sometimes occurs in women whose perinæum has been lacerated to a great extent in labour; in such a case, neither the circular nor the oval pessary can

be retained; but the sacrosciatic ligaments and the os coccygis will sufficiently contract the lower aperture of the pelvis to enable a globular pessary to be retained. This pessary, pressing equally in all directions, is very conveniently borne; and it may be used for widows who have lost the catamenia with great advantage. The size of the instrument being adapted to the capacity of the parts, its surface is to be covered with unctuous matter as before, and it is to be placed between the labia; by a gentle pressure it is to be carried into the vagina, giving a degree of rotatory motion to it as it passes along, which greatly facilitates the introduction.

In those cases in which the tumour protrudes out of the body, it is obvious that this must be reduced before the pessary can be made use of. Previous to attempting the reduction of a completely-prolapsed womb, we must enquire whether at any period of the disease inflammatory symptoms have been manifest; as for instance, lasting and acute pain, with thirst, heat, small pulse, abdominal tenderness, vomiting, &c. because, if these symptoms have been present, there will be much reason to fear that the peritoneum has contracted adhesions which it would endanger the life of the patient to break through by any forcible attempt at reduction.

When tumours on or above the uterus are the cause of this displacement, it will seldom be advisable to reduce the womb. In fact, all prolapses in which the effort at reduction is attended with much pain, should be abandoned. When it is determined, however, to reduce a prolapsed uteri, the bladder and rectum must be emptied of their contents: the patient must then be laid on a bed with her hips much raised, that the abdominal viscera, which are dragged down into the cavity of the pelvis, may not oppose, by their weight, the return of the womb. The patient being now directed not to strain, or in any way to act with her abdominal muscles, the practitioner is to apply his finger and thumb to the lower part of the tumour, where the os uteri is situated; and, by a gentle pressure, this is to be carried up into the centre of the tumour itself. This done, the same pressure is to be continued, and the parts are to be returned into their proper place in the pelvis. A pessary is then to be introduced into the vagina; and the patient should continue to lie upon an inclined plane, with the hips elevated, for several hours. In almost all cases in which the degree of the disease is considerable, every pessary which can be introduced will be forced away by the slightest efforts of the woman: even the globular pessary (which is the best) will not be retained, neither can it be kept in the vagina by any common bandage. But by the following contrivance the globular pessary may be kept in the vagina. In the first place, a pessary is to be chosen of the size which the case requires, and a small slip of brass is to be attached to it by its two ends, leaving a space between the instrument and the centre of this piece of brass: a belt of leather, long enough to go round the patient's body, is also to be prepared; to the centre of which, behind, a brass wire, as thick as a common quill, is to be attached by a screw. This wire is now to be properly bent; and, the pessary being introduced into the vagina, the wire is to be passed between the pessary and the piece of brass attached to it; and, being brought up between the thighs, it is to be attached to the fore part of the circular strap. The reduced parts are by this means supported by a pessary, and this is kept in its place by the unyielding piece of metal.

When a separation of the ligaments of the pelvic bones has taken place in conjunction with a prolapsed uterus, the patient must wear, in addition to the measures before noticed, a broad circular belt passed pretty firmly round the hips: this of course answers the same purpose as an artificial ligament, and moreover facilitates the re-union of the lacerated or lengthened stricture. Strangury requires the usual treatment.

β. Retroversâ,

β. Retroverfa, retroverted womb: the uterus displaced, the lower part becoming the upper. Mostly limited to a state of pregnancy.

γ. Inverta, inverted womb: the uterus displaced, and turned inside out.

This complaint consists, as the name imports, in an inversion of the cavity of the uterus, so that the fundus comes through the os uteri; consequently that part which formerly was the inside of a cavity is converted into the outside of a tumour, either contained in the vagina or projecting from it. In the present improved state of the art of midwifery, this disease is very seldom met with, because it is generally a consequence of violently pulling the funis for the purpose of extracting the placenta. The weight of a large polypus has been said to have inverted the womb; but this is a very rare case.

As inversion of the uterus is (strictly speaking) to be considered as one of the immediate consequences of delivery, (see PARTURITION;) no admission would have been given to it in this article, if it were not that it is occasionally met with in the chronic state attended by a mucous discharge. It may be necessary to remind the reader, that the removal of the placenta (if adherent), and the immediate replacement of the uterus, are to be effected as soon as possible when this accident has occurred during labour. The symptoms of the chronic state of *inversio uteri* resemble those of *procidencia uteri*; and, an examination being made, a tumour is found either in the vagina, or hanging out of the external parts. Such a tumour may be mistaken for polypus; but, in the latter disease, the os uteri encircles the neck of the tumour; in inversion of the uterus, the os uteri forms a part of the tumour itself. Moreover, the inverted uterus is sensible: polypi of the uterus, on the contrary, are void of feeling. The tumour may be mistaken for *procidencia* of the uterus; but the difference may be detected by observing that there is no opening at its lower part, and by its surface secreting the catamenia at the regular periods. It is distinguished from *procidencia* of the bladder by being much more resisting, by its size continuing always the same, and by the impossibility of finding the uterus behind it. Whilst the inverted uterus remains in the vagina, the discharge (excepting at the period of menstruation) will be of a mucous kind; but, if the uterus falls lower, so as to protrude beyond the external parts, the exposure of that surface, which in a natural state lined the cavity, to air, as well as to occasional injuries, may induce inflammation and ulceration over a part or the whole of its surface; and the mucous discharge may be changed to one of a purulent kind, so considerable in quantity as to debilitate the constitution, and to cause all the common symptoms of weakness. If there are any ulcerations upon the surface of the upper part of the tumour formed by the inversion of the vagina, they will be circumscribed, and rarely cover its whole surface. In a case where the uterus has been long inverted, and lies in the vagina (the latter cavity having undergone no change except from distention), it will not be advisable to recommend any other remedy than the injection of some very mild astringent fluid, three or four times a-day, into the vagina. Some restraint will be thus placed upon the quantity of the discharge, and the parts will be kept clean by it. There is an extreme degree of disease where the uterus (previously inverted) falls out of the body, drawing down with it the vagina, and where the woman is becoming every day more and more weak from the quantity of the discharge. Cases of this kind can receive very little benefit from external application, and indeed are only to be treated by palliative medicines, as narcotics and anodyne applications, unless indeed the patient should have passed the menstruating age; in which case, seeing that her comfort is destroyed by the disease, and that the profuseness of the discharge perhaps threatens her with death from the debility which it produces, it may be advisable to recommend the performance of an operation, which has in many cases been

attended with success, even in aged persons. This operation is the removal of the inverted uterus itself. See SURGERY.

2. *Cædoptosis vaginæ*: protrusion of the upper part of the vagina into the lower. This, like the descent of the uterus, may, according to the degree of the disease, be relaxation, *procidencia*, prolapse, or complete inversion.

The most common cause of this disease is an habitually costive state of the rectum, in consequence of false delicacy postponing the period of natural evacuation. Thus the rectum acquires so inordinate a capacity as to press in a very great measure on the surrounding parts. As this pressure cannot displace the bones of the sacrum, its effects are exerted on the part where there is least resistance; viz. the back of the vagina; and hence an actual pouch is formed at this part, which of course drives the membrane out of its natural site. The falling-down of cysts of diseased ovaries between the rectum and back of the vagina, operate in the same manner in producing this disease. A tumour slightly external, a trifling degree of pain in the back, a slight diminution of the tumour when the patient lies down, with a discharge of transparent mucus from the vagina, are the symptoms of the malady. By the introduction of the finger in ano, the pouch above described may also be felt.

The treatment of the disease follows so obviously, that little need be said. To evacuate the rectum by saponaceous clysters, or, if these do not succeed (which is sometimes the case), by the introduction of the finger and a scoop in ano, is the first thing to be done. The bowels must be kept always open by mild cathartics, and a globular pessary introduced into the vagina, for the purpose of supporting the vagina and restoring the natural diameter of the rectum. Cold astringents should be thrown into the vagina; and cold bathing, especially of the loins, used externally.

3. *Cædoptosis vesicæ*, protrusion of the bladder into the urethra.

This disease, which has often been confounded with *procidencia* of the uterus or the vagina, and consequently mistreated, consists of a falling-down of that part of the bladder which lies posterior to the entrance of the urinary passage. In making this descent, the bladder carries the vagina along with it, and, in very bad cases, the anterior lip of the cervix uteri; the latter indeed to such a degree, that the os uteri has been found to open directly backwards, and lying in contact with the posterior part of the vagina. As in *procidencia uteri*, the bladder may descend a little only from its natural site, or it may form a large external tumour projecting from the labia. *Procidencia vesicæ* is attended with a slight degree of pain, described by the patient as a bearing-down. This is aggravated by the recumbent posture; hence the patient is much affected with it during the night, at which time also she experiences frequent calls to pass her urine. A sense of tightness and pain is also referred to the navel; and both this pain and the bearing-down are increased by fulness of the bladder and relieved by its emptiness, though perhaps the latter is never complete; for it seems that the prolapsed bladder loses its contractile power, and hence that portion of this viscus which forms the tumor generally contains some water. A mucous discharge, sometimes small and sometimes very profuse, attends this disease.

On examination with the finger, a tumor will be found in the vagina, distinguished from *procidencia uteri* by the absence of the mouth of the uterus, the anterior lip of which, as we before said, is often found stretched down with the bladder. It is distinguished from that and from all other diseases of the parts in question, by the evident fluctuation of contained fluid, unless indeed we except encysted tumours, which are distinguishable however by their uniformity; for, of course, these are not lessened in size by the expulsion of the contents of the bladder, as is the case in *procidencia vesicæ*. The displacement of the bladder

bladder is rarely attended with the gastric disturbance so common and so severe in proclivencia uteri. It is only when the exposed state of the bladder has induced disease of its structure, that constitutional disturbance becomes severely manifested. Relaxation of the vagina and pressure on the bladder cause this disease; hence it occurs after labour, and especially in those women who have borne many children; hence likewise violent coughing and the lifting of heavy weights have frequently brought it on.

Little need be done in the way of constitutional treatment. The rectum should of course be kept empty; and most particular attention should be paid to keep the bladder as empty as possible by frequent endeavours on the part of the patient. Of course all coughing and straining must be prevented. The treatment further than this consists in removing the relaxed condition of the vagina by astringent injections and the cold bath, and in keeping the bladder in its place by means of a pessary. This instrument may be either of the oval or globular form, according as the one or the other gives least inconvenience. Whichever is worn should be perforated by four holes for the purpose of introducing silk, by means of which the instrument may be displaced when necessary. Dr. Good makes two varieties of this disease.

α. Tunicis interioris; the inner membrane being protruded.

β. Colli; the neck of the bladder being protruded.

4. Oedoptosis complicata: protrusion of different organs complicated with each other.

α. Utero-vesicalis; of the uterus dragging the bladder along with it.

β. Vagino-vesicalis; protrusion of the vagina dragging the bladder along with it.

In these cases, the reduction of the separate viscera being effected, they are to be retained in situ by means of the pessary.

5. Oedoptosis polyposa: polypous excrescence in the course of the genital avenue; soft, compressible, red or reddish. Two varieties.

α. P. uteri; issuing with a slender root from the fundus of the uterus, and more or less elongating into the vagina.

β. P. vaginæ, polypus of the vagina; issuing from the sides of the vagina; broad and bulbous.

Of these two species the former is an insensible tumour attached to the uterus by a small neck; various as to its size, form, and consistence; being sometimes white, at other times brown; sometimes hard and tough, at others soft and easily broken. The soft state is the least frequently met with. The symptoms which attend this disease are a copious mucous or muco-sanguineous discharge. Sometimes actual coagula of blood are emitted, which often correspond with the former polypous structure on which they have accumulated. The retention of these coagula sometimes induces putrefaction, in consequence of which an highly-offensive discharge takes place; to so great a degree, in fact, as to simulate the fetid smell of the cavernous exudations from the carcinoma uteri. Pain in the back and groins, with a sense of pressure and bearing-down, are met with in this complaint; all which symptoms are proportioned to the size of the tumour. Frequent vomiting, the consequence of the stomach's sympathizing in uterine irritation, is common to this disease; and, when the bladder also is thus sympathetically affected, strangury is no uncommon occurrence. The latter disorder, however, as well as retention of feces in the rectum, is often brought on by the pressure of the enlarged polypus on the respective canals of the urine and stools. In protracted cases, dropsy may accompany this disease. On manual examination, we find a tumour of little feeling projecting through the os uteri, by which its neck is so completely encircled, that we can pass the finger round it. This polypus is distinguished from inverted uterus by the history of its commencement, and by its insensibility. It might be confounded with the cauliflower excrescence, had not the latter an irregularity of surface, an origin by a broad base from the os

VOL. XIX. No. 1307.

uteri itself, instead of coming through it with a thin peduncle, and were it not attended by a watery discharge. These circumstances are sufficiently apparent to prevent this mistake. The polypus of the uterus affects both single and married persons; those who are cachectic; and those apparently healthy, and who have suffered no injury of the womb. The only mode of cure consists in tying the neck of the polypus by means of a canula and ligatures, and afterwards extracting the tumour by the fingers or a pair of forceps; (for the mode of doing which, see SURGERY.) The vagina is then to be washed with a tepid lotion for the purpose of keeping the parts clean, and astringent lotions thrown up if any remains of the complaint are apparent.

The polypoid tumour which springs from the vagina or from the uterus by a broad base, is generally different in its anatomical characters from true polypus, and is very difficult of cure. It may be removed by a ligature; and, if the parts are kept clean and the state of the constitution (which is oftentimes in fault) amended, the patient will experience a long period of relief; but the tumour will almost inevitably return.

Order III. CARPOTICA, [from καρπος, fruit.] Disorders affecting the Impregnation. Irregularity, difficulty, or danger, produced by parturition.

This order contains four genera; of which, and their species, we shall merely give Dr. Good's arrangement and enumeration, as the subjects have been fully discussed under the articles ABORTION, vol. i. and PARTURITION, vol. xviii.

Genus I. *Paracyesis*, [from παρα, bad, and κυσις, impregnation.] Morbid Pregnancy. Generic characters—The progress of pregnancy disturbed or endangered by the supervention of general or local disorder. There are three species, besides varieties.

1. *Paracyesis irritativa*: pregnancy exciting distress or disturbance in other organs or functions than those primarily concerned. Five varieties.

α. *Syncopalis*; accompanied with frequent fainting.

β. *Dyspeptica*; accompanied with indigestion or sickness.

γ. *Dyspnoica*; accompanied with difficult breathing.

δ. *Alvina*; accompanied with derangement of the alvine canal, as costiveness, diarrhoea, hemorrhoids, &c.

ε. *Varicosa*; accompanied with venous dilatations of the lower extremities.

2. *Paracyesis uterina*: pregnancy disturbed or endangered by diseased affection of the uterus. Four varieties.

α. *A. retroversione*; the uterus being retroverted. See *Oedoptosis uteri*, β.

β. *A. leucorrhœa*; the uterus secreting, or exciting in the vagina a secretion of leucorrhœa, so as to produce debility.

γ. *Catamenica*; the catamenia continuing to recur.

δ. *Hæmorrhagica*; accompanied with hæmorrhage.

Catamenia, unaccompanied with hæmorrhage, can scarcely be regarded as a disease. Many menstruate uniformly for the first three or four months of pregnancy. Some through the whole term. A few have never menstruated at any other time; of which some curious cases are related by Hagedorn, Hopfengartner, and other Dutch writers.

3. *Paracyesis abortus*: premature exclusion of a dead fetus from the uterus. If the exclusion take place within six weeks after conception it is called *miscarriage*. If between six weeks and seven months, or the term of premature labour, it is called *abortion*.

Genus II. *Parodynia*, [from παρα, bad, and ωδιν, or ωδινωσις, labour-pain.] Morbid Labour.—Generic characters—The progress of labour disturbed or endangered by irregularity of symptoms, presentation, or structure. There are seven species.

1. *Parodynia atonica*, lingering labour: labour protracted

tracted by general or local debility. In the Ephemera Nat. Curios. is the case of a fetus illaping into the uterus after its head had been denuded, and it had moaned.

2. Parodynia sympathetica: labour retarded or harassed by sympathetic derangement of some remote organ or function. Three varieties.

α. Syncopalis; accompanied with fainting.

β. Convulsiva; accompanied with convulsions.

γ. Pathematica; accompanied with great terror, apprehension, bashfulness, or other emotion of the mind. See vol. xviii. p. 710.

3. Parodynia implastica: labour delayed or injured for want of plasticity, or unkindly dilatation of the soft parts. Three varieties.

α. Rigiditatis; the delay confined to a simple rigidity of the uterus or vagina.

β. Hæmorrhagica; accompanied with hæmorrhage.

γ. Lacerans; accompanied with laceration of the perinæum, or uterus.

4. Parodynia perversa, crosses birth: labour impeded by preternatural presentation of the fetus, or its membranes.

This species is divided into seven varieties, according as the presentation may be that of the face; of the breech; of one or both feet; of one or both arms; of the shoulder; prolapsed navel-string; or, lastly, presentation of the placenta.

5. Amorphica: labour impeded by mis-configuration of the fetus or of the maternal pelvis. Two varieties.

α. A. fetu; the fetus deformed by a preternatural magnitude of head, or some morbid protuberance.

β. Pelvica; the maternal pelvis contracted in its diameter by natural deformity, or subsequent disease or injury. Not unfrequently produced by an hydropic or encysted ovarium occupying a position between the rectum and vagina. The deformed pelvis is the most frequent and obstinate impediment to parturition; but it has already been amply treated of in vol. xviii. p. 690 & seq.

6. Parodynia pluralis: labour complicated by a plurality of children.

7. Parodynia secundaria: diseased action or disturbance succeeding delivery. Four varieties.

α. Retentiva; retention of the secundines.

β. Dolorosa; violent after-pains.

γ. Hæmorrhagica; violent hæmorrhage, commonly called *flooding*.

δ. Lochialis; profuse lochia.

Genus III. *Eccyefis*, [from *εκ*, out of, and *νεησις*, impregnation.] Extra-uterine fetation; i. e. imperfect fetation produced in some organ exterior to the uterus. There are three species.

1. *Eccyefis ovaria*: imperfect fetation occurring in the right or left ovarium. (*Graviditas ovarii, Sauv.*) Examples are common. See Ab. Vater Dissert. de Grav. appa-
rente, ex tumore ovarii dextri enormi orta, per tres annos cum dimidio durante. *Ed. Med. Ess. v. 336. Ed. Phys. Ess. ii. 273. Forrester, 1798, 379. Ed. Med. Journ. ii. 180. Dr. Baillie in Phil. Transf. 1789. Barnes in Transf. Medico-chir. iv. 317.*

2. *Eccyefis tubalis*: imperfect fetation occurring in the Fallopian tube. (*Graviditas tubalis, Sauv.*) See Littré, Mem. de l'Acad. R. des Scav. 1702. Cyprian. Dissert. de Fetu ex Tubâ exciso, 1700. Haller, in Boerh. v. 329. Santorin, Obs. Anat. c. ii. Transf. Soc. Med.-chir. i. 215. See also a case by Mr. Stanley, in the Transf. College Physicians, vol. vi.

3. *Eccyefis abdominalis*: imperfect fetation occurring in the cavity of the abdomen. See Krohn, Fetüs extra uterum hist. Deutsch de graviditate abdominali. Mem. Med. Soc. Lond. iii. 176. Wrisberg Observ. Anat. Young, Medico-chir. Transf. i. 241. "For want of a regular passage opening externally, the substance formed often remains for many years in the extra-uterine nidus. Walther gives an instance of twenty-two years; Bayle a case of twenty-six years; Phil. Transf. 1677-1678, vol. xii.

The Ephemera of Natural Curiosities, one of forty-six years. *Cent. x. Obs. 48.*"

Genus IV. *Pseudocyefis*, [from *πσευδο*, false, and *κυησις*, impregnation.] Spurious pregnancy. Generic characters—Symptoms of pregnancy without impregnation; chiefly occurring on the cessation of the catamenia. Two species.

1. *Pseudocyefis molaris*, false conception, or mole: the uterus irritated by a coagulum of blood or other fluid lodged in its cavity, often assuming a fibrous appearance. Frequently exhibiting, on being discharged, hydatids or other vermicles. See, for examples, Marcellus Donatus, lib. iv. cap. 25. Journ. des Scavans, passim. Ruyfch. Obs. 28, 29. Evacuated during dancing; Slevoght, Diss. Fem. mol. labor. Jenæ, 1700."

2. *Pseudocyefis inanis*: the uterus void of internal substance, and irritated by some unknown morbid action.

CLASS VI. ECCRITICA, [from *εκκρινω*, to strain off, drain, or exhaust.] DISEASES OF THE EXCERNENT FUNCTION.

Order I. MESOTICA, [from *μεσος*, the middle.] Disorders affecting the Parenchyma. "Pravity in the quantity or quality of the intermediate or connecting substance of organs; without inflammation, fever, or other derangement of the general health." It is very clear that this definition of Dr. Good's by no means applies to all diseases of the excernent function of the parenchyma. Indeed we are much surpris'd that the very frequent connexion between some of the diseases and "inflammation" and "fever" should have escap'd any one. This order contains four genera.

Genus I. *Polyfarcia*, [from *πολυσαρκος*, fleshy, abounding in flesh.] Corpulency, or obesity. Generic characters—Firm and unwieldy bulkiness of the body or its members, from enlargement of natural parts.

Considering the derivation of the word, we are rather surpris'd that Dr. Good has used the term *Polyfarcia* for this genus, since much flesh or muscle is not a disease: it is when the *fat* is superabundant that inconvenience is felt.

Polyfarcia adiposa; a single species. Bulkiness from superabundant accumulation of fat. Two varieties.

α. *A. generalis*; extending over the body and limbs. Sennertus mentions a woman, who at thirty-six years of age weighed four hundred and eighty pounds avoirdupois; and a man who weighed six hundred. Bright of Maldon weighed six hundred and sixteen pounds; and Lambert of Leicester considerably more. In the N. Sammlung Medic. Wahrnehm. iii. 370, is the case of a man who weighed eight hundred pounds.—Carried off by a spontaneous salivation. *Eph. Nat. Cur. Dec. iii. ann. v. vi. obs. 65.*—By a fright. *Samml. Medicin. Wahrnehmungen*, vi. 444.

β. *A. splanchnica*; confined to the organs or integuments of the trunk, the limbs retaining their gracile form.

Fatness seems to be owing to an inordinate degree of power in the assimilative organs. It has been generally attributed to over-eating; but this is not borne out by facts; neither, when we consider how much intemperance disturbs digestion, should we expect to find this the case. Indeed, in many instances, fat persons are remarkably abstinent in regard to aliment; and it is therefore the active state of the digestive organs, which, undisturbed by mental irritation to which these kind of people are so little subject, assimilates almost every portion of food they take into the blood, that we must in a great measure look for the cause of corpulence. We must confess however, that, even under this hypothesis, we should rather expect to find general plethora than an extraordinary development of adipose structure. Corpulence is only a disease when, by its pressure on the heart or any of the viscera, it disturbs in an unusual degree the breathing, the circulation, or any other of the functions.

Many plans have been laid down for the reduction of corpulence,

corpulence, but with little success. The most excessive and fatiguing exercise has been taken, the most rigid abstinence adopted, without any benefit. These measures should form, however, part of the treatment of most cases; but we believe that a gradual diminution in the periods of sleep, and the regular use of *dry feeding*, the quantity of fluid being brought down to the smallest possible degree, will do more for the cure of corpulence than any other measure. Of course, if the fat oppresses the action of the heart, or if plethora be manifest in combination with Polyfarcia, bleeding may be used; but otherwise the relief it gives seems only temporary.

Genus II. *Emphyma*, [from *εμφωω*, to engender, to produce.] Tumour. Generic characters—Glomeration in the substance of organs from the production of new and adscititious matter; sensation dull; growth sluggish.

The reader has already been referred to the article TUMOUR in this work for an account of *Phyma*. To the same article we shall be obliged to defer the consideration of the genus *Emphyma*, which indeed belongs more particularly to *Surgery* than to *Pathology* in the present acceptance of those terms.

A complete description of these productions has been long before the public; viz. Mr. Abernethy's work on Tumours, in which all that is known of their treatment is comprised; and indeed Dr. Good's arrangement of the genus is entirely formed upon that excellent work. The species are three, with many varieties.

1. *Emphyma farcoma*, farcomatous tumour, (Abernethy.) Tumour immovable; fleshy and firm to the touch. Of this there are eight varieties.

α. *S. vasculorum*, common vascular or organized farcoma, (Abernethy.) Vascular throughout: texture simple: when bulky, mapped on the surface with arborescent veins. Found over the body and limbs generally. Often found of an enormous size in the scrotum, constituting the sarcocele, or hernia carnosae, of authors.

β. *S. adiposum*, adipose farcoma: fatty throughout: inclosed in a thin capsule of condensed cellular substance; connected by minute vessels. Found chiefly in the fore and back part of the trunk. *Abernethy*.

γ. *S. pancreaticum*, pancreatic farcoma: tumour in irregular masses; connected by a loose fibrous substance, like the irregular masses of the pancreas. Found in the cellular substance; but more usually in lymphatic glands; chiefly in the female breast.

δ. *S. cellulorum*, cystic farcoma: tumour cellulose or cystose; cells oval, currant-sized, or grape-sized, containing a serous fluid; sometimes caseous. Found generally, but mostly in the thyroid gland, testis, and ovarium. When in the thyroid gland, it is called bronchocele, botium, or Derbyshire-neck. The cells are here numerous, the fluid often viscid, sometimes gelatinous. See *Cyrtosis Cretinismus*, p. 288.

ε. *S. scirrhosum*, scirrhous farcoma: hard, rigid, vascular, infarction of glandular follicles; indolent, insentient, glabrous; sometimes shrinking and becoming more indurated. When irritated, tending to a cancerous ulcer; and found only in glandular structures.

ζ. *S. mammarium*, mammary or mastoid farcoma: tumour of the colour and texture of the mammary gland; dense, and whitish; sometimes softer, and brownish; often producing, on extirpation, a malignant ulcer with indurated edges. Found in various parts of the body and limbs.

η. *S. tuberculorum*, tuberculate farcoma: tumour tuberculose; tubercles firm, round, and clustering; pea-sized or bean-sized; yellowish, or brownish-red; when large, disposed to ulcerate, and produce a painful, malignant, and often fatal, sore. Found chiefly in the lymphatic glands of the neck; often, simultaneously, in other glands and organs. *Abernethy*, p. 47.

θ. *S. medullare*, medullary farcoma: tumour of a pulpy consistence, and brain-like appearance; whitish, some-

times reddish-brown; when large, apt to ulcerate; and produce a sloughing, bleeding, and highly dangerous, sore. Found in different parts, chiefly in the testes; at times propagating itself along the absorbent vessels to adjoining organs.

2. *Emphyma encystis*, encysted tumour, or wen: tumour moveable; pulpy, often elastic to the touch. (*Lupia*, *Savo. Coll.*) Five varieties.

α. *E. steatoma*: an encysted extuberance containing a fatty or fatty substance, apparently secreted from the internal surface of the cyst. Found over most parts of the body; and weighing from a drachm or two, to twenty or thirty pounds.

β. *E. atheroma*: encysted extuberance containing a mealy or curd-like substance, sometimes intermixed with harder corpuscles; apparently secreted from the surface. Found, of different sizes, over most parts of the body. (*Molluscum*, *Willan*.)

γ. *E. meliceris*: encysted extuberance, containing a honey-like fluid. Found, of different sizes, over most parts of the body.

δ. *E. ganglion*: encysted extuberance containing a colourless fluid; the extuberance fixed upon a tendon.

ε. *E. testudo*: encysted extuberance containing a fluid readily hardening into horn or nail; and especially when protruded externally upon an ulceration of the surrounding integuments. See *Abernethy*, p. 90.

3. *Emphyma exostosis*: tumour inelastic; often immovable; hard and bony to the touch. Four varieties.

α. *E. ostea*; immovable; protuberant; seated on the substance of a bone. Sometimes excrescent, and composed of bony spicula resembling crystallizations. Sometimes exquisitely hard and glabrous, resembling ivory. Both found chiefly in the bones of the cranium.

β. *E. periostea*, node: immovable; protuberant; from bony enlargement of the periosteum.

γ. *E. pendula*: bony tumour hanging pendulous into a joint.

δ. *E. exotica*: bony tumour moveable or immovable, seated in some fleshy part of the body. See *Abernethy* on Tumour, p. 102. and *On Diseases resembling Syphilis*, p. 85.

Genus III. *Parostia*, [from *παρα*, bad, and *οσσειον*, bone.] Bones untempered in their substance; and incapable of affording their proper support. Two species.

1. *Parostia fragilis*: substance of the bones brittle and apt to break on slight exertions, with little or no pain. Most frequently an attendant on advanced age. Found also, at times, as a symptom in lues, struma, and porphyra.

2. *Parostia flexilis*, (*Mollites ossium*, *Auct. Var.*) substance of the bones soft; and apt to bend, and become crooked, on slight exertions, with little or no pain. Found also as a symptom in porphyra and other cachectic maladies. See various cases in the *Phil. Trans.* by Bevan, Pott, Hostry, Pringle; as also Gooch, *Surg.* p. 178. and *Bromfield's Chirurgical Observations*.—Found at times in new-born infants, more or less general.—Universal, with perversion of most of the bones. *Morand, Histoire de la Maladie singulière et de l'examen du cadavre d'une femme (Sapiot) devenue tout-à-fait contrefaite par une ramollissement général des os, Paris, 1752.* We have an engraving lying before us, at the present time, representing this extraordinary specimen of disease. The softness of the bones is represented so extreme as to allow the feet to be placed on each side of the head, the femoral bones forming a perfect curve.

Genus IV. *Osthexia*, [from *οσσειον*, bony, and *εξος*, habit.] Soft parts more or less indurated by a superfluous secretion and deposit of ossific matter. Two species.

1. *Osthexia infarciens*: ossific matter deposited in nodules, or amorphous masses, in different parts or organs. In the lungs; *Baillie, Morb. Anat. Fac. II. Pl. 6.*—In the substance of the heart, weighing 2 oz. *Burnet, Med. Pract.*

Pract. iii. 254.—In the thymus gland; *Aët. Med. Berol.* vol. i. p. 28.—In the thyroid; *Contuli de Lapid.*—In the parotid; *Plater* Obs. lib. iii. 707.—In the deltoid muscle; *Ruffe*, in *Blegny Zodiac*, 1680.—In the trachea, contracting its passage; *Kirkring*, Obs. 27.—In the dura mater; *Baillie*, Fasc. X. Pl. 4.

2. Oshexia implexa: ossific matter deposited in concentric layers in the tunics of vessels or membranes, rendering them rigid and uncompressible. Three varieties.

α. I. aortæ; ossification of the aorta.—With a considerable portion of the right ventricle and right auricle of the heart. *Baillie*, Fasc. V. Pl. 2. Valves ossified without palpitation or dyspnoea. *Morgagni de Sed. et Caus. Ep.* xxiii. 11.—Descending trunk wholly ossified. *Genga Anat. chirurg.* *Buckner Miscel.* 1727.—Ascending and descending trunks wholly ossified, compelling to an erect position. *Guattani de Aneurism.*

β. I. membranæ; ossification of membranous or connecting parts.—Of the pleura; *Baillie*, Fasc. II. Pl. 3.—General ossification of tendons, membranes, cartilages, and ligaments. *Pecklin*, lib. ii. Obs. 40.

γ. I. complicata; ossification of different parts simultaneously; as of the thoracic duct, ileum, and other abdominal organs. *Phil. Transf.* 1780.

Order II. CATACIZICA, [from *κατω*, within.] Disorders affecting Internal Surfaces. Pravity of the fluids, or emunctories that open into the internal surfaces of organs. There are three genera.

Genus I. *Hydrops*, [from *υδωρ*, water,] Dropsy. Generic characters—Pale, indolent, and inelastic, distention of the body or its members from accumulation of a watery fluid in natural cavities.

It has been ascertained by physiologists, that, in the healthy condition, a serous or watery fluid is constantly poured out, or exhaled, from what are termed the exhalent extremities of the arteries, into every cavity and interstice in the body, by which the parts are constantly moistened, and their adhesion, or painful attrition, is prevented. But upon the surfaces of the same cavities and interstices the mouths of another set of vessels, the absorbents or lymphatics, open, and take up or absorb this effused fluid before it has remained long, or been accumulated in those spaces, and carry it back into the circulating blood, through the thoracic duct, or general trunk of the absorbents. From this view of the animal economy, it at first seemed obvious that a perfect balance between these opposite functions of exhalation and absorption must exist, in order to maintain the health of the system; and that a dropical accumulation must be the consequence of the loss of such balance, and must be occasioned in one or other of the two following ways: 1. If the quantity of fluid poured out into any space be greater than the absorbent vessels can at the same time take up, it must necessarily accumulate in such parts; or, 2. Although the quantity poured out be not greater than usual, yet, if the absorption be any-how interrupted or diminished, an unusual accumulation will from this cause also ensue. Dropsy was in general therefore imputed to an increased exhalation or a diminished absorption, in the cavities in which it occurs. It will be found, however, upon an investigation of the various causes which are capable of producing these morbid conditions, that the exhalent vessels are commonly in fault, and that a plethoric state of the blood-vessels of the dropical part is the next link in the chain of causes. This plethoric condition may or may not be accompanied with inflammation of the red vessels; but, if such action do exist, the effusion of serum will be more rapid, and will be of a tenacious and gelatinous, or otherwise thickened, consistence or structure.

Of all other parts of the body, the serous membranes are most subject to effusions of water. Thus in the peritoneum we meet with ascites, in the pleura with hydrothorax, and in the sigmoidal capsules with similar effusions.

They are, however, by no means confined to these parts. The skin, irritated by a blister or by specific disease, gives examples of aqueous effusion under various appearances of vesicles, blebs, &c. The effused fluid exhibits different appearances; being sometimes a perfectly aqueous secretion, like the natural serum of the blood, and at other times quite different. Moreover, the same vessels which, under a trifling excitation, secrete undue quantities of serum, when more morbidly stimulated pour forth pus and coagulating lymph. Every thing that throws an inordinate flow of blood to the serous membranes may occasion dropsy; and in fact peritonitis, pleuritis, ascites, and hydrothorax, may often be traced to the same causes.

Of all other causes of ascites, an accumulation of blood in the peritoneal vessels is the most frequent. Thus we find, that, if the liver be diseased in such a manner as to obstruct the blood which flows from the intestines through the vena portæ to the heart, the ascites is an almost invariable consequence. Now in the case of tubercles or hydatids in the liver, the impediment being of course gradual in its formation, we do not often find inflammatory symptoms accompanying the disease; but, if cold be taken, we frequently find that inflammation does come on. Again; obstruction to the flow of blood through the lungs, as in asthma, brings on various forms of dropsy, but especially hydrothorax. Moreover the presence of the gravid uterus, or of any tumour in the abdomen, by pressing on the great vessels which retain the blood from the lower extremities, give rise to œdematous swellings under the integuments. Dropsy is also a sequel of fevers, especially of Rosalia. Besides increased action of the secretory vessels, dropsy seems to owe its origin to a preponderance of serum in the blood; and in this case passive plethora is generally found in a remarkable degree. General plethora also brings on dropsy; and we find it a very common sequel of repressed discharges, as piles, ulcers, or the like.

Of the mode in which absorption may be disturbed or accelerated we have before spoken at large in another part of this article. The connexion of diminished absorption with dropical effusion is obvious enough, either as a cause or an effect. Diminution in the quantity of urine is always met with in dropsy; and a distinction has been made by Dr. Blackall between inflammatory and chronic dropsy, according to the degree of coagulability of this fluid. In inflammatory dropsy this author states that the urine is easily coagulable on the application of heat; while in chronic dropsy this coagulation is absent altogether, or at least is very trifling in degree. This distinction has been contradicted; and we are enabled to state, from some experiments of our own, that it is not tenable. By this statement we do not mean to detract from the merits of Dr. Blackall, who must be acknowledged to have done much to improve the treatment of dropsy.

The symptoms vary as this disease affects different parts, as appears from the following details of the species.

1. *Hydrops cellularis*: cold and diffusive intumescence of the skin, pitting beneath the pressure of the finger. Three varieties.

α. *Totius corporis*, anasarca, or general dropsy: extending through the cellular membrane of the whole body.

β. *Artuum*, edema, limited to the cellular membrane of the limbs; chiefly of the feet and ankles, and mostly appearing in the evening.

γ. *Dyspnoica*; œdematous swelling of the feet; stiffness and numbness of the joints; the swelling rapidly ascending to the belly, with severe and, mostly, fatal dyspnoea. This very severe and singular variety is taken from Mr. W. Hunter's Essay, published at Bengal, folio, 1804. The disease appeared with great frequency among the lascars in the Company's service in 1801. Its attack was sudden; and its course so rapid, that it frequently killed the patient in two days. Mr. Hunter ascribes it

to the concurrent effect of breathing an impure atmosphere, suppressed perspiration, want of exercise, and a previous life of intemperance. Hence probably a very violent kind of-inflammatory dropsy.

4. Hydrops thoracis, dropsy of the chest; (Hydrothorax, *Sawv. Cullen, &c.*) Sense of oppression in the chest; dyspnoea, increased by exercise or decumbiture: livid and puffy countenance; purple lips; urine red and spare; pulse irregular; edematous extremities; palpitation and sudden startings during sleep.

The fluctuation of water in the ribs may sometimes be felt. According to Laennec, *mediate auscultation* (see p. 244, 5.) furnishes certain indications of the existence of fluid in the chest, and even discovers its extent. A great diminution, or indeed a total absence, of the sound of respiration; the appearance, disappearance, and return, of *egophony*, are the signs here manifested by the use of the stethoscope. When the pleuritic effusion is very abundant on its first formation, the absence of respiration is then totally uniform, and so complete that no sound whatever can be heard, however forcibly the respiratory efforts may elevate the thorax. The only part in which there is an exception to this, is an extent about three fingers breadth from the vertebral column. This exception seems to depend on the lungs being in contact with the parietes of the chest at the part above mentioned; and therefore the interposition of fluid between those parts, with its pressure on the lungs, which are the cause of the absence of the sound of respiration, do not here exist. In cases where the lungs are attached to the sides of the chest in other points, from adhesions of ancient date, the same exception may however exist in the parts thus affected. Sometimes, although the quantity of fluid effused is not diminished, the sound of respiration will return at the end of a few days; but it is without any mixture of *rattles*, unless pulmonary catarrh exist at the same time, which may help to make its distinction from pneumonia. When the effusion is not considerable, the sound of respiration commonly resembles what it is in children. When the fluid is disappearing, this sound returns from above downwards, as the surface of the fluid descends; except in cases when this order is interrupted by adhesions of the lungs to the thoracic parietes. To the above signs must be joined *egophony*, which is characteristic of it, and constantly indicates a collection of fluid when it is moderate in quantity; but it disappears when the quantity of fluid is very considerable. It is most evident when the fluid has least consistence; and therefore is generally most distinct in the situation of the upper part of the collection. *Egophony* may be suspended some minutes, or even hours; but it reappears when the patient expectorates. Many authors have noticed an increase in the volume of the side in which the collection of fluid exists in a great degree. This sometimes exists in a very remarkable manner. It disappears as the cure advances, and the side occasionally becomes at length smaller than in the natural state.

5. Hydrops abdominis, ascites, or dropsy of the belly: tense, heavy, and equable, intumescence of the whole belly; distinctly fluctuating to the hand upon a slight stroke being given on the opposite side.

It is this fluctuation which in ordinary cases distinguishes dropsy from pregnancy. Antonia Scarpa has however related cases tending to show, that, either from excess of liquor amnii, (in which case thirst is absent, and the natural form of a belly containing a gravid uterus is retained,) or from effusion from the peritoneum, (in which case thirst is present, and the regular form of the fundus uteri is not found,) dropsy and pregnancy may co-exist. These cases are of course very rare, and are to be relieved only from the extreme danger and dyspnoea which attend them by puncture. Scarpa directs this to be done (when we wish to avoid wounding the uterus) in the hypochondriac region, between the edge of the rectus muscle and the edge of the

false ribs. As to puncturing the womb itself, this is of course a very dangerous experiment. Scarpa thinks, however, that it may be tried in cases of imminent danger; and he quotes instances in which it has been done without ill effects. See "Sulla Gravidanza suffocata da Ascite, Memoria del Cav. Ant. Scarpa, 1817."

Dr. Good makes three varieties of this species, the last of which seems to us quite out of place, since the disease is the same as inflammatory dropsy, though differently produced.

a. Atonica; preceded by general debility of the constitution. Often the result of scurvy, or fevers of various kinds.

6. Parabysinica; preceded by or accompanied with opilation, or indurated enlargement of one or more of the abdominal viscera, usually the liver; the gall-bladder of which is often enormously enlarged and turgid. See Phil. Transf. 1710-12. vol. xxvii. Yonge, Mem. de Paris, 1701. Du Verney, Act. Erud. Lipsf. 1713. In the last, the bladder weighed ten pounds twelve ounces, had no meatus, contained various tunics, and was filled with a coffee-like liquor. The substance of the liver is often found loaded with hydatids. In one instance it weighed twelve pounds. *Goock's Cases, &c.* p. 170.

7. Metastatica; from repelled gout, exantheas, or other cutaneous eruptions.

6. Hydrops ovarii, dropsy of the ovarium: heavy and painful intumescence of the iliac region on one or both sides, with a sense of dragging; gradually spreading over the belly; with obscure fluctuation.

7. Hydrops tubalis, dropsy of the fallopian tube: heavy elongated intumescence of the iliac region, spreading transversely; with obscure fluctuation.

8. Hydrops uteri, dropsy of the womb; heavy circumscribed protuberance in the hypogastrium, with obscure fluctuation; progressively enlarging, without ischury or pregnancy.

In the treatment of no other kind of disease has the present age more reason to exult in its improvement in the therapeutic art, than in that of dropsy. No longer trammelled by that fatal devotion to system which led the older practitioners to prescribe in the same manner for all diseases in which the prominent symptom of watery effusion caused them to be ranged under the same title; we look to the *cause* of dropsy entirely for the rule of treatment. It is true, we are often puzzled to find this cause; but at all events, our knowledge is in the generality of cases sufficiently accurate to lead to beneficial treatment. Thus, if it seems that local pain has preceded or still accompanies a dropsical effusion, especially if this pain has its seat in the pleura or peritoneum, we do not hesitate to treat it as simple inflammation. In doing this, however, we are of course as much regulated by the state of the pulse, the appearance of the blood (generally buffy and the serum easily coagulable), and the febrile commotion of the constitution, as the local pain. The measure of free bleeding is to be followed by counter-irritation (especially if the disease owes its origin to suppression of some accustomed morbid action), and by the excitement of the secretion of the mucous membrane, especially of the urinary passages, by diuretics, and of the bowels by drastic cathartics. The disease continuing obdurate, full doses of mercury will be well calculated to remove it.

If dropsy seems to arise from mechanical obstruction, still local bleeding may occasionally be proper to restrain the inflammatory action which all morbid products tend to produce by the stimulus; but our chief attention must be directed to the removal of the mechanical impediment. Thus, when a sluggish state of the liver exists, the excitement of the secretions of this organ by mercury affords great relief to the dropsical symptoms; but, if tubercles, hydatids, or other arterial morbid tumour, exist in the liver, mercury must be interdicted; and the only chance we can afford the patient is to keep up a very frequent, nausea by tartar emetic, and cut off the supplies from the tumour

tumour by the most rigid abstinence. For the same purpose, small bleedings are occasionally proper. Such means will palliate the disease, and postpone its termination, though they will seldom cure it.

When dropsy owes its origin to a decrease in the quantity of the blood, or in the alteration of its quality, both which are commonly connected, our endeavour must be directed to restore this fluid to its natural state. Frequent and small bleedings of course effect a diminution of its quantity; and a regular attention to the state of the digestive organs is the only method of improving its quality. With respect to the diet, this should not be too low; and small quantities of wine may be allowed. The bowels must be kept open, and the mucous secretions in general excited. Exercise also, either active or passive, must be used regularly. Catarrh and asthma occurring with dropsy require no difference in their treatment on that account.

When either from the effects of idiopathic inflammation, or from general plethora, or from diseased blood, a state is induced which may be properly called the *chronic* state of dropsy, which is frequently met with aborigine in old and debilitated persons, and in which the disease seems nearly stationary, the water very slowly collecting, the sanguineous functions tardy, and the digestive organs weak; when, in fact, a diminution of absorption seems the cause of the disorder's continuance, two alternatives present themselves, which must be adopted chiefly as the constitution of the patient is good or bad, and as the quantity of effused liquid is great or small. These are—the removal of the water by surgical means, as by scarifying the skin in *Hydrops cellularis*, by paracentesis thoracis or paracentesis abdominis in hydrothorax and ascites. (See SURGERY for these operations.) A morbid state of the constitution, or very old age, would prevent us from scarifying the skin, lest gangrene of the wounded parts should ensue; and the puncture of the abdomen should never be used unless the quantity of fluid contained is very great. It should be remarked also, that, if the waters seem to be contained in cysts, no very favourable prognosis should be given of the ultimate success of the operation; and the practitioner should be aware, that in these cases he is apt to meet with so gelatinous a serum, that it will not always flow through his canula. Paracentesis thoracis is at all times a dangerous operation; and, though it has on some occasions been found useful, yet the danger of wounding the lungs, and the uncertainty of the signs of hydrothorax, cause it to be very seldom used.

The means of exciting the absorbents are few and uncertain; nor will they have any effect, except in the particular cases under immediate consideration. Of the medicines which promote the action of the absorbents, mercury holds a very high rank, but its operation on these vessels is uncertain; nevertheless it is found useful in practice during the chronic state of dropsy. It should be given in small doses; and may be advantageously combined with diuretics. As a more direct mode of promoting absorption, *pressure* has been tried in many cases. Thus in *H. cellularis artuum*, bandaging the limbs, and in *H. cellularis totius corporis* and *H. abdominis*, frictions with the hand and flesh-brush are advantageously employed. The good effects of pressure in these cases probably induced a physician of eminence, Sir G. Blane, to try the same practice in chronic hydrocephalus; and, it is said with success. When however we consider the notorious ill effects pressure exerts on the brain, we should not be inclined to expect much from this practice; but the high authority on which it rests obliges us to mention it.

As medicines which have exerted a happy influence on dropsy under all circumstances wherein they could be made to act, we must mention diuretics. These medicines are however very uncertain in their operation; and it is a curious anomaly, that the weakest sometimes answer

where the most powerful fail. Their exhibition is of course likely to be fruitless in cases where tumours or diseased liver occasion dropsy; but, in inflammatory and in chronic idiopathic dropsies, they are generally useful. The digitalis, in doses of five to twelve drops thrice a day in a solution of cream of tartar, is perhaps the most useful diuretic for inflammatory dropsy that we know of. In chronic cases, squill combined with calomel is more potent. But a variety of diuretics are in the Pharmacopœia, as cantharides, turpentine, &c. which may be used when these common articles fail. On the same plan of counter-irritation, drastic cathartics, as elaterium, scammony, and oil of croton, have been used: their use should (generally speaking) be confined to cases of inflammatory dropsy.

We must now retrace our steps to describe two diseases which we passed over in Dr. Good's classification of this genus, where they occurred as the second and third species, under the titles of *Hydrops capitis* (water in the head), and *Hydrops spinæ* (*spina bifida*). We passed these over because they each of them require a distinct elucidation; for they by no means agree in the general characters of dropsy. *Hydrops capitis* is defined by Dr. Good as an "edematous intumescence of the head, the sutures of the skull gaping." This, however, is merely the character of a very rare disease, and has no reference to the symptoms of hydrocephalus in the common acceptance of the term.

The term *Hydrocephalus*, or *Hydrops capitis*, does not apply to this disease in any of its stages except the last; for, in its first stage, this malady is actually *Cephalitis*; *Cephalitis*, however, varying in intensity, and traceable to a variety of causes. The children who are predisposed to hydrocephalus, are those who have large brains, or unusual activity of the cerebral functions. But the absence of these phenomena by no means ensures a child from liability to the disease in question. Generally, for some time before more marked symptoms come on, unusual quickness of apprehension, vivacity of manner, and restlessness, are apparent. In some children this increase of sensibility reaches to an astonishing height, and indeed forms completely that erethismal state of brain before described under *dyspepsia*, p. 136.

But a more formidable set of symptoms than the above are those which display *diminished* cerebral energy. The children begin to be indifferent to every thing: their activity, vivacity, and good temper, vanish; they dislike light and notice; the lively colour of their countenance and brightness of their eyes begin to fade; and their sprightliness passes into dulness. Their bowels are confined, their urine scanty, their rest disturbed. The larger children, on sitting up in bed, complain of giddiness; they are also subject to rheumatic pains in the limbs, but particularly in the nape of the neck, calves of the legs, and soles of the feet. The smaller children express the same feelings by a certain rocking of the head, by suddenly becoming silent in the midst of a cry, by whining, and moving their hands towards their heads. The pulse is irregular, and sometimes intermits altogether: it is commonly the seventh, ninth, sixteenth, seventeenth, or thirty-first, pulsation which is weaker or deficient. From a state of reverie they are roused with a deep sigh, and begin again to notice those about them, of whose presence they had been apparently unconscious; the colour of the face changes, and they are alternately flushed and chilly. When asked if any thing ails them, they answer with an indifferent "No." They walk without firmness, and, in stepping forward, they often raise the foot as if they were stepping over a threshold; they totter and stagger as if drunk.

Sometimes in this stage, the infant, though in a state of health, frequently vomits, wakes suddenly with a cry, becomes soporose from an overloaded stomach, and has an irregular pulse. Sleeplessness, unusually continued screaming, without any other complaint; hanging the head

head after such attacks; alarm on the gentlest touch; an excessive quickness of hearing, so as to be awakened terrified by the slightest noise; diminished appetite; *an entire absence or excess of thirst*; a cry denoting pain, on slight movements of the body, but suddenly becoming silent by quick ones; constant pulling the nape of the neck with the hand; increased warmth of the head, particularly of the forehead and nape of the neck; are the chief guides for the diagnosis.

A most uncommon mode of approach is that, where the healthiest children are all at once seized with violent fever or convulsions, after a sudden attack of languor, giddiness, and head-ache, stiff neck, inclination to vomit, full hard and slow pulse, sensibility to light, and ringing in the ears. If the practitioner is called to this manifestly inflammatory affection, and employs the necessary remedies with activity, effusion may be arrested much easier than in the former cases, and a greater number of such sufferers may be snatched from death. But if a clear view of the disease is not taken, and remedies are not applied with overwhelming power, there follows most commonly in a few hours the moment of effusion, which may be recognized by its characteristic symptoms, and is soon succeeded by paralysis and death. This first stage often lasts only for a few hours; the latter frequently eight, ten, fourteen, and even more, days.

In the second stage, the symptoms of the phrenitic state show themselves: the patients complain of severe pains in the forehead, affecting the eyes, sometimes alternating with colicky pains; also pains in the limbs, and a shooting sensation in the nape of the neck. There is no place where they can lie still, and no person who can soothe them: the eye opens perfectly in the dark only, being very sensible to light, and shrinks above the upper eye-lid. The head is hot to the hand; but neither it nor any other part of the surface of the body is red, nor turgid with blood. In the tumultuous accession of the inflammatory period there is, however, an exception in this point; for the tunica albuginea is streaked with blood-vessels, and the inner surface of the eye-lid is inflamed. In such cases only there are convulsive movements of the eyes; the pulsations of the carotids are strong; the pale countenance shrinks, and rarely becomes cedematous and distorted.

Among the pathognomonic symptoms of acute hydrocephalus, Dr. Gölis enumerates dryness of the nose, paleness, cessation of appetite and thirst; furred tongue; vomiting, which becomes less frequent as patients advance to the state of effusion; the digestion of food is most commonly altogether suspended; the belly also, before tumid, falls away. At this period, there is tenderness on pressure on the region of the stomach and liver; there is often obstinate constipation; the urine is frequently scanty, passed with pain, and has a characteristic white slimy deposit; the hearing now becomes acute, and even painful; pains in the belly, nape of the neck, and particularly the head, are constantly complained of by moaning; the sleep is disturbed often by dreams, in which they cry out; they grind their teeth also. Pressing questions only obtain answers, and those are short; their movements are languid and compulsory; they cannot sit up without nausea and vomiting; the pulse is slow, unequal, and intermitting, but easily accelerated in a moment by pain: the latter symptom is also considered by Dr. Gölis as pathognomonic of this stage. The skin becomes flaccid, dry, and discoloured, and an eruption sometimes appears about the lips, neck, and shoulders. They are restless, and desire to be moved from place to place. Those with a very slow pulse, complain of as much pain as those with whom it is accelerated.

In the third, or stage of effusion, the above symptoms, after a few hours or days, grow worse. The patients can no longer sit up; the restlessness ceases; they most commonly lie on the back, and constantly kick up the bed-

clothes; they carry their hands to their head, mouth, and nostrils, into which as well as into their ears, they often bore so as to make them bleed; they half forget the words they would say. All the external senses become dull or annihilated, except that of hearing, which is often quick; the eyes are directed obliquely downwards; the pupils are dilated and oscillating, but unaffected by strong light; they often see double, or falsely; and open and close their eyes repeatedly in a few minutes. A gloomy earnestness is painted in their flushed countenance, with a threatening expression: it is a curious contrast of fierceness and patience, which often excites the astonishment of by-standers. They waste to a skeleton; their dry flabby skin hangs on their emaciated legs; partial sweats break out. The urine is passed unconsciously; there is constipation. The debility of the pulse, sighing, offensiveness of the breath, and general weakness, increase; coma comes on; and, before the last tragic scene, they sometimes become conscious, so as to sit up to eat and drink. They sometimes even swallow with eagerness, long for their play-things, and deceive the attendant with momentary hopes, which are followed by more severe sufferings than before.

When the patient survives this state, from ten to thirty days after, more frightful symptoms succeed: convulsions, followed by paralysis, most commonly of the right side, and often cramp, which draws the head backwards and downwards. The features are thus frightfully distorted; a violent fever follows; a perspiration trickles from the head; a hectic redness alternates with a deadly paleness on the disfigured countenance of the patient. The sight is lost; the pupil of the convulsed eye extremely dilated, and insensible to light, the tunica albuginea is blood-shot. The hearing, from being quick, gradually becomes dull; swallowing becomes impossible, though there are often moments in which they can take fluids; the urine is scanty, and passed unconsciously; it continues of a deep yellow colour, with a white sediment; the stools are still less frequent, but never foetid, as in the former stages. In many, the tips of the fingers become blood-red, and afterwards, on the approach of death, pale. The pulse is still weaker, and more intermitting than before; the head, however, remains warmer than the rest of the body; the spasms, which draw the head backwards, and the arms against the sides, cease only with life. For the above detail of symptoms we are chiefly indebted to Dr. Gooch's translation of the work of Dr. Gölis on Acute Hydrocephalus.

Hydrocephalus is evidently inflammation of the membranes of the brain; and it is from the arachnoid membrane especially that the effusion is derived. The cerebral inflammation which precedes this effusion is of course traceable in different instances to different causes. Among the children of this country, and of the large towns especially, it is very generally found, that irritation of the digestive organs is the precursor of Hydrocephalus capitis; while in other situations the action of the sun's rays is the most common cause of the disease. It is to be remarked, however, that the action of the solar rays on the head generally induces those sudden and violent attacks in which stupor or raving delirium precede the way to a speedy death; but that the more common precursors of hydrocephalus cause symptoms of cerebral excitation to appear long before those of cerebral plethora. In the first stage, or that in which mere irritation is manifested by listlessness and exaltation of the mental emotions, the treatment consists chiefly in improving the action of the chylopoietic viscera, which are so generally impaired. The bowels may be freely opened, to a degree in fact sufficient to excite counter-irritation; the liver may be acted upon by doses of calomel, and low diet ordered. When stupor or much visual deception is remarked, we may bleed in this stage of the disease, because these symptoms are signs of fulness of the vessels of the brain; but,

if

if these symptoms are not present, the state of the alimentary canal is to be first attended to. As soon as the symptoms of cephalitis become in the slightest degree apparent, whether it has been preceded by the above stage, or makes its attack in a sudden and unexpected manner, bleeding must be had recourse to. As all that can be done in this disease must be done early, the practitioner must at once decide, not only from the constitutional appearance, but from the state of the pulse and of the mental faculties of the patient, the degree to which venesection may be carried. He will be chiefly guided in his opinion as to this point, by the mode of attack; for, when the disease comes on suddenly, it will, *cæteris paribus*, require much more ample bleeding than when indisposition has long preceded it. Most practitioners trust to leeches to the head; and in milder cases these may do very well; but we are quite sure that in the majority of patients the disease will be more suddenly arrested by the use of the lancet. Even in the youngest children, this measure should, when the disease is violent, always precede local bleeding; for, as we have before shown in this article, the efficacy of bleeding depends much on its action on the heart; and this effect is not increased unless by a sudden abstraction of blood. After the general bleeding, the application of leeches will be found of the greatest benefit; and, in violent cases, cold water to the head, and counter-irritants, as blisters, &c. to the feet, may also be used with advantage. The bowels are to be freely purged by drastic cathartics. We are cautioned by some authors (e. g. by Dr. Gölis) not to carry the use of these substances too far, lest we transfer the inflammation from the brain to the intestines. Of course this effect must be watched; but in few cases of violent Cephalitis will it be found to occur; and, even should it take place, it will seldom prove of an obstinate character, if the irritating medicines be withheld, and local bleedings and anodyne injections resorted to.

When the third stage, or that in which effusion has taken place, comes on, our treatment must be in a great measure directed by the history of the case. If the patient has been so far neglected, that no bleeding, or even if not enough of this evacuation has been made, we must (always keeping in view the fact that aqueous effusion is in most instances a consequence of vascular fulness) bleed until the pulse is reduced to a somewhat natural time. We may then purge, and counter-irritate. Lowering of the pulse may be produced also by the regular exhibition of digitalis in minute doses. In that state of aqueous effusion manifested by partial paralysis, large doses of this drug afford the only means we know of for palliating the sufferings of the patient, and relieving the convulsive agonies which attend death. And in those cases in which all inflammatory symptoms have gone off, and the patient has become quiet and idiotic, this drug will be found by no means useless. We know not whether this medicine relieves the malady in question by its vicarious action on the kidneys, or whether it represses the irritative inflammation which all morbid deposits tend to excite in the structure they inhabit, whenever the system happens to be subjected to the influence of inflaming causes, as cold, &c. but we have lately seen two very marked cases of chronic hydrocephalus cured by the exhibition of small doses of digitalis in conjunction with a very close attention to the digestive system, and change of air. It is this chronic state of hydrocephalus in which sir G. Blane proposed to bandage the cranium.

3. *Hydrops spinæ*, *hydro-rachitis* or *spina bifida*, is a disease mostly congenital, though occasionally met with in adults. It consists of a "soft fluctuating exuberance on the spine, with gaping of the vertebræ." This gaping of the vertebræ is lateral to the tumour, and arises from the want of the spinous processes of these bones. The pressure of the tumour of course paralyzes those parts which have their nerves supplied from the lower portion

of the spinal marrow. The disease is, with a very few exceptions, incurable; the patient oftentimes dying in a few days after the tumour has begun to make rapid advances. In the few cases which have been met with in adults, it would appear that the pressure of the water caused *absorption* of the bone; but this is merely speculation. The little that can be done for *Hydrops spinæ* consists in applying gentle pressure on the tumour from its commencement. If this fails, we must puncture the tumour with a fine instrument, (as a needle,) evacuate the contents, and, closing it carefully to prevent the admission of air and consequent inflammation, re-apply the pressure for the purpose of preventing the return of the fluid deposit. It is to be remarked, that, when imperfect ossification of the bones of the head, and hydrocephalus, exist, then the case is nearly hopeless; for the pressure on the tumour mostly causes the greater proportion of water to press on the brain. When pressure on the tumour seems to do harm, we may prevent its further enlargement by a concave truss.

9. *Hydrops scroti*, *hydrocele*, or *dropsy of the scrotum*: soft semi-transparent pyriform intumescence of the scrotum; progressively enlarging, without pain. Two varieties.

α. *Vaginalis*; the fluid contained in the tunica vaginalis, or surrounding sheath of the testis.

β. *Cellularis*; the fluid contained in the cellular membrane of the scrotum.

Genus II. *Emphysema*, [from *φυσωω*, to inflate, to distend with air.] Inflation; Wind-dropsy. Generic characters—Elastic and sonorous distention of the body or its members, from air accumulated in natural cavities.

We have before spoken, under *Borborygmus*, of the supposition that air may be generated in the human body by secreting vessels. As far as this relates to the present genus, it derives support from those cases in which, upon the authority of John Hunter and other accurate observers, we are informed, that air has been found in cavities where neither its admission from without nor its generation from the putrefactive process could have been suspected. We have three species of this kind of spontaneous generation of air to enumerate.

1. *Emphysema cellulare*: tense, glabrous, diffusive intumescence of the skin, crackling beneath the pressure of the finger. Two varieties, as proceeding,

α. A vulnere; from a wound of the thorax.

Though the form of *Emphysema* which affects the thorax commonly arises from a wound, instances are not wanting to show, that this disease may arise from other causes. Thus violent fits of coughing, or other sudden exertions, may rupture the air-cells of the lungs, and give the air free access into the cellular membrane. This effect more certainly follows if inflammation exists in the structure of the lungs at the time the exciting cause is applied. In addition to the symptoms above mentioned in the definition of cellular *emphysema* in general, a sense of suffocation, great dyspnoea coming on in fits, and expectoration of blood, are met with in *Emphysema* from wounds of the thorax. In the treatment of the disease, the practitioner is rather occupied with removing the inflammation of the lungs which the wound occasions, than with the *Emphysema*, which in fact, if not excessive in quantity, will generally subside as the pulmonary phlogosis goes off. It is to be recollected, however, that a large collection of air in the cellular membrane spreads very fast, and threatens that structure with mortification. Hence it is sometimes necessary to evacuate the air by puncture, and to prevent as much as possible its reproduction by pressure. For the mode of operation, see *SURGERY*.

β. *E. cellulare a veneno*, "from fish-poison, or other venom." It seems to us a mere popular error to suppose, that the bodies of poisoned persons swell before death. That this happens afterwards we have no doubt in cases

of fish-poison, and that it results from the sudden putrefaction which follows death produced by causes of an intense and sudden operation, and happening to persons in full habit of body.

2. Emphysema abdominis, tympany: tense, light, and equable, intumescence of the whole body; distinctly resonant to a stroke of the hand.

So few are the cases on record of this curious disorder, that it may reasonably be doubted whether it ever existed; that is to say, as a distinct and idiopathic disease; for that it follows a putrefactive state of the abdomen after enteritis, or operation for hernia, does not admit of a doubt. Should a case of idiopathic tympanitis occur, it might be advisable to tap the abdomen. When arising from putrefaction, it is almost unnecessary to say, that nothing need be done.

The Tympanitis *intestinalis* of authors, like the meteorismus of Sauvages, is a variety, sometimes only a symptom, of dyspepsy, worms, hysteria, or some other disease affecting the intestinal canal.

3. Emphysema uteri, tympany of the womb: light tense circumscribed protuberance in the hypogastrium; obscurely sonorous; wind occasionally discharged through the mouth of the uterus. This disease, about which as little is known as of the former species, is, according to Parr, to be cured by rendering the mouth of the womb pervious.

Genus III. *Paruria*, [from *παρα*, bad, and *ουρον*, to make water.] Morbid secretion or discharge of urine. Four species.

1. *Paruria inops*, destitution of urine; without desire to make water, or sense of fulness in any part of the urinary track. Often the result of renal inflammation or paralysis; but sometimes a genuine idiopathic affection. Dr. Parr relates a case, that occurred in his own practice, in which no urine was apparently secreted for six weeks; at the end of which time the discharge returned spontaneously. A very curious case may be found in the Phil. Transf. by Mr. Richardson, of a boy who never secreted urine.

2. *Paruria retentionis*, (Ischuria, *Cullen, &c. &c.*) urine totally obstructed in its flow; with a sense of weight or uneasiness in some part of the urinary track. Four varieties.

α. Renalis; pain and sense of weight in the region of the kidneys, without any swelling in the hypogastrium.

The retention of urine, when it has its seat in the kidneys, is generally caused by inflammation, either idiopathic, or arising from a stone lodged in the gland or ureter, or, on the other hand, from some morbid growth in contiguous parts. The two former cases are of course to be relieved by bleeding, and sedatives, as opium, &c. The latter are nearly hopeless cases, and are only to be palliated by the same means, in slighter degrees of force. This gland, when it suppurates, or is accompanied by tuberculated accretions of the peritoneum, acquires, on some occasions, an enormous size; on others, it is much diminished.

β. Ureterica; with pain or sense of weight in the region of the ureters.

γ. Vesicalis; with protuberance in the hypogastrium; frequent desire to make water; pain at the neck of the bladder; sometimes at the end of the penis.

δ. Urethralis; with protuberance in the hypogastrium; frequent desire to make water; and a sense of obstruction in the urethra, resisting the introduction of a catheter.

The treatment of the first variety consists merely in relieving pain by anodynes, and promoting relaxation by warm bathing. In the two latter varieties, we have to consider the cause of the ischuria, or stoppage of urine. This is chiefly in the bladder: atony of the fibres of the fundus, or spasmodic action of the fibres of the neck of

this cavity. This contraction is to be overcome by such means as stimulate the contractile powers of the fundus, or diminish those of the neck; so that, on many occasions, diuretics, as turpentine and nitre, remove a slight degree of the disorder. Again, the warm bath sometimes relaxes the muscular fibres of the neck, and thus allows the evolution of urine; but, since each of these agents must more or less operate upon the antagonist muscles, it may so happen that they may do no good, as indeed is often sufficiently evident. A composition of equal parts of tincture of opium and tincture of muriated iron added to ten times their quantity of water, and given every half-hour in doses of a tea-spoonful, is perhaps the best remedy for ischuria that is known; but it often fails. It then becomes an object to introduce an instrument. The bougie, the silver or the flexible catheter, may be introduced as occasion serves; but their introduction can seldom be effected, unless some degree of relaxation is brought about; for this purpose free bleeding and the warm bath may be had recourse to. If the patient faints, this favourable opportunity of introducing the instrument is not to be lost. Much will depend, in the treatment of this complaint, on the *tact* of the surgeon; the introduction of the catheter being an operation only to be acquired by experience; and it is well known that some surgeons have introduced a catheter instantly, when others have failed after long and repeated trials.

If the introduction of this instrument is impossible, it then becomes a matter of consultation how long it may be safe to defer a more serious and infallible operation, the puncture of the bladder. No exact time can be specified at which the postponement of this operation will be fatal. Cases are related in which the suppression has continued for weeks; but of course no surgeon would rely on these cases for practice. As a general rule it may be stated, that, when the bladder is felt distending the belly an inch or two above the umbilicus, if the accumulation has been rapid, and the pain is very excruciating, the bladder should be punctured. See SURGERY.

3. *Paruria stillatitia*, strangury. (Dysuria, *Sawo. Cull. &c.*) Painful and stillatitious emission of urine. Six varieties.

α. Spasmodica; from spasmodic constriction of the sphincter, or some other part of the urinary canal, catenating with spasmodic action in some adjoining part. The same means may be used as advised for the relaxation of the bladder in complete obstruction.

β. Ardens; from spasmodic constriction excited by the external or internal use of various stimulants, as acrid foods, or cantharides; accompanied with a sense of scalding as the urine is discharged. Copious and mucilaginous drinks are all that are required to allay this irritation. Opium may be occasionally requisite.

γ. Callosa; from a callous thickening of the membrane of the urethra: the stricture permanent. *Baillie, Morb. Anat. Fasc. viii. pl. 5. See Stricture, p. 167.*

δ. Mucosa; the urine intermixed with a secretion of acrimonious mucus, of a whitish or greenish hue.

This disease may be considered as an inflammation of the mucous membrane of the bladder, similar in its nature to phlogosis of any other mucous membrane. In some cases, general bleeding, but often local depletion by means of leeches, with copious diluents, having small proportions of soda dissolved in them, will generally effect a cure. When constriction of the bladder has been caused by the long standing of this complaint, a state which is marked by constant pain over the region of the bladder, with inability to retain the urine for a long space of time, it has been proposed by Mr. Jesse Foot to wash out and distend the bladder with warm solution of uva ursi, introduced by means of a syringe.

The one or other of these varieties is found also occasionally, or as a symptom, in inflammation of the urinary organs, several species of lithia, and compression from

local tumours, retroversion of the uterus in pregnancy, or descent of the child's head in labour.

ε. Helminthica; accompanied with a discharge of worms of a peculiar kind. This variety is given by Dr. Good upon the authority of Mr. Lawrence's very singular case inserted in the *Medico Chirurg. Transf.* vol. ii. p. 382. The patient was a female aged 24: had long laboured under a severe irritation of the bladder, which was ascribed to a calculus. She at length discharged three or four worms of a non-descript kind, and continued to discharge more, especially when the discharge was aided by injections, or the catheter remaining in the urethra for the night. The evacuation of these animals continued for at least a twelvemonth. Twenty-two were once discharged at a time; and the whole number could not be less than from 800 to 1000. A smaller kind was also occasionally evacuated. The larger were usually from four to six inches in length; one of them measured eight; slender in the middle; filiform at the extremities; thicker in the inter-spaces: they were soft when first voided, and of a yellowish hue. For the most part they were discharged dead.

ζ. Polyposa; the bladder or urethra, or both, obstructed by the formation of a polypous excrescence; sometimes shooting to the external extremity.

4. Paruria mellita, diabetes.

The derangements which the kidneys are subject to, in regard to the quantity and quality of their secretions, are very numerous. In a state of comparative health, the urine is liable to many slight changes in the relative proportions of its constituent parts, and sometimes indeed acquires additional constituents. In fact, so much variation is observed in the quality of the urine, that we see every reason to concur in the strongly-expressed opinion of a late physiologist, that the kidneys are the common sewers of the constitution. Yet, notwithstanding the various products derived by the kidneys from the blood, Berzelius has accurately remarked, that *acidification* is the chief employment of these glands. Thus the sulphur and phosphate of the blood is converted by the kidneys into phosphoric and sulphuric acids, and a new acid, the lithic, is formed. The analysis of diseased urine shows, that this acidifying process is sometimes carried to excess; and nitric, oxalic, and other acids, are produced; while, on the other hand, it is sometimes diminished, or totally suspended, and neutral or alkaline substances, or even pure blood, are predominant in the urine. Some authors, keeping in view this distinction as to the products of the disordered glands, and probably led also by the general principle, that inflammation is marked by excess of the functions of the affected structure, have endeavoured to show, that in most cases "when acids are generated in excess, the urine is commonly small in quantity, and high-coloured, and the disease inflammatory; when neutral or alkaline substances, the urine, on the contrary, is generally pale-coloured, and larger in quantity; and the diseases are those of irritation and debility." Prout on the Nature and Treatment of Gravel, p. 31.

It seems to us that this generalization is not borne out by experience; or that, at all events, the exceptions to the rule are very numerous. The matter is still, however, sub judice. Animal chemistry is now very usefully employed in analyzing the composition of morbid urine; and, if the connexion between a particular state of the secreted fluid and a particular state of the secreting vessel should ever be pointed out, it will no doubt be very useful. We are much inclined to doubt, however, whether this happy consummation will ever be attained. We find in other secretions great differences, yet all dependant on one cause, (viz. inflammation, and more or less energy in the nervous system of the diseased part;) and we find that the ordinary methods which relieve cases secreting one kind of scab are equally useful in those secreting a different one. We are not endeavouring to undervalue the use

of chemistry as applied to the analysis of diseased urine; but we wish to show, that, in the present state of our knowledge, more success will attend that practice which is directed to the action of diseased vessels, nerves, and secretions, than to the correction of chemical errors in the fluids secreted. Indeed we find as much contradictory evidence in the works of different authors as to the connexion between certain diseases and their chemical analysis, and we have so many recollections of opposite appearances of this fluid in common febrile and inflammatory disorders; that we look with very little confidence to the mode of investigation before alluded to.

Before any analysis of urine is attempted, it seems to us, that the state of the blood should be first ascertained; since, this known, we should clearly see whether the disease had its origin in local disease of the secretions, or in actual depravation in the quality of the fluid when its secretion is to be made. Now it is pretty obvious that it must be in one or both of these two modes that alteration in the quality of the urine can be produced. And firstly, that diseased blood often produces diseased urine no one can doubt, when they see the frequent, nay almost invariable, precurrence of dyspeptic ailment to those of the urinary organs, and especially the close relation that is traced between lithic dispositions and peculiar regimen. That diseased secretion may result from local disease of the kidneys, even when the blood is healthy, is not only sufficiently probable, from its coinciding with the known laws of the secretory function all over the body, but is borne out by the facts. Simple nephritis, or a blow on the back, or even mental uneasiness, nervous maladies, especially hysteria, suddenly derange the secretion in question.

To return, however, to the history of the present species. Diabetes is thus defined by Dr. Good: "Urine discharged freely, for the most part profusely; of a sweet smell and taste; with great thirst, and general debility." The symptom of profusion of urine is one of some variation; but it is so generally met with, that it may justly be considered as one of the chief symptoms of the complaint. The saccharine taste of the urine is however the grand pathognomonic sign of the disease. This characteristic is always present, though it is sometimes obscured by the saline matters of the urine, and requires therefore that the urine be somewhat concentrated by evaporation before it is apparent. As to other changes in diabetic urine, it seems that the neutral salts of the urine bear the same relative proportion to each other as under ordinary circumstances, but that the aggregate of them is diminished. A like diminution, and sometimes indeed total absence, of the urea, is also met with. The specific gravity of the urine is also increased in the complaint under consideration. It increases on that of healthy urine, which ranges from 1010 to 1020, till it runs as high as 1038 or 1040, or in some rare instances as 1045.

Diabetes sometimes comes on slowly and imperceptibly, without any previous disorder; and it now and then arises to a considerable degree, and subsists long, without being accompanied with evident disorder in any particular part of the system, the great thirst which always, and the voracious appetite which frequently, occur in it, being often the only remarkable symptoms; but it now and then happens, that a considerable affection of the stomach precedes the coming-on of the disease, and that in its progress, besides the symptoms already mentioned, there is great dryness of the skin, with a sense of weight in the kidneys, and a pain in the ureters, and the other urinary passages. The temperature of the body is usually below the standard of health. The spirits are depressed, the disposition is equally indifferent to study or amusement, and there is evidently a decline of mental energy, with a loss of the power of virility. Ulceration of the tongue and gums are of frequent occurrence in diabetes, owing probably to the derangement of the digestive functions. Some morbid change in the alvine excretion

excretion always accompanies the diabetic habit, and co-tiveness is perhaps the most common of these; for, in some instances, the bowels have been so remarkably torpid, that even the most powerful medicines, in large doses, produced but a trifling effect. Watt remarks that inflammation and swelling are very common about the external orifice of the urethra in diabetes.

This disease is often attended with some pulmonic disorder; Dr. Bardsley says invariably, but this does not accord with general experience. It is to be remarked, however, that diabetes seldom terminates in death until a secondary cause of the fatal event has arisen in the lungs. Under a long continuance of the disease, the patient becomes much emaciated, the feet œdematous; great debility arises, and an obscure fever, with all the appearances of hectic, prevail. In point of number, the pulse is very much diversified: in most cases, it is quicker than natural, but sometimes it is below the common standard. In some cases vision becomes very indistinct, and the patient is troubled with vertigo.

In some instances, the quantity of urine is much greater than that of the ingesta. Cases are recorded, in which from twenty-five to thirty pints were discharged in the space of a natural day, for many successive weeks, and even months; and in which the whole ingesta, as was said, did not amount to half the weight of the urine; and even the solid matter which this fluid contains often reaches an astonishing proportion. The surplus of the excrement over the increment in this case is explained by the want of cutaneous secretion, (the skin being generally dry and harsh,) and an extraordinary imbibition of water in the lungs. Dissections of diabetes have shown the kidneys, in some instances, in a loose flabby state, much enlarged in size, and of a pale ash-colour; in others, on the contrary, they have been found turgid and red, and containing in their infundibula, a quantity of pus, though without any sign of ulceration. At the same time that these appearances have been observed in the interior, the superficial veins on their surface were found to be much fuller of blood than usual. In many cases, the whole of the mesentery has been discovered to be much diseased, and its glands remarkably enlarged; some of them being very large and of an irregular texture; others softer, and of an uniform spherical shape. Many of the lacteals have likewise been found considerably enlarged. The liver, pancreas, spleen, and stomach, are in general in a natural state; when they are not so, the occurrence is to be considered as accidental. The bladder is now and then found to contain a quantity of muddy urine; in some cases its coats are much thickened, and its size less than natural.

The hypotheses which have been framed to account for diabetes resolve themselves into these. The first, for which we are indebted to the fanciful genius of Darwin, supposes a *retrograde motion of the absorbents*; an idea of which the absurdity has been pointed out in a previous division of this work, p. 43. Secondly, that of Cullen and Rollo, which supposes disease of the assimilating agents, and essentially consists in the supposition that *blood* is diseased in diabetes, and that the kidneys are only deranged in their action in consequence of the morbid state of the blood supplied to them. The third hypothesis supposes that diseased action exists in the secretors of the *kidneys*, and that consequently the saccharine matter is derivable from healthy blood.

The second hypothesis rests moreover on the strong fact, that, if sugar be introduced into the veins of an animal, especially if that animal be weak, sugar is first found in the blood, and secondly in the urine. But, though this shows the possibility of diabetes arising from saccharine blood, it does not prove that this is the invariable cause of that disease; and in fact sugar is not found in the *blood* in diabetic patients in general. The advocates of the doctrine of the cachectic origin of the disease get over this objection by asserting, that the *elements* of sugar

exist in the blood. Now this means nothing; for, according to this reasoning, the elements of hydrophobic and syphilitic virus exist in the blood; for the supplies out of which these morbid matters are formed are drawn from the blood by the secretors, however incognizable the original fluid may be when it has undergone the action of these latter vessels.

The connection between diabetes and dyspepsia appears to us very evident; but we cannot see that this proves any thing in favour of the opinion that the blood is diseased in diabetes, when we have so many instances of diseases of the secretory system arising from gastric disorder. And, moreover, the general disorder of the nervous system and of the skin which has been observed to precede diabetes in so many instances sufficiently accounts for the production of the disease without our having recourse to more far-fetched modes of explanation.

As there is much of uncertainty in our speculations concerning the nature of diabetes, it is impossible to attempt any philosophical view of the *modus operandi* of those medicines which have been found useful in its *treatment*. Our practice in this disease must therefore be strictly empirical. In the first place, bleeding has been tried in many cases of diabetes, and with much success. Practical writers assert that this evacuation is particularly called for when the discharge of urine is *profuse* as well as saccharine; but it seems to have been of much use in cases which did not present this symptom in an eminent degree. The blood, when abstracted, appears of a darker hue than ordinary, and the crassamentum large and easily broken. After a few bleedings, however, the crassamentum acquires firmness, and begins to exhibit the buffy coat. By some authors it is said that this plan of depletion has completely cured the disease under consideration; but more extended experience has not altogether affirmed this to be the truth; though it is almost universally agreed that bleeding does materially diminish the *quantity*, if it does not alter the *quality*, of diabetic urine. Animal diet has also been very generally resorted to, and with occasional success. It has been chiefly recommended on the supposition, that, as sugar was the principal constituent of chyle prepared from vegetables, therefore the adoption of diet of a different kind must effectually cure the disease by subtracting it: but, as we have before shown that sugar does not actually exist, we should rather incline to suppose that animal diet has cured diabetes rather by its salutary influence on certain gastric derangements arising from excess of vegetable food, than from any specific change it induces in the blood; and hence, that cases of diabetes might arise, in which animal food, by oppressing the digestive organs, would do harm. In no case should we expect much from *diet* alone, unless those important assistants to its healthy use, viz. pure air and regular exercise were also attended to. In all cases the most close attention must be paid to the alvine secretions and their regular excretion enforced by appropriate medicines, when not spontaneous; for, whether the disease be of cachectic origin, whether it arises from inflammation or from mucous irritation of the urinary vessels, the best effects will naturally be expected from medicines which have the triple advantage over all others, that they reduce inflammation, calm nervous irritation, and eliminate morbid matters from the blood. As in the diseases of the secretors in general, so in those of the kidneys in particular, we often find that, though the cause of the disease be effectually removed, the *habitual* morbid actions of the vessels remain. In diabetes especially, we often find that, when the general plethora and the dyspeptic disorder are in a great measure removed, the urinary disease remains protracted and harassing. In these cases, a specific or peculiar stimulus may be made to exert an influence on the secretors sufficiently powerful to induce their healthy action. Thus we have found much benefit, in a very severe case of diabetes, from the exhibition of full doses

of the tincture of the muriate of iron. It is in these cases that the use of opium in small doses, of hepatic ammonia, and of the magnesia calcinata, (so strongly recommended by Dr. Trotter,) seem to be useful.

The common modes by which diabetes terminates when the patient dies, are by dropfy, pulmonic disease, and hectic fever, or suddenly, and apparently from nervous exhaustion.

5. Paruria incontinenens: incontinence of urine: frequent or perpetual discharge of urine, with difficulty of retaining it. Four varieties.

α. Acris; from peculiar acrimony in the fluid secreted.

β. Irritata; from peculiar irritation in some part of the urinary channel.—Discharge of hairs. *Klatt. de Trichias, Alton. 1703.*

γ. Atonica; from atony of the sphincter of the bladder.

δ. Aquosa; from superabundant secretion; the fluid limpid and dilute. This variety, which was formerly considered of the same nature as diabetes, is now properly separated from the complaint, as having nothing in common with it but an increase in the quantity of the urine. The change which the urine undergoes in this malady seems to consist chiefly in the presence of a great deal of albuminous matter. The disease is rare; but, from what we can collect, seems to be clearly one of the *nervous* maladies. Attention to the gastric and cutaneous functions, and the relief of the urinal irritability by opium and sulphuric acid, or by hyoscianus, may be for the most part trusted to.

A peculiar and troublesome disease of the urinary passage in females is sometimes met with, which, from unwillingness on the part of the patient to consult medical men on the subject, often proves a source of great distress. It is an inflammatory affection of meatus urinarius. This is first discovered by a severe pain, which extends upwards during coition, the penis pressing on the tender part. As the disease advances, the pain is felt on making water; and, the passage suffering a partial dilatation, some part of the urine is retained in it, and excites a constant irritation and desire to make water. The disease proceeding, fulness of the parts is felt, aggravated by long continuance in the erect posture. If we are called in at either of these periods of the complaint, we shall afford much relief to the patient by applying leeches to the pudenda, and by directing the bowels to be kept open, and a solution of super-acetate of lead to be used as a wash. It is to the above inflammatory state of this structure that we have to refer the warty and fleshy excrescences occasionally found at the orifice of the meatus. These are to be removed by a ligature, and their reproduction prevented by caustification.

6. Paruria incocta: urine consisting of fluids taken into the stomach, and excreted without change.

7. Paruria erratica: urine discharged at some foreign outlet. Five varieties.

α. Salivaris; by the salivary glands. *Phil. Transf. 1811.*

β. Cutanea; by the skin. *Idem.*

γ. Umbilicalis; at the navel. *Act. Erudit. 1760.*

δ. Vaginalis; by a fistulous opening into the vagina. *Valisnerii. Oper. iii.*

ε. Perinætica; by a fistulous opening into the perinæum. *Ibid.*

Genus IV. *Lithia*, [from λίθος, a stone.] Morbid secretion or accumulation of calculous matter in internal cavities.

The formation of concretions in the urinary passages being occasioned by the precipitation and consolidation of particular ingredients in the urine, calculi must of course be liable to occur in any of the cavities to which the urine has access. In fact, experience proves that they are frequently met with in the kidneys, ureters, bladder, and urethra. It is commonly believed, that most of

them are originally formed in the kidneys, from which organs they afterwards descend with the urine into the other mentioned parts. We must however regard as exceptions to this observation, the cases in which calculi are formed round foreign bodies introduced into the bladder through the urethra, the digestive organs, or some accidental wound. In the centre of urinary calculi, surgeons have often met with bullets, splinters of bone, bits of wood, pins, &c. Nor is it necessary for such foreign bodies to be large, in order to produce this effect: a clot of blood, or a little bit of chaff, if not very soon voided, will cause a precipitation of the urinary salts.

1. *Lithia renalis*: pain in the loins shooting down towards the testes or thighs, increased on exercise; urine often depositing a fabulous sediment.

These symptoms, and the fact that stones have been often found on dissection in the kidneys when these symptoms had preceded death, clearly convince us that it is in the kidney that the first nucleus of the calculi are commonly produced. There are two varieties.

α. *Calculosa*; pain severe and constant; fabulous discharge small and seldom, or never; calculus usually large, and obstructing the pelvis of an ureter.

β. *Arenosa*, gravel; pain intermitting; free discharge of a fabulous sediment.

Renal concretions vary considerably in their number, size, and shape. In some cases, a single small calculus has been found occupying one of the foregoing situations; while, in other instances, an innumerable collection of calculous substances are observed filling the whole of the cavity of the pelvis and infundibula of the kidney, distending its parietes, and even obstructing the passage of the urine out of this viscus, which is converted into a sort of membranous cyst. Lastly, a single stone in the kidney may acquire a very large size there; or a great number of small calculi, in the same situation, may become cemented together by the deposition of fresh concreting matter between them, so as to form one mass of enormous dimensions, and the shape of which invariably corresponds to the space in which it is, as it were, moulded. Hence it is, that renal calculi often present a variety of odd irregular figures, resembling those commonly observed in specimens of coral.

Urinary concretions of large size very often exist in the kidney, without their presence being indicated by any external circumstances, or attended with any symptoms, sufficiently unequivocal to constitute a ground for suspecting the importance of their cause. On the other hand, it is very usual for renal calculi of middling dimensions to excite serious and alarming complaints. The reason of this difference becomes obvious, when it is recollected that small concretions are readily carried with the urine into the ureter, and become fixed in the narrow portion of the tube; but very large calculi can be contained only in the upper part of this canal, where its parietes are more yielding, and the space in them more capacious. Calculi of middling size, in their passage through the ureter, cause at first a feeling of heaviness, or an indeterminate sense of uneasiness, and an obtuse pain in the region of the corresponding kidney. These complaints occur at intervals of greater or less duration. At length, the pain grows more urgent and annoying, attended with flatulence, heart-burn, frequent vomiting, painful retraction of the testicle, and sometimes acute fever. The patient makes water frequently, and in small quantities at a time; and the urine is high-coloured and bloody. The patient cannot sit upright, his body being bent forwards towards the affected side. These symptoms may have more or less duration, and then suddenly cease. They may also subside and recur several times successively, with intervals of some days. In the latter case, the pain is felt at each attack to be situated lower in the track of the ureter. Lastly, when the symptoms have entirely disappeared, the urine is more abundant, not so high coloured, and easily discharged, the stream sometimes bring-

ing out with it the urinary concretion, which has now entered the bladder.

Suppuration of the kidney, and an abscess in the lumbar region, in consequence of renal calculi, are not very common events. This, however, is the only case of the kind, in which the interposition of surgery can be useful. By adverting to previous circumstances, and the irregularity of the pain about the kidney, the practitioner may suspect the nature of a phlegmonous tumour in the situation of this viscus. Whatever may be his conjectures, however, he must carefully abstain from the use of his lancet, until purulent matter is obviously under the integuments. He may then safely make an opening, from which urine and pus will be discharged, and through which the calculi themselves may sometimes be felt and extracted. But it is quite clear, that no operation for the extraction of calculi, by means of incision or other violent methods, can be safely attempted on so vascular a part as the kidney. It is only, therefore, when (on opening the abscess) calculi can be felt with a probe, that an attempt may be made for their extraction.

Calculi are sometimes found in the ureters, especially at their upper part; but it is not supposed that they are in general originally formed in that situation; an event not likely to happen, unless there be some cause obstructing or retarding the descent of the urine through those tubes. The common belief is, that all calculi found in the ureters are first produced in the kidneys, from which they afterwards descend in the course of the urine. The generality of calculi, however, which leave the kidney, are of small size; and consequently, after a time, and exciting some pain and inconvenience, they usually get into the cavity of the bladder.

2. *Lithia vesicalis*, stone in the bladder: frequent desire of making water, with difficulty of discharge; penis rigid, with acute pain at the glans; sonorous resistance to the sound when searching the bladder.

The form of calculi is various. Commonly they are spheroidal, egg-shaped, or oval flattened at the sides. They also receive some variety of form from the impression of other calculi. In a few instances, they have been found of an angular or entire figure, or of a shape corresponding with the pear-shaped form of the bladder, a circular protrusion answering to the neck of that cavity. The number and size of calculi are also liable to some variation, as may be seen by referring to the following instances which we are indebted to Dr. Good for pointing out.—*Voided of the weight of 2 oz. by a female; Hanow, Seltenheiten der Natur.*— $2\frac{1}{2}$ oz. troy by a female; *Molineux.*—5 oz. by the penis; *Sammlung Med. Wahrn.*, Band viii. p. 258.—*Extracted*, 12 oz. weight; *Chefelden*, *Anat. Ephem. Nat. Cur.* Dec. II. ann. v.—22 oz. *Fabr. Hild.* de Lith. vefic. Cent. iv. obs. 51: the patient died during the operation—*Found in the bladder*, $4\frac{1}{2}$ lb. weight; *Bresl. Sammlung*, 1724, ii. 434. 11.—In the bladder of a dog $1\frac{1}{2}$ lb. *Eph. Nat. Cur.* II. Dec. III. ann. v. vi. p. 99.—Nearly 5 lb. in the bladder of a horse; *Gattenhof*, in *Diff. de Cal.* 1748.—2 to 3 oz. *Phil. Tr.* vol. xv. p. 1015.—The number of 120 of various sizes voided in the course of three days. *Eph. Nat. Cur.* Dec. III. ann. v. vi.—300 large in two years. *Fabr. Hild.* cent. i. obs. 69.—2000 within two years. *Gründlicher Bericht.* vom Blatterstein.

The symptoms of stone in the bladder are very obscure. They are often simulated by irritative maladies, and most especially by the nervous excitement consequent on indigestion. So marked and established is the similarity between dyspeptic nervous affections and the particular sensations of the bladder, that on many occasions not the slightest question could be entertained by the inexperienced practitioner of the presence of calculi, were it not that the *found* gives no indication of it. Scirrhus of the rectum, and diseased prostate, are diseases which resemble the complaint in question in some respects.

The following is the history of the ordinary symptoms of *Lithia vesicalis*. The pain produced by the presence

of a calculus in the bladder, has the particularity of always affecting, in a very remarkable manner, the extremity of the penis. The glans becomes the seat of an itching sensation, which daily increases in violence; and patients, especially children, often get into the habit of pulling forwards the prepuce, in order to obtain relief. Hence, this part is frequently elongated in an extraordinary degree. This sympathetic sort of pain is more acute the larger the stone is, and the greater the irregularity of its surface. When the bladder is full of urine, the pain is not insupportable; but, just at the period when the discharge of that fluid is finished, the suffering becomes intolerable, because, at this instant the bladder contracts, and embraces the foreign body with considerable force. All rough exercise augments the pain; but walking over an uneven country, riding on horseback, and the jolting of a carriage particularly, have such an effect. When the patient is subjected to these exercises, he not unfrequently discharges a few drops of blood from the urethra. The desire to make water comes on very often; and the urine, as it flows, is attended with a sensation of heat, which changes into a burning kind of pain at the extremity of the penis. The stream of water is sometimes interrupted all on a sudden. The patient vainly endeavours to continue the evacuation; he applies his hand to the perineum; he moves about, lies down, or, in some way or another, alters his posture, and the urine then begins to run again. The moveableness of the stone makes it every now and then fall against the orifice of the neck of the bladder, and thus prevent, for a time, the exit of the urine. The incessant irritation, produced by the presence of the calculus, extends to the rectum; the patient is continually teased with an inclination to go to stool, and the efforts, which his imaginary want causes him to make, bring on, in many instances, hemorrhoidal complaints, or even a prolapsus ani. But, as we before remarked that all these symptoms are equivocal, the practitioner should always introduce a *found* into the bladder before he gives an opinion on the nature of the case. For the mode of *found*ing, see SURGERY.

Having thus detailed the symptoms which calculous depositions are accompanied with, and described the various situations they occupy, and the extreme magnitude or number they may acquire, we proceed to consider their *composition*, with reference to their removal by medical skill. In this task we shall make no distinction as to the situation the calculi occupy, or their size; since, whether they exhibit the form of gravel or of stone, their composition is analogous.

We shall class urinary depositions in the following order. 1. The lithic or uric acid deposition, being an excess of the natural free acid of the urine. 2. The depositions of which phosphoric acid forms a part; viz. the phosphate of lime or bone-earth calculus; the ammoniac-magnesian phosphate; and a mixture of the two latter, called the fusible calculus. 3. The oxalate of lime. 4. The cystic oxyd. 5. Compound varieties.

As to the formation of all these various matters, some of which are proper to urine in its healthy state, and some of which are peculiar to its morbid state, little can with certainty be said. Chemical philosophers have endeavoured to show, that a diet which contains a large portion of azote, as animal food, produces excess of alkali in the urine; and similar speculations have been founded on the effects of vegetable food. Further than the fact that an exclusive species of diet tends to derange the gastric functions, and that a change quite opposite must necessarily change many of the operations of the system, we cannot admit the correctness of any observations of this kind. In fact, contrary to what we should a priori expect, and contrary to these observations, we do not find that people who drink plentifully of waters strongly impregnated with salts are more disposed than others to calculous complaints. We are much pleased to find, that

the views we have entertained of calculous disorders, (see *Diabetes*.) viz. that they all consist in a peculiar change in the secretions of the kidneys, probably independent of the state of the blood, and consequently under the control of the nervous system, has received much support from the testimony of a recent distinguished author, Dr. Prout, who (in his *Inquiry into the Nature and Treatment of Gravel*) in every page refers to the disordered state of the nervous system as a cause of morbid depositions. We do not conceive that this opinion is at all impugned by the relief afforded in some cases by the exhibition of remedies opposite in their chemical properties to those of the calculi, because such medicines may act by causing a different action in the kidneys. The assumption of this idea explains how it happens, that it is only in some cases that the above remedies do good; since, that such failure should occur in medicines which act on disordered vessels, no one can be surprised at; but, that the uniform and invariable operation of chemistry should be so often disturbed must be a matter of the greatest wonder to those who conceive that these operations are the cause of calculi. To return to our history of the species of calculi.

1. *Lithic Acid Depositions.*—Lithic acid is separated from the urine in two forms, as sediment or as calculus. In the first form it is in combination with ammonia; in the second, pure. In the former state it is precipitated slowly, and acquires a reddish hue; in the latter the lithic acid forms a hard inodorous concretion, of a yellowish or brown colour, similar to that of wood, of various shades. According to professor Murray, calculi of this kind are in fine close layers, fibrous or radiated, and generally smooth on their surface, though sometimes a little rough. They are rather brittle, and have a specific gravity varying from 1.276 to 1.786, but usually above 1.500. One part of lithic acid is said to dissolve in 1720 parts of cold water, and 150 parts of boiling water; (Marcet, p. 65.) and this solution turns vegetable blues to a red colour. When it has been dissolved in boiling water, small yellowish crystals are deposited as the fluid becomes cold. Lithic acid calculi blacken, but are not melted by the blow-pipe, emitting a peculiar animal smell, and gradually evaporating until a small quantity of white ash remains, which is alkaline. By distillation, they yield ammonia and prussic acid. They are soluble in the cold, in a solution of pure potassa, or soda; and from the solution, a precipitate of a fine white powder is thrown down by the acids. Lime-water likewise dissolves them, but more sparingly. In solutions of the alkaline carbonates, they remain, according to Scheele, unchanged; according to the experiments of Dr. Egan, however, they are dissolved even by a weak solution, and also when the acid is supersaturated by carbonic acid. (Transf. of Irish Acad. 1805.) They are not much acted upon by ammonia. They are not soluble either in the muriatic or sulphuric acid; though they are so in the nitric, when assisted by heat; and the residue of this solution, when evaporated to dryness, assumes a remarkably-bright pink colour, which disappears on adding either an acid or an alkali. In many of these calculi, the lithic acid is nearly pure; in others, there is an intermixture of other ingredients, particularly of phosphate of lime, and phosphate of ammonia and magnesia; and, in almost all of them, there is a portion of animal matter, which occasions the smell when they are burnt, and the loss in their analysis. The deposition of lithic acid, either in the form of sediment, gravel, or calculus, is almost always connected with indigestion. According to some, the dyspepsia is the consequence of an excess of acid being generated in the stomach, from the morbidity of that organ suffering chemical changes to take place in it. But, as the presence of this free acid has not been detected in the blood in gravelly cases, we must infer that the gastric irritation caused (by means of sympathy) in the urinary secretions is the same action as is excited in those of the stomach; an

opinion which, though it assumes a sympathy not in general very apparent, is nevertheless possible. Dr. Prout gives another very plausible account of this matter; one which, while it assumes the existence of diseased blood in these cases, clearly shows why we do not find any free acid in the blood, and consequently that the disease depends on morbid action of the kidneys, induced by the morbidity of their sanguineous supply. This important principle is, that, if *imperfectly assimilated* or *unnaturally albuminous* matter is brought to the kidney, it does, and must, in virtue of its natural action, convert such imperfect albumen into lithate of ammonia.

The *treatment* of persons labouring under the above form of disease will not be difficult, whichever of the above theories we adopt; except that, under the influence of the former, our exhibition of alkaline remedies will of course be more free. We are bound in justice to declare, however, that the success which attends these remedies rather militates against than argues for, the theory in question; for they are very often quite useless. The most successful practice seems to be, to *alter* the diet in some essential points; but at the same time to attend rather to its quantity than to its quality; to excite the biliary and intestinal secretions by blue pill and gentle purges, and those of the skin by means of antimonials.

In those *yellow* depositions (consisting of lithate of ammonia), indicative of dyspepsia, the same treatment is to be followed. Those *pink* depositions from urine, which are composed, according to Prout, of the *purpurates* of soda and ammonia, and which are usually met with in chronic phlogosis and hectic fever, and almost always in acute inflammations, do not of course require that any change should be made in the ordinary course of treatment on their account.

Those sudden accessions of pain and inflammation which are called *fits* of gravel are more especially treated by low living, copious dilution, and full doses of hyosciamus.

2. *Depositions of which Phosphoric Acid forms a part.*—Phosphoric acid and lime, magnesia and ammonia, are all natural constituents of urine. A deposition of one or more of these alkalies, in combination with phosphoric acid, constitutes a very common form of disease. It is presumed that the phosphoric deposition may occur independently of any morbid change in the kidney, as when foreign bodies get by chance into the bladder, and form a point of adhesion for these salts; a change we should not be surprised at, when we observe the very common occurrence of urinary crystallizations in situations external to the body. It has been doubted, however, by some, whether even foreign bodies do not operate by exciting irritation, and consequently morbid secretion of urine. At all events, the derangement of the action of the kidney is the commonest source of the phosphatic deposition. This latter seems to consist in a suspended or diminished action of the usual acidifying powers of the kidney, whereby, instead of lithic acid, a greater quantity of urea (equivalent to ammonia), lime, and magnesia, is generated. This condition of the urine is very commonly dependent upon a deranged state of the chylipoietic viscera; frequently, too, it is connected with a great degree of *irritability* and *debility* of the system. Hence it is that children are so liable to this form of deposit, from their extreme irritability, and great tendency to disorders of the stomach and bowels.

The deposition of the phosphates is attended with uneasiness about the loins, a fallow haggard countenance, black, clay-coloured, or yeasty, stools, and subsequently great languor and debility, as in diabetes. The urine too here, as in the diseases already treated of, is pale, and secreted in larger quantity than natural; but it is commonly of very low specific gravity, such as 1.002. When the specific gravity is greater than this, the phosphatic sediment is proportionally more copious. In this state of disease the urine is very prone to decomposition; and

and speedily emits a nauseous smell from the evolution of ammonia.

Most authors have considered a long-continued use of alkalies as the cause of the phosphatic calculi; but, when we consider the unfrequency of this cause, we should be inclined to put little stress on its coincidence. This also is the opinion of Dr. Prout. This author allows that in a few cases it may occur, but, as a general principle in the pathology of earthy depositions from the urine, he considers it of no importance whatever. The real causes of this state of disease are, he says, either local or general. A large proportion of the cases are owing to some injury of the back. It is an old observation, that such injuries produce alkaline urine. Excessive fatigue, severe and protracted debilitating passions, are among the other general causes of the affection. *Its principal local causes are irritations about the bladder or urethra, especially when operating for a considerable length of time.* This appears to be the leading feature in Dr. Prout's views of the phosphatic diathesis. It is certainly deserving of remark, that the same view of the subject had long ago been taken by Mr. Murray Forbes, who expressly states, that, "when a foreign body gets into the bladder, it would operate by irritation, so as to occasion a redundancy of the phosphates."

The transition from the formation of lithic acid to the deposition of the phosphates is very curious. It takes place gradually through the lithate of ammonia, and is accompanied by the disappearance of the usual colouring principle from the urine. The transition from the mulberry-calculus to the phosphates takes place through a mixture of oxalate and carbonate of lime. The next layers are found to consist of the carbonate and phosphate of lime; and, still farther from the centre, the carbonate of lime disappears. Dr. Prout believes that wherever the change takes place *ex abrupto*, it is presumable that some time must have elapsed between the deposition of the different matters. It is a curious and important feature in the pathology of the urinary system, that a *decided* deposition of the phosphates is never followed by a different deposit.

When the deposition of the phosphates arrives at the magnitude of calculi, we have the three following kinds, as described by chemical writers.

Bone-earth, or phosphate of lime calculus.—This is of a pale brown colour, and so smooth as to appear polished. When sawn through, it is found very regularly laminated; and the laminæ, in general, adhere so slightly to each other, as to separate with ease into concentric crusts. It dissolves entirely, though slowly, in muriatic or nitric acid. Exposed to the flame of the blow-pipe, it is at first slightly charred, but soon becomes perfectly white, retaining its form, until urged with the utmost heat from a common blow-pipe, when it may be completely fused. It appears to be more fusible than the phosphate of lime, which forms the basis of bone; a circumstance ascribed to the latter containing a larger quantity of lime. Calculi, altogether composed of phosphate of lime, are rather uncommon.

Triple calculus, or ammoniaco-magnesian phosphate.—Calculous masses, consisting solely of this substance, are perhaps never met with; but concretions often occur, in which it obviously prevails; and, as Dr. Marcet observes, "this triple salt frequently appears also in the form of minute sparkling crystals, diffused over the surface, or between the interstices of other calculous laminæ. Calculi, in which this triple salt prevails, are generally whiter and less compact than those of the former class. When the blow-pipe is applied, an ammoniacal smell is perceived, the fragment diminishes in size; and, if the heat be strongly urged, it ultimately undergoes an imperfect fusion, being reduced to the state of phosphate of magnesia." Dr. Wollaston describes the form of the crystals of this salt, as being a short trilateral prism, having one angle a right angle, and the other two equal, terminated by a pyramid of three or six sides. These crystals

are but sparingly soluble in water, but very readily in most, if not all, the acids; and on precipitation, they reassume the crystalline form. From the solutions of these crystals in muriatic acid, sal ammoniac may be obtained by sublimation. Solutions of caustic alkalies disengage ammonia from the triple salt, the alkali combining with a portion of the phosphoric acid.

Fusible calculus.—This is commonly whiter and more friable than any other species. It sometimes resembles a mass of chalk, leaving a white dust on the fingers; and separates easily into layers or laminæ, the interstices of which are often studded with sparkling crystals of the triple phosphate. At other times, it appears in the form of a spongy and very-friable whitish mass, in which the laminated structure is not obvious. Calculi of this kind often acquire a very large size, and mould themselves in the contracted cavity of the bladder, assuming that pear-shaped form before alluded to, which Dr. Marcet has never observed in any of the other species of calculi, and which consists in the stone terminating, at its broader end, in a kind of peduncle, corresponding to the neck of the bladder. The chemical composition of the fusible calculus is a mixture of the triple phosphate and phosphate of lime. These two salts, which, when separate, are infusible, or nearly so, when mixed together and urged by the blow-pipe easily run into a vitreous globule. The composition of this substance, says Dr. Marcet, may be shown in various ways. Thus, if it be pulverized, and acetic acid poured upon it, the triple crystals will be readily dissolved, while the phosphate of lime will scarcely be acted upon; after which the muriatic acid will readily dissolve the latter phosphate, leaving a small residue, consisting of lithic acid, a portion of which is always found mixed with the fusible calculus.

The tendency to phosphatic deposition is cured with difficulty, especially in advanced cases, when the actual presence of a stone in the bladder forms a mechanical cause of continued renal irritation. Even the French practitioners, so sanguine in their hopes of curing the lithic-acid depositions by a vegetable diet and copious dilution, confess their despair in cases of this kind. It may be remarked, however, that palliatives are particularly indicated. Large and frequent doses of opium may be given; and it will be some consolation to reflect, that these medicines have sometimes proved more than palliative; for that under a strict attention to the state of the primæ viæ (and without this attention no medicine can do good), they have suspended the deposition, and have restored the patient, even though afflicted with actual stone, to a state of good health, by preventing the further morbid secretion of the kidneys, and the consequent increase of size in the gravel or calculus. Besides this drug, Dr. Prout has prescribed with good effect a combination of uva ursi, muriatic acid, and hyoscyamus, in the phosphatic diathesis.

3. *Mulberry Calculus, or Oxalate of Lime.*—This is mostly of a dark-brown colour, and frequently its interior is grey. Its surface is usually uneven, presenting tubercles more or less prominent, frequently rounded, sometimes pointed, and either rough or polished. It is very hard, difficult to saw, and appears to consist of successive unequal layers. Excepting the few stones which contain a proportion of silica, it is the heaviest of the urinary concretions. The pure alkaline solutions have no effect upon this calculus, and the acids dissolve it with great difficulty. When it is reduced, however, to fine powder, both muriatic and nitric acids dissolve it slowly. The solutions of the alkaline carbonates decompose it, as Fourcroy and Vauquelin have observed; and this affords us the easiest method of analysing it. The calculus in powder being digested in the solution, carbonate of lime is soon formed, which remains insoluble, and is easily distinguished by the effervescence produced by the addition of weak acetic acid, while there is obtained in solution the compound of oxalic acid with the alkali of the alkaline carbonate.

carbonate. From this, the oxalic acid may be precipitated by the acetate of lead, or of barytes; and this oxalate, thus formed, may be afterwards decomposed by sulphuric acid. Another method of analysing this calculus is by exposure to heat: its acid is decomposed, and, by raising the heat sufficiently, pure lime is obtained, amounting to about a third of the weight of the calculus. According to Fourcroy and Vauquelin, the oxalate of lime calculus contains more animal matter than any other. This animal matter appeared to them to be a mixture of albumen and urée. The composition of a calculus of this species, analysed by Mr. Brande, was—Oxalate of lime 65 grains, uric acid 16 grains, phosphate of lime 15 grains, animal matter 4 grains. We know nothing of the state of the body which induces this calculus.

4. *The Cystic Oxyd*.—Dr. Majendie states that it very rarely enters into the formation of gravel and urinary calculi; but, as the nature of this animal matter is not generally known, it may be proper to mention its general properties. Calculi formed of cystic oxyd, are semi-transparent, of a yellowish colour, and have a lustre similar to that of bodies of a density powerfully refractive. Exposed to heat in a retort, they furnish carbonate of ammonia of a fetid odour; there passes also an heavy fetid oil, such as is obtained from animal matter, but in a much less proportion than that which results from a distillation of uric acid. These properties show that, like uric acid, it is principally composed of azote; it is therefore probable, that it is produced by the same causes which determine the formation of uric acid. This substance is but very slightly soluble in water, not at all in alcohol, or the acetic, tartaric, and citric, acids; it is, on the contrary, soluble in the muriatic, nitric, sulphuric, phosphoric, and oxalic, acids, as well as in potash, soda, lime-water, and the carbonates of potash and soda. The greater number of its properties approach to those of uric acid.

5. *Of the Compound or Irregular Calculi*—the greater proportion are those which display alternate layers. Thus, lithic strata frequently alternate with layers of oxalate of lime, or with the phosphates. Sometimes also the mulberry alternates with the phosphates; and, in a few instances, three or even four species of calculi occur in the same stone, disposed in distinct concentric laminæ.

Some compound calculi have their ingredients intimately mixed. They have no characteristic feature; but may sometimes be recognized by their more or less irregular figure, and their less determined colour, by their being less distinctly if at all stratified, and by their often possessing a considerable hardness. By chemical analysis, confused results are obtained.

The remarks we have hitherto made on the treatment of calculous disorders, relates solely to the removal of that state of the constitution which causes the deposition or formation of stony matter; and consequently applies only to the prevention of its further formation. In another part of this work, (see LITHONTRIPTIC, vol. xii.) we have expressed our conviction of the perfect utility of exhibiting any medicine with the view of dissolving stone in the bladder. It is the highest stretch of our present power in the treatment of calculi, to prevent their further progress; and if we can do this, and delay, for a certain space of time, the irritability of the system, the bladder will accommodate itself to the presence of the stone (while it no longer grows), and much comfort may be enjoyed by the patient of this dreadful malady. When these measures are unsuccessful, or when the youth or good constitution of the patient forbid us to fear the future regeneration of the stone, the removal of it will be advisable; which is to be effected in two ways: in men by the usual practice of lithotomy; but, with regard to women, the shortness and expansibility of the female urethra not only admits an evacuation of large calculi with little inconvenience compared with that suffered by men, but has often

suggested the expediency of introducing the stone-forceps into the bladder, so as to supply the place of lithotomy. Mr. Thomas, by gradually enlarging it by means of a sponge-tent, was, in one case, able to introduce his finger into the bladder, and succeeded in bringing away an ivory ear-pick which had been incautiously used as a catheter, and had slipped into the cavity. In another singular case, the same skilful operator gradually expanded the sphincter ani to a diameter large enough to admit his whole hand into the rectum, and hereby succeeded in extracting a large substance which had slipped into its channel. More recently, sir A. Cooper has succeeded in removing small stones from the bladder of an old patient, a clergyman, by means of a peculiar instrument of his own invention, which dilates the urethra, and draws the stones through the natural opening. For the common method (and the only one capable of application when the calculus is large) of removing stones in the bladder by the operation of *lithotomy*, and also for some further observations on the dilating system above alluded to, see the article SURGERY.

Order III. ACROTICA, [*ακρος*, extreme; hence *ακροταλινς*, the top or highest point of any thing.] Disorders affecting the Surface of the Skin. Pravity of the fluids or emunctories that open on the external surface: without fever, or other internal affection, as a necessary accompaniment. There are ten genera, which, as well as the species, are chiefly taken from Dr. Bateman's improved edition of Willan on Cutaneous Diseases.

Genus I. *Ephidrosis*, [i. e. sweat.] Preternatural secretion of cutaneous perspiration. There are four species, besides varieties.

1. *Ephidrosis profusa*: cutaneous perspiration secreted profusely.

2. *Ephidrosis cruenta*: cutaneous perspiration intermixed with blood.

3. *Ephidrosis partialis*: cutaneous perspiration limited to a particular part or organ. *Ephidrosis lateralis*, *Saww.* who quotes from Schmidt (*Collect. Acad. iii. 577*) the case of a woman who was never capable (except when pregnant) of being thrown into a sweat in any other part than the left side.

4. *Ephidrosis tincta*: cutaneous perspiration possessing a depraved colour. Four varieties of colour.

α. *E. viridis*; of a green tinge. *Borelli. cent. ii. 56.*

β. *E. nigra*; of a black tinge. *Joel. Langelot. Collect. Acad. iii. 255.*

γ. *E. cærulæ*; of a blue tinge. *Wincler. Collect. Acad. iii. 263.*

δ. *E. rubra*; of the colour of port-wine. *Saww. and Barthol.*

5. *Ephidrosis olens*: cutaneous perspiration possessing a depraved smell. Four varieties of odour.

α. *E. sulphurea*; of a sulphureous scent. *Ephem. Nat. Cur. cent. i. ii. obs. 168.*

β. *E. acida*; of a sour scent.

γ. *E. olida*; of a rank or fetid scent. Often partial, or evacuated from particular organs, as the feet or axillæ: sometimes from the surface generally, according to De Monteaux.

δ. *E. moschata*; of a musky scent. *Pecklin, lib. ii. obs. 49.*

The majority of these rare diseases are involved in much obscurity, and many of them are probably connected with other maladies. This is the case especially with profuse and partial perspiration, very common symptoms of dyspepsia; and may very fairly be presumed to be the case with stinking and bloody perspiration. Metastasis from the retention of milk, urine, the catamenial flux, and fæces, may also produce the same aberrations.

Genus II. *Eranthisis*, [from *εξ*, outward, and *αιθεω*, to spring or flower; superficial or cutaneous efflorescence; in contradistinction to *Enanthisis*, or efflorescence springing

springing from within. See p. 273.] Cutaneous blush. Generic characters—Simple cutaneous rose-coloured efflorescence, in circumscribed plots, with little or no elevation.

On coming to the consideration of cutaneous diseases strictly so called, it will be necessary to make a few preliminary remarks. It will be recollected, that in p. 141 of this article, we have expressed our concurrence in the opinion which attributes the majority of cutaneous defædations to gastric or intestinal irritation. In that place also sufficient evidence of this frequent connexion has been adduced. An objection, however, is in force against this mode of considering the diseases in question; that, while gastric or intestinal irritations are but few in number, cutaneous maladies are extremely multiform; and hence it may be inquired, Can so many and such opposite appearances result from one cause?

Let us examine the matter a little closely. Cutaneous disease is evidently a disease of the secretions of the skin; sometimes this disease is accompanied, either as a cause or consequence, with inflammation: i. e. turgescence and heat of the subjacent red vessels; but sometimes this is wholly absent, and the disease of the secretions is the only malady. Now this disease of the secretions is supposed to vary according to the product which is secreted; and on this variation have the classifications of cutaneous diseases by Willan and Bateman been solely founded. Thus, when inflammation of the subjacent red vessels takes place, the *papula*, or pimple, ("a very small and acuminated elevation of the cuticle, with an inflamed base, very seldom containing a fluid, or suppurating, and commonly terminating in scurf,") is found. When the inflammation goes on to such a degree as to disorganize the skin, *squame*, or scales, ("laminæ of morbid cuticle, hard, thickened, whitish, and opaque," and irregular layers of skin called *crusts*, or over ulcers *scabs*,) are observed. The simplest disease of the skin is that in which the secretions admit red blood, and secretion is at once suspended. This forms the *exanthema*, or rash; ("superficial red patches, variously figured, and diffused irregularly over the body, leaving interstices of a natural colour, and terminating in cuticular exfoliations.") When the above vessels secrete in small quantities, water, which becomes opaque, and is succeeded by scurf or crusts, they are named *vesicles*; when in large quantities like a blister, *bulla*, or bleb. Lastly, when pus is secreted in the cutaneous elevation, it is called a *pustula*, or pustule. The pustule has in all cases an inflamed base. Dr. Bateman gives four varieties of it.

a. *Phlyzaciun*; a pustule commonly of a large size, raised on a hard circular base, of a vivid red colour, and succeeded by a thick, hard, dark-coloured scab.

b. *Psudracium*; a small pustule, often irregularly circumscribed, producing but a slight elevation of the cuticle, and terminating in a laminated scab. Many of the psudracia usually appear together, and become confluent; and, after the discharge of pus, they pour out a thin watery humour, which frequently forms an irregular incrustation.

c. *Achor*; a small acuminated pustule, containing a straw-coloured matter, which has the appearance and nearly the consistence of strained honey, and succeeded by a thin brown or yellowish scab.

d. *Favis*, is larger than the *achor*, flatter, and not acuminated, and contains a more viscid matter; its base, which is often irregular, is slightly inflamed; and it is succeeded by a yellow, semitransparent, and sometimes cellular, scab, like a honey-comb; whence it has obtained its name.

To these we may add the *tubercle* and the *wheel*. The first is a small hard superficial tumour, circumscribed and permanent, or suppurating partially; and the *wheel* is the same appearance as is produced by a smart stroke with a whip on the naked skin. It seems a sudden accu-

mulation of the fluids of the part, which goes off as the vessels regain their natural powers.

To return to the subject we were reasoning upon. We perceive, therefore, two agents concerned in cutaneous diseases: the secretions of the skin, and the red blood-vessels of the subjacent tissue. We observe, that, according to the peculiar irritation which affects them, both these vessels put on different appearances. Now on the one hand, the circular form of one eruption is contrasted with the irregular form of another, and the morbid product of this is quite different from the diseased secretion of another. The diseases of the skin in which the sanguineous structure is implicated are few in number, and for the most part easily traced to the cause of morbid blood on the one hand, or atmospheric changes on the other. But the diseases which have their seat most strictly in the secretions of the skin, and which are by far the most numerous, cannot be supposed to suffer from atmospheric changes, since these could merely operate to reduce or increase the quantity of blood in the blood-vessels of the skin; and in fact are not more frequent in hot or cold climates than in temperate ones, though we allow that they are more violent in hot ones when once formed, by reason of the consequent inflammation which heat so naturally excites. And, even were these impressions allowed to have much force, we should be surprised to find that so many kinds of disease follow the very simple causes of heat or cold.

It is to that portion of the cutaneous expansion which lines the alimentary canal, which is exposed to a thousand different impressions from foreign bodies, from excess or alteration in its own secretions, or of those secretions poured so plentifully into it, which moreover is so closely connected by nervous sympathy with the external skin, that the most trifling ailments of the one alter the secretion and actions of the other, that we must look for the common cause of distention of the skin. Besides the connexion between the gastric and cutaneous irritation by means of nervous sympathy, the alteration which impaired digestion effects in the quality of the blood, may bring on cutaneous defædations; but it seems that the maladies produced by this cause as deeply implicate the subjacent tissue as the skin, and therefore are not properly to be classed with cutaneous disorders. Thus, Porphyria is very properly separated by Dr. Good from this class. A great number of cutaneous diseases are infectious.

The cure, therefore, of all cutaneous maladies may be attempted with the following indications. The first is to restrain the action of the sanguiferous system, in those maladies or in those stages of maladies in which their action is excessive. This is chiefly effected by bleeding, by cooling and sedative lotions. The second is, to remove the morbid secretions which are applied to the alimentary canal, and which cause the disease. The correction of bile has been followed by the cure of troublesome cutaneous disorders; and there is scarcely a medicine capable of producing a powerful change in the secretions of the digestive organs but what has, on a few occasions, performed surprising cures. But the most philosophical and sure method of proceeding is to restore the function of the alimentary canal by proper regulations as to diet and exercise, and the state of the alvine secretions. In many cases this is all that is necessary; but in some, notwithstanding the digestive and sanguineous organs are in a very tolerable state of health, the disease of the skin will remain unabated. Under these circumstances, it will be necessary to apply some medicine that will stimulate the secretions in a different mode to that stimulation imparted by their nerves. In different diseases different stimuli will be necessary; but this can only be known by experiment. In some, the stimulating agent required is almost invariable in its successful operation; as sulphur for the cure of itch; in others, the greatest uncertainty is met with, as in some forms of impetigo.

Another

Another mode of curing cutaneous diseases is by exciting a function vicarious to that of the skin, as the urine by means of diuretics. As an adjunct, the soothing of the irritable feelings of the affected structure by anodynes and baths is on many occasions required. This genus has only one species, namely

Exanthema roseola, rose-rash: efflorescence in blushing patches, gradually deepening to a rose-colour, mostly circular or oval; often alternately fading and reviving; sometimes with a colourless nucleus: chiefly on the cheeks, neck, or arms.

This disease is merely symptomatic of a little feverishness of the system; and goes off spontaneously, or at least easily disappears under the use of a few gentle purges. It is mentioned in this place, less on account of its importance, than because it is liable, in some of its forms, to be confounded with some of the Exanthemata. Fig. 4, 5, and 6, on the Plate V. display the varieties of this eruption. Fig. 4 is the *summer rose-rash*, a rash attended with much itching and tingling, chiefly occupying the neck and shoulders, and of a roseate hue: it goes off on the fifth day. Fig. 5, the *autumnal rose-rash*, occurs chiefly in autumn; is of damask-rose-colour, appears chiefly on the arms, desquamates in about a week, and is attended with little itching or general disorder. Fig. 6 the *Roseola annulata* of Bateman, so called from its ring-like form, and appearing occasionally in every part of the body, is attended with fever when its duration is short, but with none when it lasts a long time. In the chronic form, the redness is not very marked till the evening, when a good deal of itching and tingling come on.

Genus III. *Exormia*, [from ἐξορμαω, to break out.] Papule, or pimples. Generic characters—Small acuminated elevations of the cuticle; not containing a fluid, nor tending to suppuration; commonly terminating in scurf. There are four species.

1. *Exormia strophulus*: eruption of red pimples in early infancy, chiefly about the face, neck, and arms; surrounded by a reddish halo; or interrupted by irregular plots of cutaneous blush. Five varieties.

α. *Strophulus intertinctus*, red gum: pimples bright-red; distinct, intermixed with stigmata, and red patches; usually on the cheeks, fore-arms, and backs of the hands, but sometimes spreading over the body. The repulsion of this eruption is dangerous; but, should this happen, it may be counteracted by warm bathing; a measure generally useful.

β. *S. albidus*, white gum: pimples minute, hard, whitish; surrounded by a reddish halo.

γ. *S. confertus*, tooth-rash, or rank red gum: pimples red, of different sizes; crowding or in clusters; the larger surrounded by a red halo; occasionally succeeded by a fresh crop.

δ. *S. volaticus*: pimples deep-red, in circular patches or clusters; clusters sometimes solitary on each arm or cheek; more generally flying from part to part.

ε. *S. candidus*: pimples large, glabrous, shining; of a lighter hue than the skin: without halo or blush.

The three last varieties are shown on Plate VI. fig. 1. as they appear on the face, on the fore-arm, and on the arm. The species, indeed, like the preceding, is not considered of much consequence in practice; but is described and delineated on account of its occasional similarity to some of the Exanthems.

2. *Exormia lichen*: eruption diffuse; pimples red; troublesome sense of tingling or pricking. Seven varieties; of which α, γ, and ζ, are the subjects of the remaining figures of Plate VI.

α. *Lichen simplex*, (see fig. 2. Plate VI.) General irritation, sometimes a few febrile symptoms at the commencement; tingling aggravated during the night; pimples beginning on the face and arms; afterwards scattered over the whole body; these fade and desqua-

mate in about a week, except in the flexures of the joints.

β. *L. pilaris*: pimples limited to the roots of the hair; desquamate after ten days: often alternating with complaints of the head or stomach. Only a modification of the foregoing.

γ. *L. circumscriptus*, (fig. 3.) pimples in clusters or patches of irregular forms, appearing in succession over the trunk and limbs; sometimes coalescing; occasionally reviving in successive crops, the old ones decaying as the new ones arise; and persevering for six or eight weeks.

Little medicinal treatment is necessary for these varieties of Lichen. It is sufficient that patients avoid heating themselves by much exercise or by stimulants, and take a light diet, with diluent drinks, and a gentle laxative occasionally. The diluted sulphuric acid is a grateful tonic to the stomach during the period of exfoliation; or a light chalybeate may be taken with advantage at the same period. All strong external applications are improper, especially preparations of mercury and of sulphur, which produce severe irritation. The ancients recommended that the parts should be smeared every morning with saliva; and some demulcent lotion, as a substitute for this uncleanly expedient, prepared with the white of egg, or emulsion of almonds, will relieve the painful sensations of the patient. Lotions of lime-water, or of liquor ammoniæ acetatis much diluted, occasionally also afford relief.

δ. *L. lividus*: pimples dark-red or livid; chiefly scattered over the extremities; desquamation at uncertain periods, succeeded by fresh crops, often persevering for several months. Its affinity with the Purpura is evinced by the intermixture of petechiæ with the papulæ; and by the similarity of the origin and requisite treatment of the two diseases.

ε. *L. tropicus*, prickly heat: pimples bright-red, size of a small pin's head; heat, itching, and pricking as of needles; sometimes suddenly disappearing, and producing sickness or other internal affection; relieved by the return of a fresh crop. It attacks new settlers in the West Indies, and other warm regions, and leaves them in a few weeks when inured to the climate.

Many authors have cautioned us against the repulsion of the eruption by cold. The experienced Johnson observes, however, that he never found it possible to repel it by even cold bathing; and seems to think that the idea is visionary. The same author observes as to its treatment, that he found no benefit from external applications, though he used many kinds. "In short, (says he,) the only means which I ever saw productive of any good effect in mitigating its violence, till the constitution got assimilated to the climate, were, light clothing, temperance in eating and drinking, avoiding all exercise in the heat of the day, open bowels, and last, not least, a determined resolution to resist with stoical apathy its first attacks. To sit quiet and unmoved under its pressure is undoubtedly no easy task; but, if we can only muster up fortitude enough to bear with patience the first few minutes of the assault, without being roused into motion, the enemy, like the foiled tiger, will generally sneak off, and leave us victorious for the time."

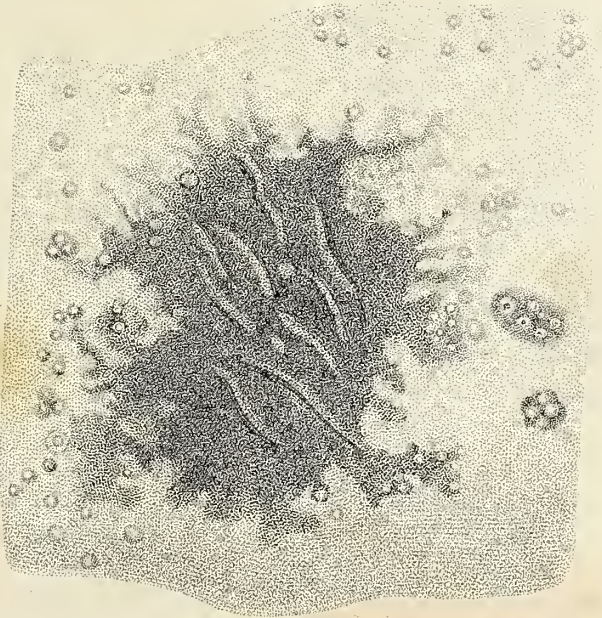
ζ. *L. ferus*, (fig. 4.) pimples in clusters or patches of a high red colour, and surrounded with a red halo; the cuticle growing gradually harsh, thickened and chappy; often preceded by general irritation and fever; coldness, shivering, and cephalalgia, being usually the first symptoms observable. Tingling and itching are troublesome symptoms in this complaint: they undergo daily remissions, and are much increased by exercise, washing, &c. This variety is apt to terminate in Impetigo.

The treatment of this lichen consists in administering, at first, some moderate laxatives, mercurial or saline, and afterwards, for some time, the diluted sulphuric acid, three times a-day, in the infusion of roses, or decoction

2



4



3



1. Strophulus. 2. Lichen simplex. 3. L. circumscriptus. 4. L. fevus.

Engraved for the Encyclopædia Britannica, 1822.





1. Purigo. 2. Scrupis vulgaris. 3. L. albida. 4. L. nigricans.

of cinchona. A simple cooling unguent, as the rose pomatum, or litharge plaster softened with oil of almonds, allays the troublesome heat or itching. All stimulating applications are both painful and injurious.

η. *L. urticifolius*, nettle-rash: pimples very minute, slightly elevated, reddish; intolerable itching, especially at night; irregularly subsiding, and re-appearing; chiefly spotting the limbs; occasionally spreading over the body, with gnat-bite shaped wheals; from the violence of the irritation at times, accompanied with vesicles or blisters, and succeeded by an extensive exfoliation of the cuticle. It chiefly attacks children or young adult persons. Frequent tepid bathing, light covering, especially in bed, with the use of small doses of sulphur, or the *hydrargyrus sulphuratus niger*, internally, appear to relieve the symptoms. The skin will not bear stimulation, and is irritated even by a bath of too high temperature. When it has occurred in feeble and emaciated children, it may often be relieved by chalybeate medicines, as the *vinum ferri*. This combination of inflamed papulæ, with intense itching, seems to unite the characters of the lichen with those of the next species.

3. *Exormia prurigo*: eruption diffuse; pimples nearly of the colour of the cuticle; when abraded by scratching, oozing a fluid that concretes into minute black scabs; intolerable itching, increased by sudden exposure to heat. Three varieties.

α. *P. mitis*: pimples soft and smooth; itching, at times subsiding; chiefly common to the young, and in spring time. Easily yields to a course of warm ablutions, and the internal use of sulphur.

β. *P. formicans*: pimples varying from larger to more obscure than in the last; itching incessant, and accompanied with a sense of pricking, or stinging, or of the creeping of ants over the body, (whence the name;) duration from two months to two or three years, with occasional but short intermissions; chiefly common to adults.

γ. *P. senilis*: pimples mostly larger than in either of the above; sometimes indistinct, giving the surface a shining and granulated appearance; itching incessant; common to advanced years, and nearly inveterate.

Plate VII. fig. 1. exhibits the varieties of this species. A points out the slighter eruption of the *Prurigo mitis*; B the deeper and more marked appearance of *P. formicans* and *P. senilis*. Each of these varieties is apparently the result of gastric and intestinal irritations, and the last of much nervous debility likewise. The first is more easily cured than the two latter; cold spirituous lotions, a strict attention to diet, gentle laxatives (avoiding purges), and, according to the state of the stomach, sulphur and the carbonate of soda, or stomachic medicines, as *sarsaparilla*, bark, &c. with mineral acids (especially the oxygenated muriatic acid), are the measures chiefly to be depended on. In the *Prurigo senilis*, pediculi are commonly generated. Oil of turpentine much diluted with oil of almonds appears to exterminate these insects very effectually.

4. *Exormia milium*: pimples very minute; tubercular; confined to the face; distinct; milk-white; hard; glabrous; resembling millet-seeds.

Dr. Good seems to have inserted this species on the authority of Plenck alone; for we find no mention of it in any other author.

Genus IV. *Lepidosis*, [from *λεπίς*, a scale.] Scale-skin. Efflorescence of scales over different parts of the body, often thickening into crusts. (*Squammæ*, *Willan*.) There are four species, with numerous varieties.

1. *Lepidosis pityriasis*, dandruff: patches of fine branny scales, exfoliating without cuticular tenderness. The superficial state of the scales, and the absence of all ulcerative process, distinguishes the varieties of *pityriasis* from other maladies. Without these distinctive marks we might mistake dandruff for scalded-head (into which it must be confessed it degenerates if neglected), and *P. ver-*

color for secondary symptoms of syphilis. The following are the three varieties.

α. *Pityriasis capitis*: scales minute and delicate; confined to the head; easily separable. Chiefly common to infancy and advanced years. Cutting off the hair, and washing the head frequently with soap and water, are all the means necessary for the cure of dandruff on the head.

β. *P. rubra*: scales common to the body generally; preceded by redness, roughness, and scurfiness of the surface. To give gentle purges, and apply cooling lotions, in the stage of roughness and redness, and to use gentle diaphoretics and the warm salt-water bath when the scales appear, is all that is required in the treatment of this complaint.

γ. *P. versicolor*: scales in diffuse maps of irregular outline and divers colours, chiefly brown and yellow: for the most part confined to the trunk, though occasionally spreading over the limbs. This disorder, from its slow progress, morbid colour, and usual causes, (debauchery, bad food, and atmospheric vicissitudes) seems to be much connected with a diseased state of the blood. Dr. Willan found internal medicine of little use; but Dr. Bateman recommends the oxygenated muriatic acid and stimulating lotions. He also recommends a trial to be made of pitch in large doses.

2. *Lepidosis lepræ*, leprosy: patches of smooth laminated scales of different sizes, and a circular form. Four varieties.

α. *Lepriasis vulgaris*, common leprosy: scales glabrous; whitish; size of a crown-piece; preceded by smaller, reddish, and glossy, elevations of the skin, encircled by a dry, red, and slightly-elevated, border; often confluent. Beneath the scales the skin is found red, and in early stages smooth. Sometimes covering the whole of the body except the face; but most commonly commencing on the extremities, where the bones lie nearest to the surface; especially below the elbow and the knee, and usually on both arms, or both legs, at the same time. From these points it gradually extends, by the formation of new and distinct patches, along the arms or thighs, to the breast and shoulders, and to the loins and sides of the abdomen. In several cases, Dr. Bateman has observed the eruption most copious and most permanent round the whole lower belly. The hands also become affected, and in many cases the hairy scalp. Though the face is not the seat of large patches, some scales occasionally appears about the outer angles of the eyes, and on the forehead and temples, extending from the roots of the hair. In the more severe cases, the nails of the fingers and toes are often much thickened, and become opaque and of a dirty yellowish hue, and are incurvated at the extremities: their surface is also irregular, from deep longitudinal furrows, or elevated ridges.

When the eruption of *Lepriasis* is moderate in degree and extent, it is not attended with any uneasy sensations, except a slight degree of itching when the patient is heated by exercise, or becomes warm in bed; and a little occasional tingling in certain states of the atmosphere. When it is generally diffused, however, and there is a considerable degree of inflammation in the skin, it is accompanied with extreme soreness, pain, and stiffness; sometimes indeed so great, as to render the motions of the joints impracticable, and to confine the patient to bed. Yet even under these circumstances, there is no constitutional disturbance: and, if no medicine be employed, the disease of the skin may continue for months, or even years, without any material derangement of the system.

Nothing is known of the immediate cause of this disease. It has been observed to follow the taking of certain improper articles of diet. It has been attributed to dirtiness, to over-exertion, and to sudden changes of temperature. It is said to be hereditary, but not contagious. Dr. Bateman asserts that it is a very common disease in this metropolis; but we are inclined to think

he is almost singular in his opinion. On Plate VII. fig. 2. we have given a delineation of this variety; the letters A, B, C, &c. showing the progressive stages of the malady.

β. *L. albida*, white leprosy: scales whitish; size of a silver penny; depressed in the middle; chiefly confined to the extremities. See fig. 3 of the same Plate.

This disease is milder than the first variety, from which it is distinguished by the indolence of the eruption, the smallness of the scales, and their little disposition to become confluent. Both varieties of Leprosia are difficult of cure, and have acquired characters for being more obstinate than they really are, in consequence of the empirical practice which has been commonly applied to them.

The practice, to be effectual, must depend entirely on the state of the vascular system of the skin; for, as Dr. Bateman has clearly shown, if we give the same medicines to an inflammatory variety or stage of Leprosia that are found useful in one of tardy progress, we shall of course do mischief. Therefore, whenever much redness surrounds the scale, when pain, soreness, or stiffness of the joints, is present, our first care should be to mitigate the severity of the cutaneous phlogosis which accompanies the eruption. Ablution with tepid water, or with thin gruel, is the only application that it is allowable to use. Gentle purgatives, a somewhat low diet, with the occasional exhibition of nitre, or small doses of sulphur, a few drops of the liquor potassæ, in conjunction with equally sparing quantities of tincture of hellebore, are measures generally sufficient to remove the irritable state of the skin. But, when this state has degenerated into the indolent form so remarkable in the second variety, and in the advanced stages of the first, stimulating medicines and applications may be tried. The warm salt-water bath, with a moderate degree of friction to loosen the scales, may be first used as the most proper local means; and, if not found successful, may be succeeded by the use of more active stimuli, gradually increasing their strength. A variety of these will be successively required. Spirituous lotions, or those containing the caustic potash, the muriatic acid, or the oxymuriate of mercury, the unguentum picis, or the ung. hydrargyri nitratis, are the most approved local stimuli we know of. The internal stimuli which must be resorted to when dietetic regulations do not operate on the malady, are the arsenical solution, pitch, and steel. Of these the first is the most powerful. They are all given in the usual doses. Dr. Bateman recommends also a decoction of the *Solanum dulcamara* in gradually-increasing proportions, both as an internal and an external application.

γ. *L. nigricans*, or black leprosy, is a more rare variety of the disease, differing externally from the *L. vulgaris* chiefly in the dark and livid hue of its patches, which is most obvious in the margin, but even appears through the thin scales in the area of each patch. See fig. 4. The scales are more easily detached in this form of lepra, and the surface remains longer tender, and is often excoriated, discharging bloody serum, till a new incrustation is formed. This variety of leprosy occurs in persons whose occupations expose them to the vicissitudes of the weather, and to a precarious diet, with fatigue and watching, and seems of a cachectic nature. It is cured by nutritive food, with moderate exercise, followed by the use of the bark, mineral acids, and sea-bathing.

δ. *L. canescens*, the leprosy of the Jews: scales white; hairs on the patches white or hoary; central depression deep; disease more inveterate. See LEPROSY, vol. xiv.

"Several of the varieties are found also occasionally, as a symptom or sequel, in lues; but distinguished by a livid or chocolate hue." Good, 473.

3. *Lepidosis psoriasis*, scaly tetter, or dry scale: patches of rough amorphous scales; continuous, or of indeterminate outline; skin often chappy.

This irregularity of figure distinguishes Psoriasis from the round scales of Leprosia; and the five different varie-

ties of this irregularity are the subject of Plate VIII. Moreover it is without the elevated border, the inflamed margin, and the oval or circular outline, of the leprosy patches; the surface under the scales is likewise much more tender and irritable in general than in leprosy; and the skin is often divided by *rhagades*, or deep fissures. It is commonly accompanied by some constitutional disorder, and is liable to cease and return at certain seasons.

The causes of psoriasis are nearly as obscure as those of leprosy. It is not contagious; with the exception perhaps of the first variety; and this exception is doubtful. Of the following varieties, the first two are sometimes the sequel of lichen.

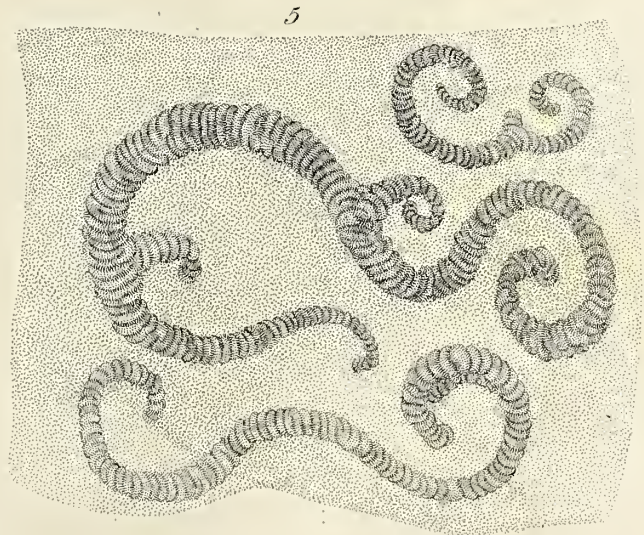
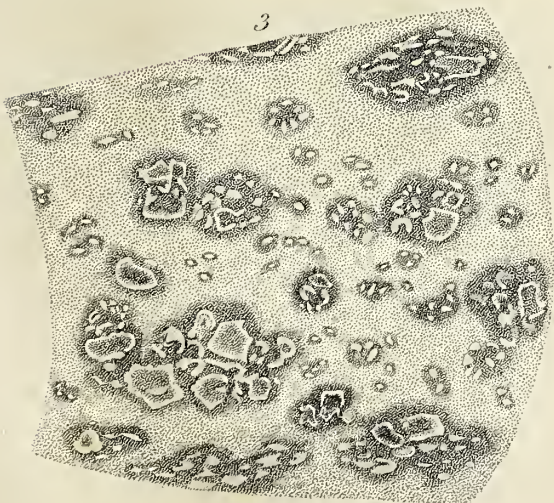
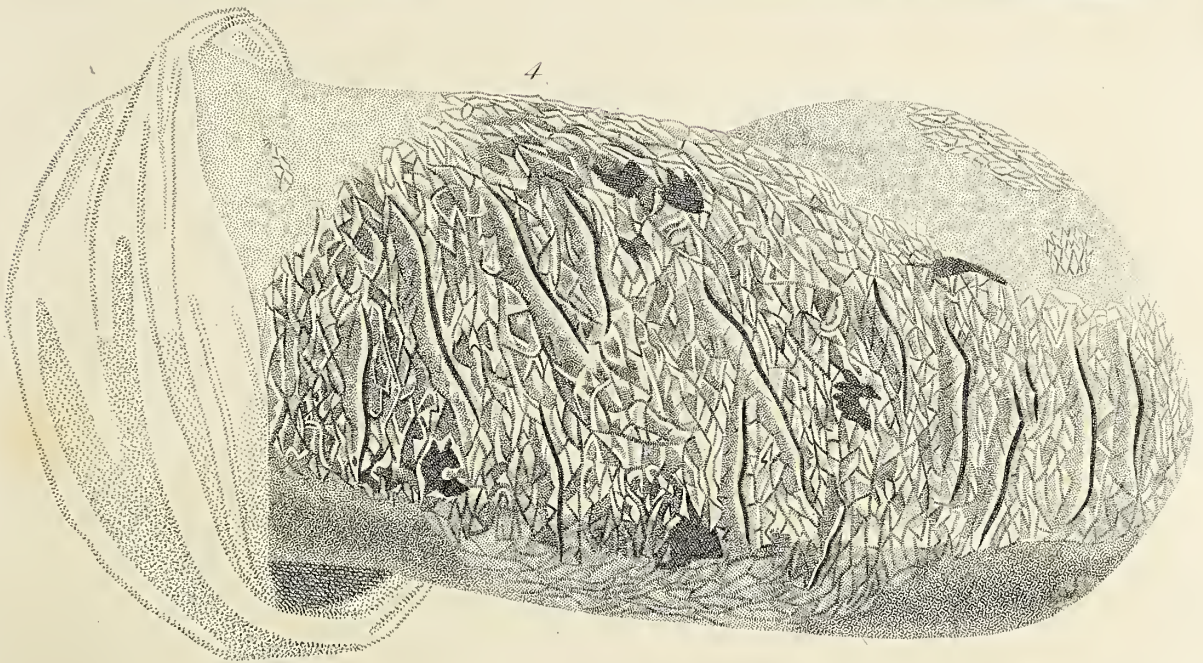
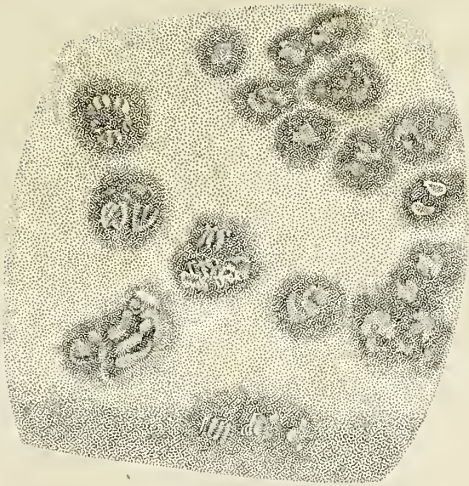
α. *P. guttata*, (see fig. 1. Plate VIII.) "is a sort of connecting link between this species and lepra, the little patches being distinct, and small, (seldom exceeding two or three lines in diameter,) but with an irregular circumference, and the other peculiar characters just described. They appear on almost every part of the body, and even on the face; but in the latter situation they exhibit only a redness and roughness, without scales. This eruption is most common in the spring, at which season it is liable to recur for several years. It is preceded by general pains, and slight feverishness. In children it often spreads rapidly over the body in two or three days; but in adults its progress is gradual and slow." Bateman, 39.

β. *P. gyrata*, (fig. 5.) scaly patches in serpentine or tortuous stripes; found chiefly on the back, sometimes on the face.

γ. *P. diffusa*, (fig. 2 and 3.) patches diffuse, with a rugged, chapped, irritable, surface; sense of burning and intense itching, increased by warmth and mitigated by cold; skin gradually thickened and furrowed, with a powdery scurf in the fissures; most common over the face, ears, and scalp. Sometimes these extensive eruptions appear at once; but, in other instances, they are the result of numerous minute elevations of the cuticle, upon which small distinct scales, adhering by a central point, are soon formed, and which become gradually united by the inflammation of the intervening cuticle. In either case, as the disorder proceeds, a powdery substance, or very minute scurf, is seen. The heat and painful sensations are much aggravated by the least friction, which also produces excoriation, and multiplies the sore and painful rhagades. This form of the disease is most frequent about the face and ears, and the back of the hands; the fingers are sometimes nearly surrounded with a loose scaly incrustation, and the nails crack and exfoliate: but it occasionally occurs in other parts of the body, either at the same time or in succession. It commonly begins with some general indisposition; and a degree of erethism, with occasional sharp pains in the stomach, is sometimes kept up, during several weeks, by the constant irritation which it excites. Its duration is from one to four months, and sometimes much longer; and it is liable to return, in successive years, in the spring or autumn, and sometimes in both seasons.

When limited to the back of the hand, it forms what is vulgarly called the *baker's itch*. On the hands and arms, sometimes on the face and neck, it is peculiarly troublesome to washerwomen; probably from the irritation of the soap they are continually making use of.

δ. *P. inveterata*, (fig. 4.) is the most severe modification of the complaint, beginning in separate irregular patches, which extend and become confluent, until at length they cover the whole surface of the body, except a part of the face, or sometimes the palms of the hands and soles of the feet, with an universal scabiness, interspersed with deep furrows, and a harsh, stiff, and thickened, state of the skin. The production of scales is so rapid, that large quantities are found every morning in the patient's bed. The nails become convex, thickened, and opaque, and are frequently renewed; and, at an advanced period, especially in old people, extensive excoriations



Varieties of Porrasis.

J. Russ sc.





J. Pass sc.

1. Ichthyosis. 2. Pompholyx diuternus. 3. Herpes miliaris. 4. H. circinatus. 5. H. Tris.

Engraved for the Encyclopaedia Londinensis 1822.

ations sometimes occur, with a discharge of their lymph, followed by a hard dry cuticle, which separates in large pieces. In this extreme degree, it approaches very closely to the inveterate degree of *Lepriasis vulgaris* in all respects; the only difference being in the form of the patches before they coalesce. It is sometimes the ultimate state of the *Psoiriasis diffusa*; and occasionally a sequel of the *Prurigo senilis*.

ε. *P. localis*: stationary; and limited to particular organs; as the lips, eye-lids, prepuce, scrotum, and inside of the hands. In the last form it is peculiarly common to shoe-makers, and artificers in metallic trades, as braziers, tinmen, and silversmiths: probably from filth, and the irritation of the substances they make use of.

"Several of the varieties are found also occasionally as symptoms or sequels of lues, particularly the first three; but are in every instance distinguished by the livid or chocolate hue of the scales." Good, 475.

The same general plan of *treatment* is applicable to all the different modifications of *Psoiriasis*, the period of its duration, and the degree of accompanying phlogosis, being carefully attended to. In the commencement of the eruption, when it appears suddenly, and the constitution is obviously disordered, a moderate antiphlogistic treatment must be pursued. A gentle purgative should be administered, and the diet made light by abstracting every thing stimulant. This regimen, indeed, is requisite throughout the course of the disease, which is immediately aggravated in sympathy with irritation of the stomach, whether by spices, fermented liquors, pickles, or vegetable acids; whence the disuse of these articles contributes materially to its cure. But, if the constitutional disturbance has subsided, the use of the fixed alkali, combined with sulphur lotum, or with an infusion of cinchona, together with tepid washing with simple water, or milk and water, will gradually remove the complaint. If the scaly patches have extended over a considerable part of the body, and have assumed a more inert and chronic character, it must be viewed in a similar light with the *Lepriasis*, and the remedies recommended for the first and second varieties of that disease must be resorted to.

The shooting and burning pain and itching, in the early and more inflammatory stages of *Psoiriasis*, induce the patient to seek anxiously for relief from local external applications; but he is mortified to find that even the mildest substances prove irritants, and aggravate his distress. A decoction of bran, a little cream, or oil of almonds, sometimes produce ease; but any admixture, even of the oxyd of zinc, or preparations of lead, with these liniments, is commonly detrimental. But the more local, and less inflammatory, eruptions of *Psoiriasis* are considerably alleviated by local expedients. The *psoiriasis* affecting the hands, the scrotum, or the eye, are relieved by the ung. hydrargyri præcipitati albi, or ung. hyd. nitrat. diluted according to the irritability of the skin; but great care is requisite to keep the parts clean by frequent ablution, and to prevent attrition. When the disease affects the lips, nothing acrid can be borne; and much of the cure depends upon securing the parts from irritation, even from heat and cold, by a constant covering of some mild ointment or plaster. In all these cases, some of the internal remedies above mentioned must be at the same time employed, according to the period and other circumstances of the disease.

4. *Lepidosis ichthyosis*, or fish-skin: thick indurated incrustation, encasing the skin to a greater or less extent. It has some tendency to scaliness, but without the deciduous exfoliations, the distinct and partial patches, or the constitutional disorder, which belong to *lepra* and *psoiriasis*. There are three varieties.

α. *I. simplex*: in its commencement this disease exhibits merely a thickened, harsh, and discoloured, state of the cuticle, which appears, at a little distance, as if it were soiled with mud. When further advanced, the

thickness, hardness, and roughness, become much greater, and of a warty character, and the colour is nearly black. The roughness, which is so great as to give a sensation, to the finger passing over it, like the surface of a file, or the roughest flagreen, is occasioned by innumerable rugged lines and points, into which the surface is divided. These hard prominences, being apparently elevations of the common lozenges of the cuticle, necessarily differ in their form and arrangement in different parts of the body, according to the variations of the cuticular lines, as well as in different stages and cases of the complaint. Some of them appear to be of uniform thickness from their roots upwards; while others have a short narrow neck, and broad irregular tops. The former occur where the skin, when healthy, is soft and thin; the latter where it is coarser, as about the olecranon and patella, and thence along the outside of the arms and thighs. On some parts of the extremities, however, especially about the ankles, and sometimes on the trunk of the body, these excrescences are scaly, flat, and large, and occasionally imbricated like the scales of carp. In other cases, they have appeared separate, being intersected by whitish furrows." The above description, and the delineation on Plate IX. fig. 1. are from Dr. Bateman's splendid work.

This unsightly disease appears in large continuous patches, which sometimes cover the greater part of the body, except the flexures of the joints, the inner and upper part of the thighs, and the furrow along the spine. The face is seldom affected, but the whole skin is in an extremely dry and unperpirable condition, and in the palms of the hands and soles of the feet it is much thickened and brittle. The disease often commences in childhood, and even in early infancy; and is in various instances hereditary. The only medicines which seem useful are pitch and arsenic: the former, however, must be taken in immoderate quantities. Dr. Bateman had a patient who took half an ounce daily, with much amendment. Sulphureous baths, and rubbing with a rough cloth afterwards, will often bring off the scales; and, as these are not soon reproduced, it is a very important palliative measure. Impressed with this fact, Dr. Willan recommends us to pick them off carefully with the nails from any part of the body, while it is immersed in hot water. He says, "The layer of cuticle, which remains after this operation, is harsh and dry; and the skin did not, in the cases I have noted, recover its usual texture and softness; but the formation of the scales was prevented by a frequent use of the warm bath, with moderate friction."

β. *I. cornea*. Several cases of a rigid and horny state of the integuments, sometimes partial, but sometimes extending nearly over the whole body, have been recorded by authors; see Phil. Trans. N^o 176. N^o 297. and vol. xlviii. pt. ii. p. 580. Also Zacut. Lusitan. Prax. Hist. obs. 188. Ephem. Acad. Nat. Cur. dec. i. p. 89. and occasionally such a condition of the cuticle has been accompanied with the actual production of excrescences of a horny texture. These, however, are rare occurrences.

γ. *I. cornigera*: with horn-like incurved sproutings; sometimes periodically shed and reproduced. This disease appears to have nothing to do with *Ichthyosis*; the horn usually grows from a wart or tumour; and, if cut off, is reproduced. Hence the only mode of cure is to extirpate it from its roots.

Genus V. *Ecephlysis*, [from *εφλυζω*, to boil or bubble up or over; importing vesicular eruption confined in its action to the surface.] Blains. Orbicular elevations of the cuticle containing a watery fluid. There are four species, and many varieties.

1. *Ecephlysis pompholyx*, blebs: eruption of blebs containing a reddish, transparent, fluid; mostly distinct; breaking and healing without scale or crust. They are distinguished from *Pemphigus* by the absence of fever,

and-of inflammation round their bases. There are three varieties.

α. P. benignus, water-blebs: blebs pea-sized or filbert-sized; appearing successively on various parts of the body; bursting in three or four days, and healing readily.

β. P. diutinus, (fig. 2. Plate IX.) Blebs gradually growing from small vesicles to the size of walnuts; yellowish; often spreading in succession over the whole body, and interior of the mouth; occasionally reproduced, and forming an excoriated surface with ulcerations. Often preceded by languor or other general indisposition for several weeks. Duration from two to four or five months.

This disease chiefly affects persons of debilitated habits; and is very severe in the aged. It seems to originate under different conditions of the body, but often after continued fatigue and anxiety, with low diet; sometimes from intemperance; and not unfrequently it is connected with anasarca, or general dropsy, with scurvy, and other states of the constitution, in which the powers of the cutaneous circulation are impaired. It is most troublesome and obstinate in old persons, in whom the transparent bullæ sometimes equal the size of a turkey's egg, while others of a smaller size are intermixed with them, which appear dark and livid. When broken, they leave a black excoriated surface, which sometimes ulcerates. The warm bath, used every second day, was considered by Dr. Willan as the most active palliative, and the best remedy. Bateman has seen the decoction of cinchona, with cordials and diuretics, of considerable advantage in these cases, especially when the eruption was combined with anasarca. In young persons in whom the pompholyx is seldom severe, these remedies are affirmed by Dr. Willan to be successful within two or three weeks; but the warm bath seems to increase both the tingling in the skin, and the numbers of the vesications, in these patients.

γ. P. quotidianus: blebs with a dark red base, appearing at night and disappearing in the morning. Found chiefly in the hands and legs. Vandermonde relates a case in which the accessions were reversed; the blebs appearing in the morning, and disappearing at night.

δ. P. solitarius: solitary; but reproductive in an adjoining part; the bleb very large, and containing a teacup full of lymph. Preceded by tingling, often accompanied with languor. This is a rare form of the disease, and seems to affect only women. Cinchona internally, and linseed poultices, followed by light dressings to the sores externally, were employed with advantage in three cases seen by Dr. Willan.

2. Ecephylis herpes, tetter: eruption of vesicles in small distinct clusters; with a red margin; at first pellucid; afterwards opaque; accompanied with itching or tingling; concreting into scabs. Duration from fourteen to twenty-one days. Here we have six varieties.

α. H. miliaris, (Plate IX. fig. 3.) Vesicles millet-sized: pellucid; clusters commencing at an indeterminate part of the surface, and progressively strewed over the body; succeeded by fresh crops. It is commonly preceded by a slight febrile attack for two or three days. The small transparent vesicles then appear, in irregular clusters, sometimes containing colourless, and sometimes a brownish, lymph; and for two or three days more, other clusters successively arise near the former. When very minute, they spread extensively; but, if at maturity they attain a considerable size and an oval form, we seldom see more than two or three clusters together; and sometimes there is only a single cluster. The included lymph sometimes becomes milky or opaque in the course of ten or twelve hours; and about the fourth day the inflammation round the vesicles assumes a duller red hue, while the vesicles themselves break, and discharge their fluid, or begin to dry and flatten, and dark or yellowish scabs concrete upon them. These fall off about the eighth or tenth day, leaving a reddened and irritable surface,

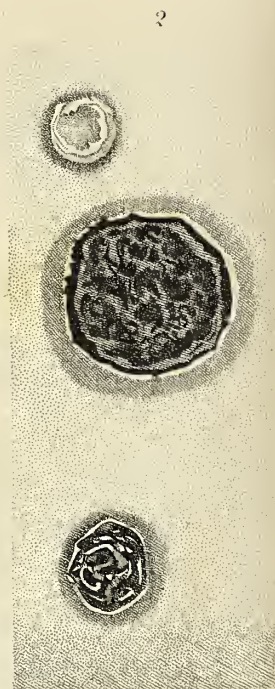
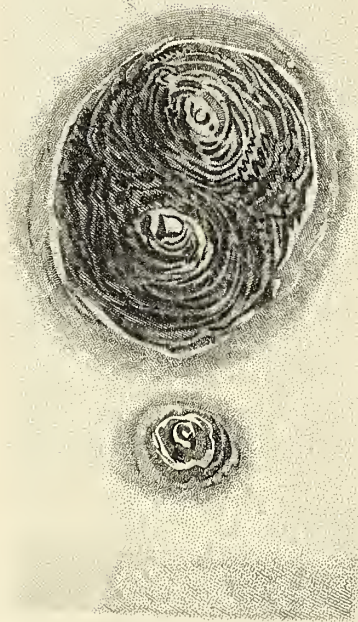
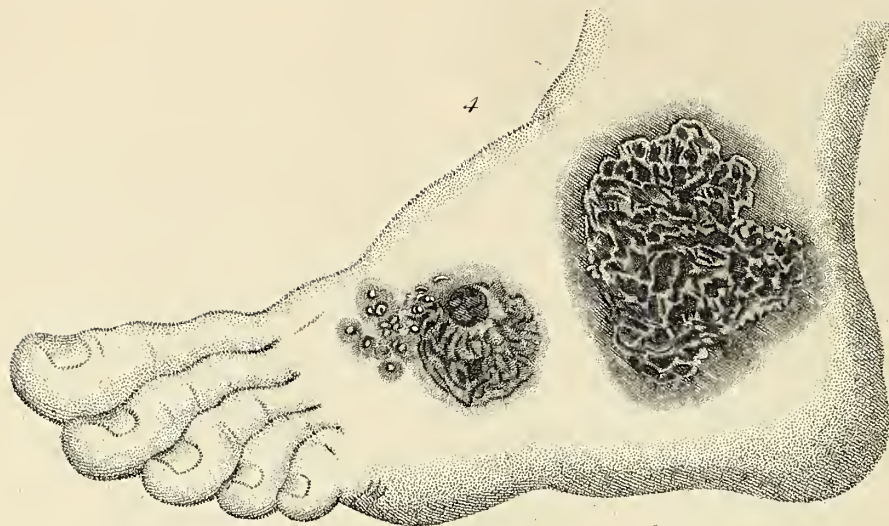
which slowly regains its healthy appearance. As the successive clusters go through a similar course, the termination of the whole is not complete before the thirteenth or fourteenth day.

β. H. exedens, nirls: vesicles hard; of the size and origin of the last; clusters thronged; fluid dense, yellow, or reddish; hot, acrid, corroding the subjacent skin, and spreading in serpentine trails.

This disease is rare; and we know not on what authority Dr. Good has stated that the *nirls* is the same disease as that described by Galen, from whom his definition is derived. We subjoin Dr. G.'s abstract of Galen's opinion: "Herpes, according to Galen, is an eruption of minute and crowded vesicles, of the size of millet-seeds, excited on the surface of the skin, filled with an acrid bilious secretion; and consists of two species; the one containing in its vesicles a milder and more aqueous fluid, called from the size of the vesicles *Herpes miliaris*, which merely seems to burn, or corrode; the other containing a thicker fluid of a higher heat and colour, and so acrid as actually to corrode the continuity of the subjacent skin, still creeping along in a serpentine direction, as the term herpes imports," and hence denominated by Hippocrates *Herpes esthiomenos*."

γ. H. zoster: shingles: vesicles pearl-sized; the clusters spreading round the body like a girdle: at times confluent. Occasionally with general irritation or other constitutional affection; being usually preceded for two or three days by languor and loss of appetite, rigors, head-ache, sickness, and a frequent pulse, together with a scalding heat and tingling in the skin, and shooting pains through the chest and epigastrium. Sometimes, however, the precursory febrile symptoms are slight, and scarcely noticed; and the attention of the patient is first attracted by a sense of heat, itching, and tingling, in some part of the trunk, where he finds several red patches of an irregular form, at a little distance from each other, upon each of which numerous small elevations appear, clustered together. These, if examined minutely, are found to be distinctly vesicular; and, in the course of twenty-four hours, they enlarge to the size of small pearls, and are perfectly transparent, being filled with a limpid fluid. The clusters are of various diameter, from one to two, or even three, inches, and are surrounded by a narrow red margin, in consequence of the extension of the inflamed base a little beyond the congregated vesicles. During three or four days, other clusters continue to arise in succession, and with considerable regularity; that is, nearly in a line with the first, extending always towards the spine at one extremity, and towards the sternum, or linea alba of the abdomen, at the other, most commonly round the waist like half a sash, but sometimes like a sword-belt across the shoulder.

While the new clusters are appearing, the vesicles of the first begin to lose their transparency, and on the fourth day acquire a milky or yellowish hue, which is soon followed by a bluish or livid colour of the bases of the vesicles, and of the contained fluid. They now become somewhat confluent, and flatten or subside, so that the outlines of many of them are nearly obliterated. About this time they are often broken, and for three or four days discharge a small quantity of a serous fluid; which at length concretes into thin dark scabs, at first lying loosely over the contained matter, but soon becoming harder, and adhering more firmly, until they fall off about the twelfth or fourteenth day. The surface of the skin is left in a red and tender state; and, where the ulceration and discharge have been considerable, numerous cicatrices or pits are left. As all the clusters go through a similar series of changes, those which appear latest arrive at their termination several days later than the first; whence the disease is sometimes protracted to twenty or even twenty-four days, before the crusts exfoliate. In one or two instances the vesicles have been known to terminate in numerous small ulcers, or suppurating



1. *Rhyzia simplex*. 2. *R. prominens*. 3. *Impetigo sparsa*. 4. *I. herpetica*.

rating foramina, which continued to discharge for many days, and were not all healed before the end of the fourth week. The febrile symptoms commonly subside when the eruption is completed; but sometimes they continue during the whole course of the disease, probably from the incessant irritation of the itching and smarting connected with it. In many instances, the most distressing part of the complaint is an intense darting pain, not superficial, but deep-seated in the chest, which continues to the latter stages of the disease, and is not easily allayed by anodynes: sometimes this pain precedes the eruption.

Herpes zoster is not contagious. Its causes are not very obvious: it is most frequently traced to pulmonic, gastric, or intestinal, irritation, and is commonest in spring and autumn. As it passes through its regular stages spontaneously and invariably, it never requires any thing to be done, except to adopt a cooling regimen.

δ. *H. circinatus*, ring-worm; (fig. 4.) vesicles with a reddish base, uniting in rings; the area of the rings slightly discoloured; often followed by fresh crops.

This is a very slight affection, being unaccompanied with any disorder of the constitution. It appears in small circular patches, in which the vesicles arise only round the circumference: these are small, with moderately red bases, and contain a transparent fluid, which is discharged in three or four days, when little prominent dark scabs form over them. The central area, in each vesicular ring, is at first free from any eruption; but the surface becomes somewhat rough, and of a dull red colour, and throws off an exfoliation, as the vesicular eruption declines, which terminates in about a week with the falling off of the scabs, leaving the cuticle red for a short time. The whole disease, however, does not conclude so soon: for there is commonly a succession of the vesicular circles, on the upper parts of the body, as the face and neck, and the arms and shoulders, which have occasionally extended to the lower extremities, protracting the duration of the whole to the end of the second or third week. No inconvenience, however, attends the eruption, except a disagreeable itching and tingling in the patches.

The *herpetic* ringworm is most commonly seen in children, and is deemed contagious. Another form of *H. circinatus* sometimes occurs, in which the area of the circles is covered with close-set vesicles, and the whole is surrounded by a circular inflamed border. The vesicles are of a considerable size, and filled with transparent lymph. The pain, heat, and irritation, in the part, are very distressing; and there is often a considerable constitutional disturbance accompanying the eruption. One cluster forms after another in rapid succession on the face, arms, and neck, and sometimes on the day following on the trunk and lower limbs. The pain, feverishness, and inquietude, do not abate till the sixth day of the eruption, when the vesicles flatten, and the inflammation subsides. On the ninth and tenth days a scabby crust begins to form on some, while others dry and exfoliate; the whole disease terminating about the fifteenth day.

ε. *H. iris*, (fig. 5.) occurs in small circular patches, each of which is composed of concentric rings of different colours. Its usual seat is on the back of the hands, or the palms and fingers, sometimes on the instep. Its first appearance is like an efflorescence; but, when it is fully formed, not only the central umbo, but the surrounding rings, become distinctly vesicular. The patches are at first small, and gradually attain their full size, which is nearly that of a sixpence, in the course of a week or nine days, at the end of which time, the central part is prominent and distended, and the vesicular circles are also turgid with lymph; and, after remaining nearly stationary a couple of days, they gradually decline, and entirely disappear in about a week more. The central vesicle is of a yellowish white colour; the first ring surrounding it is of a dark or brownish red; the second is

nearly of the same colour as the centre; and the third, which is narrower than the rest, is of a dark red colour; the fourth and outer ring, or areola, does not appear until the seventh, eighth, or ninth, day, and is of a light red hue, which is gradually lost in the ordinary colour of the skin.

ζ. *H. localis*, (*Herpes labialis*, *H. præputialis*, &c. *Bateman*.) Seated on a particular organ, chiefly the lip and prepuce, and not migratory. Very little attendance is required in herpetic diseases. They generally run their career without being either shortened or delayed by it. There is often, however, some constitutional disturbance accompanying the various forms, which it may be of consequence to attend to, according to the appearance of the eruption and the feelings of the patient. Astringents and anodyne lotions may be used; but they must be regulated by the general principles already laid down at the head of this order.

3. *Ephlysis rhyphia*; (*Rupia*, *Bateman*.) Eruption of broad, flattish, distinct vesicles; base slightly inflamed; fluid sanious; scabs thin, and superficial; easily rubbed off and reproduced. Three varieties.

α. *R. simplex*; scab flat; livid or blackish: the subjacent skin of the same hue.

β. *R. prominens*; scab elevated and conical like a limpet's shell; rapid in its progress, and succeeded by an ulcer.

These varieties of *Rupia* are to be combated by supporting the system, by means of good, light, nutritious diet, and by the use of alterative and tonic medicines; such as Plummer's pill, cinchona, and sarsaparilla. The first is represented by fig. 1. Plate X. the second by fig. 2. of the same engraving.

γ. *R. escharotica*: sanious discharge erosive, producing gangrenous eschars.

4. *Ephlysis eczema*, heat-eruption: eruption of minute acuminate vesicles, distinct, but closely crowding on each other, pellucid or milky; with troublesome itching or tingling; terminating in thin scales or scabs; occasionally surrounded by a blushing halo. Chiefly produced by the heat of the sun; and mostly attacks the hands and other parts that are principally exposed to its rays.

The eruption is successive, and has no regular period of duration or decline: it commonly continues for two or three weeks, without any particular internal disorder. The included lymph becomes more milky, and is gradually absorbed, or dried into brownish scales, which exfoliate, or into brownish yellow scabs, of the size of a small pin's head, especially when the vesicles are broken. But successive eruptions of the vesicles are apt to appear, which terminate in a similar manner by exfoliation or scabbing; and in those persons who, by the peculiar irritability of their skin, are much predisposed to the disorder, it is thus continued many weeks, to the end of autumn, or even prolonged to the winter. When this happens, the vesicles generally pour out an acrid serum, by which the surface is inflamed, rendered tender, and even slightly ulcerated, and the disease assumes the form of *Impetigo*.

The course of this disorder does not appear to be materially shortened by the operation of medicine. The mineral acids, with a decoction of cinchona, or other vegetable tonic, and a light but nutritious diet, seem to be most effectual in diminishing the eruption. When it has occurred after long-continued travelling, or any other severe fatigue, and appears to be accompanied with some degree of exhaustion of the powers of the constitution, a course of *serpentaria*, or *sarsaparilla*, is exceedingly beneficial. Active and repeated purgation is adverse to the complaint. Simple ablution with tepid water, contributes to relieve the smarting and tingling of the parts affected; but they do not bear unguents, or any stimulant application.

Genus VI. *Ecpyefis*, [*εκπυω*, to suppurate, of *πυον*, pus.] Running Tetter. Generic characters—Eruption of small pustules, distinct or confluent; hardening into crustular plates. There are four species, with numerous varieties.

1. *Ecpyefis impetigo*, the common running scald, or tetter: pustules clustering, yellow, itching; terminating in a yellow scaly crust, intersected with cracks.

Impetigenous eruptions are distinguished from those of an herpetic nature by their being preceded by small *pustules*, while the latter are always preceded by *vesicles*. The discharge, too; from the Impetigo is, generally speaking, more profuse than that from Herpes. Notwithstanding this distinction, it may be doubted whether the two species do not sometimes run into one another. It is no uncommon thing to see both vesicles and pustules on the same person. This combination, which is very painful and difficult of cure, appears chiefly on the hand, the vesicles of which seem to contain a very acrimonious fluid, since, whenever this runs, the skin is gradually denuded. The vesicles are slower in their progress than the pustules; and, when broken, have a morbid fore, secreting a thin ichor. There are six varieties.

a. I. *sparsa*, (see fig. 3, Plate X.) Clusters loose; irregularly scattered; chiefly over the extremities; often succeeded by fresh crops, and forming in old and debilitated persons troublesome ulcers.

β. I. *herpetica*, (fig. 4.) (*Impetigo figurata*, *Bate-man*. Herpes, *Cullen*.) Clusters circular; crowded with pustules, intermixed with vesicles; often with exterior concentric rings surrounding the interior area as it heals; itching accompanied with heat and smarting. Chiefly on the hands and wrists.

This is the most common variety of the moist tetter. It appears in circumscribed patches, of various figure and magnitude, which are usually smaller and more circular on the upper, and larger, oval, and irregular, on the lower, extremities. The patches consist at first of clusters of the yellow psudracious pustules, set close together, and surrounded by a slight inflammatory border; the whole being somewhat raised, but the pustules not very prominent or acuminated. In a few days the pustules break, and discharge their fluid; the surface becomes red and excoriated, shining as if it were stretched, but exhibiting numerous minute pores, from which a considerable ichorous discharge is poured out, accompanied with much troublesome itching, heat, and smarting. The discharge soon concretes partially into thin yellowish or greenish scabs; but still continues to ooze from under the scab, which it forms. In the course of three or four weeks, as the quantity of the discharge diminishes, the scabs dry and fall off, leaving the surface of the cuticle red, rough, and somewhat thickened, and at the same time extremely brittle, and liable to crack and to be excoriated; so that the ichorous discharge and scabbing are easily reproduced, and the disease is often thus much prolonged in its duration. Occasionally fresh crops of the psudracious pustules re-appear, as at the commencement; and the whole course of the eruption is repeated.

When the Impetigo *herpetica* is beginning to heal, the patches undergo a process somewhat similar to that which takes place in the *Lepriasis vulgare*. The amendment commences at the centre of the patch, which first subsides, leaving the border elevated: at length this also disappears; but the cuticle, which was the seat of the patch, remains for some weeks red, shining, and tender.

The Impetigo *herpetica* and *sparsa* are sometimes confounded with two contagious diseases, of the pustular order, *Porrigo* and *Scabies*. The appellation of *ring-worm*, which is popularly given to the oval or circular patch of the first, has partly contributed to occasion this mistake. They differ, however, from the contagious circles of *Porrigo*, inasmuch as the I. *figurata* seldom affects children, occurs principally on the extremities, and they do not continue to discharge a purulent and glutinous, but, after the first eruption, an ichorous humour; nor

do they form the thick, soft, and copious, scabs of *Porrigo*: not to mention the absence of contagion.

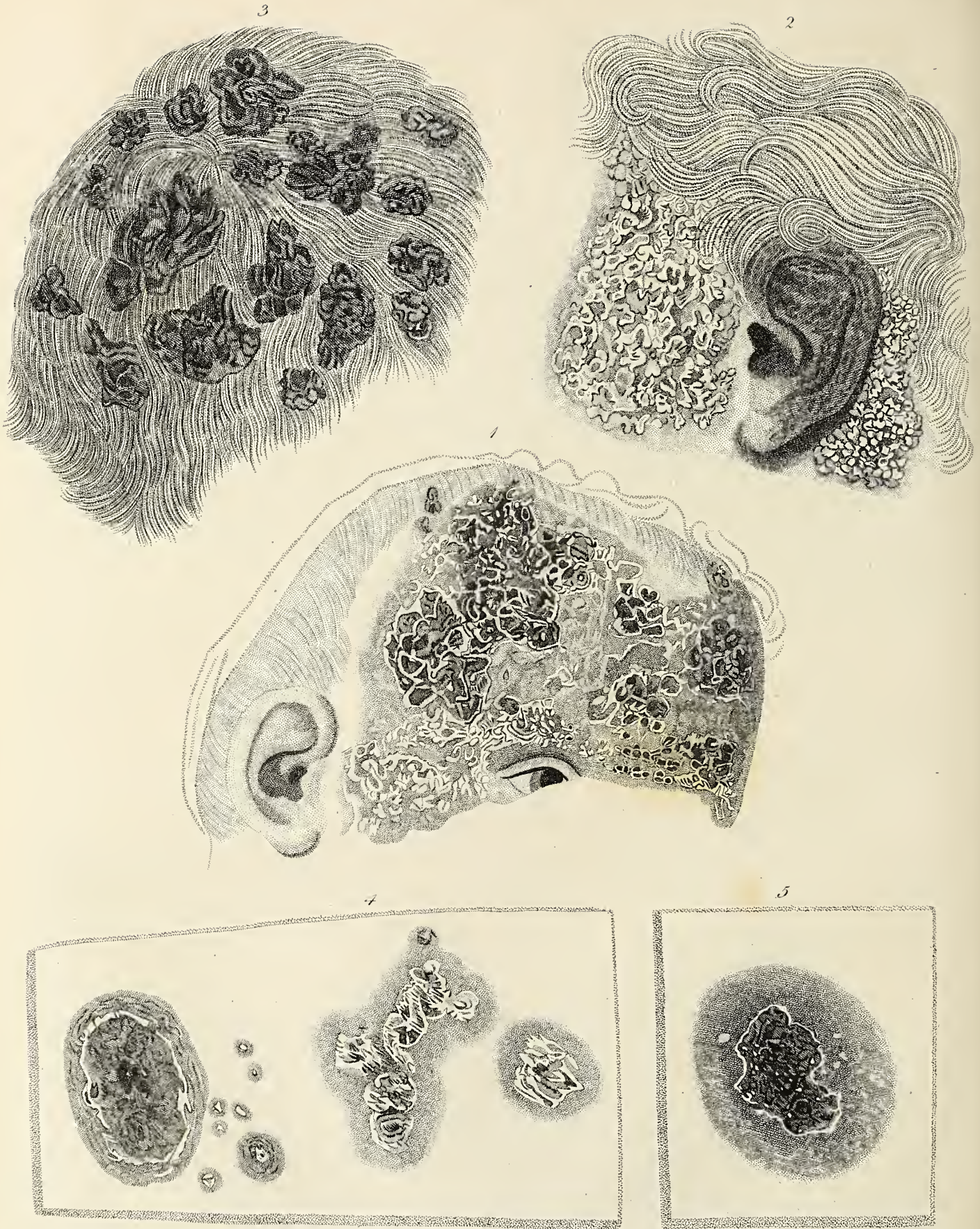
The prevalence of transparent vesicles in the patches of Impetigo, may mislead an incautious or inexperienced observer into a suspicion that the disease is *Scabies*: but the distribution of the eruption in patches, the copious exudation of ichor, the rough, reddened, and fissured, cuticle, the magnitude and slow progress of the vesicles, and the heat and smarting, which accompany the itching, in Impetigo, will serve, in general, to determine the diagnosis. In the strictly purulent form of *Scabies*, the pustules about the hands arise to a much greater magnitude and elevation than the psudracia; they are filled with a thick yellow pus, and are more considerably inflamed round their base. The Impetigo, in its advanced stage is, however, more liable to be mistaken by common observers, and is in fact daily mistaken, for *Psooriasis* or *Lepra*; as a sufficient discrimination is not made between the laminated and scale-like concretions of the ichorous matter, and the exfoliations of morbid cuticle, which constitute the true *scab*. But the *scaly diseases emit no fluid*; and the very existence of a discharge, however slight, is sufficient to determine the diagnosis of the eruption.

In the incipient state of these two forms of Impetigo, it is useful to administer sulphur internally, in such quantities as not to induce purging; and, if there is much irritability or inflammation of the cuticle, a portion of soda, nitre, or crystals of tartar, may be advantageously combined with it. The Impetigo *sparsa* commonly yields to these medicines, if diligent abluition with tepid water be at the same time employed. But, when the disease is of long standing, it requires a treatment somewhat similar to that recommended for inveterate *Psooriasis*; namely, the diet-drinks, decoctions of sarsaparilla and cinchona, with the fixed alkalis, and antimonials. The mercurial alteratives, however, in this affection, are of essential assistance to this plan of cure; such as small doses of cinnabar, the hydrargyrus cum creta, or the pill of Dr. Plummer.

The external applications adapted to these forms of Impetigo, are the mild desiccative unguents; for, in the majority of cases, the irritable surface of the tetter will not bear stimulants with impunity. When the discharge is considerable, the ointments prepared with the oxyd of zinc, alone, or united with saturnine ointment, or with the white precipitated oxyd of mercury, are the most efficacious, in allaying the inflammatory condition of the excoriated surface, and in reducing the quantity of the discharge. When there is less of this irritability and exudation, the tar-ointment, or the ointment of the nitrate of mercury, much diluted, will be found beneficial. But the too active employment of this or any other stimulating unguent, often does harm.

In these irritable forms of Impetigo, in which vesicles abound, the zinc, and saturnine applications, and even simple lard, occasion an aggravation of the symptoms. In these cases it is particularly necessary to keep the parts covered, with a view to avoid the effects of friction from the clothes, as well as of heat and of cold; to wash the surface daily with some emollient fluid, such as milk and water, or an infusion of bran; to interdict the use of soap; and to besmear the parts with cream, or an emulsion of almonds. A lotion prepared by boiling mallow, digitalis, and poppy-heads, has been found serviceable, where the parts were very painful. In many cases, however, the stiffness, which ensues upon the speedy drying of these lotions, renders it impossible to use them, and it is necessary to cover the part lightly with dry lint only, or to interpose between it and the diseased surface a sprinkling of the oxyd of zinc: sometimes, however, the application of linen dipped in melted suet, affords relief, when no other greasy substance can be used.

In the drier and less irritable forms of the Impetigo, the use of the waters of Harrowgate is the most effectual remedy, and likewise the best preventive of its return:



1. *Porrigo crustacea*. 2. *P. superficialis*. 3. *P. furfuracea*. 4. *Ecthyma vulgare*. 5. *E. luridum*.

under the same circumstances, the warm sea-water bath, followed by a course of bathing in the open sea, is productive of great benefit. But, during the existence of any actual inflammation, the irritation of salt water is decidedly injurious.

γ. I. erythematica: pustules scattered, preceded by erythematic blush and intumescence; often by febrile or other constitutional affection. Chiefly in the face, neck, and chest.

This variety should be treated in the same manner as erysipelas. As the erythema goes off, the skin may be gently stimulated by sulphureous or salt-water baths, and bark and the acids exhibited internally.

δ. I. laminosa: pustules confluent; chiefly in the extremities; the aggregate scabs forming a thick, rough, and rigid, casing round the affected limb, so as to impede its motion; a thin ichor exuding from numerous cracks.

This variety requires the same internal medicines which have been recommended for the inveterate forms of the preceding varieties, especially the sulphureous waters. The chief peculiarity of its treatment consists in clearing the surface of its incrustation, and correcting the morbid action of the superficial vessels. The thick scab can only be softened, and gradually removed, by perseverance in the application of the steam of warm water to it, for a short time, daily. Those parts of the surface, which are thus cleared, must be covered with soft linen, after tepid ablution, twice a-day; and sometimes the unguentum zinci, or a much-diluted ointment of nitrate of mercury, may be used.

ε. I. exedens: the purulent discharge corroding the skin and cellular membrane. Chiefly on the side of the chest or trunk.

This rare and intractable disease is at present scarcely known. Dr. Bateman says he had never seen an instance of it. The few instances which have been recorded have terminated fatally.

ζ. I. localis: confined to a particular part, mostly the hands or fingers; and produced by external stimulants, as fugar or lime.

This variety includes those common forms of tetter excited by peculiar stimuli: hence it comprehends the baker's itch, grocer's itch, bricklayer's itch, and the eruption arising from friction with tartarized antimony, &c.

z. Ecyphes porrigo, pustules straw-coloured; fluid viscid; concreting into scales or yellow scabs.

There are six varieties of this species. Their classification is adopted from Bateman; but many circumstances seem to show that they are not naturally united. Mr. Plümbe especially objects to our considering the crusta-lactea (*P. crustacea*) as a variety of porrigo. Of the others it may be remarked, that the opinion of Willan, that each of these varieties might be produced by one another, is not consonant with the results of more extended observation, or of direct experiment: Small doses of mercury are highly useful in this disease: the hydrargyri cum creta is perhaps the best form for very young patients. The health of the person who suckles the child should likewise be attended to. As local applications in the beginning of the malady, tepid ablution or the saturnine ointment, and afterwards, for the purpose of slight stimulation, the Ung. hyd. nitrati, are all that are required.

α. *P. crustacea*, milky scall, or tetter; (Plate XI. fig. 1.) Pustules commencing on the cheeks or forehead in patches; scabs often confluent, covering the whole face with a continuous incrustation. Found chiefly in infants during the period of lactation.

It is liable to considerable variation in its course; the discharge being sometimes profuse, and the surface red and excoriated; and at other times scarcely perceptible, so that the surface remains covered with a dry and brown scab. When the scab ultimately falls off, and ceases to be renewed, a red, elevated, and tender, cuticle, marked with deep lines, and exfoliating several times, is left

behind; differing from that which succeeds to Impetigo, inasmuch as it does not crack into deep fissures. Most commonly, however, the disease terminates favourably, though its duration is often long and uncertain. It sometimes suddenly puts on the appearance of cessation, and afterwards returns with severity. Sometimes it disappears spontaneously soon after weaning, or after the cutting of the first teeth; and sometimes it will continue from two or three months to a year and a half, or even longer. It is remarkable however, that, whatever excoriation may be produced, no permanent deformity ensues.

β. *P. galeata*, scalled head: pustules commencing on the scalp, in distinct, often distant, patches; gradually spreading till the whole head is covered as with a helmet; cuticle, below the scabs, red, shining, dotted with papillous apertures, oozing fresh matter; roots of the hair destroyed; contagious. Found chiefly in children, especially during dentition. (*Tinea, Alibert, Sauv. &c.*)

Sometimes a narrow border of hair is left uninjured. It is then called *ringworm of the scalp*; but has no affinity with ringworm, properly so called.

The first symptoms of the scalled head are a falling of some of the hair, and an unpleasant itching of the scalp; then arise distinct and distant clusters of small yellow pustules, which soon break, or are broken by the child's scratching them, and form scabs, which become thick and hard by accumulation. If the scabs are removed, however, the surface of the patches is left red and shining, but studded with slight elevated points, or papulæ, in some of which minute globules of pus again appear in a few days. By these repetitions of the eruption of *achores*, the incrustations become thicker, and the areas of the patches extend, often becoming confluent, if the progress of the disease be unimpeded, so as to affect the whole head. As the patches extend, the hair covering them becomes lighter in its colour, and sometimes breaks off short; and, as the process of pustulation and scabbing is repeated, the roots of the hair are destroyed, and at length there remains uninjured only a narrow border of hair round the head.

Such is the description of scalled head as it occurs in this country. In France we see much more violent symptoms; as the following description, taken from Alibert, sufficiently indicates. "The individuals affected with tinea, generally feel, at first, a pruritus, more or less violent, on the head. The scalp, on certain points of its surface, next becomes red, chaps, or even becomes a little tumefied. A swelling of the cervical glands sometimes accompanies the complaint, more rarely a head-ache. The itching daily increases; and pustules or vesicles are seen surrounded by an inflamed areola. In some cases no trace of ulceration can be perceived, a reddish viscid humour appearing to exude from the dilated mouths of the glandular follicles. Presently the hair becomes agglutinated by this viscid humour, which issues, slow after slow, resembling melted rosin, forming crust upon crust of scabby or scaly layers, horrible and disgusting to behold! Meantime a putrid sanies beneath corrodes the hairs even to their bulbs, destroys the neighbouring cellular tissue, and threatens the cranium itself. Some of those afflicted fall a prey to violent nocturnal pains; others into a state of emaciation which entirely arrests their growth. It is more especially when tinea is congenital, or its treatment neglected, that it commits such dreadful ravages. It is then that we see accessions form in the scalp; glandular swellings in the occiput, neck, shoulders, and armpits; immense enlargements of the ears; redness, lacrymation, irritation of the eye-lids; disgusting odour from the confluent pustules; falling of the hair; torpor and inaptitude of the intellects; defect of physical power; even of the generative process."

The disease seems to originate spontaneously in children of feeble and flabby habit, or in a state approaching to

marasmus, who are ill-fed, uncleanly, and not sufficiently exercised; but it is generally allowed, at least in this country, to arise chiefly from infection. The physicians of the Hôpital St. Louis, a very well filled depot for cutaneous diseases, assert that the contagious power of tinea have been much over-rated; and that it is often impossible to communicate by inoculation. The same authorities assert, that it is invariably hereditary. Porrigo galeata is confessedly a very difficult disease to cure.

With regard to the constitutional treatment, this is of the utmost consequence. It has appeared to us, that to the neglect of this circumstance in the treatment of the early stage of Porrigo most of those old and inveterate cases which are so often met with, are to be attributed. A recent author (Plumbe's Practical Treatise on Ringworm of the Scalp, 1821,) indeed, asserts the contrary; but we have had too many instances handed down to us of the most dangerous phlogoses caused by the repulsion, and cured by the appearance, of this eruption, to entertain the least concurrence in this opinion. The first stage of porrigo is evidently inflammation. It is, in most cases, that irritative kind of inflammation almost always connected with a bad state of general health. In the majority of cases, a strict attention to the diet and alvine discharges is all that is required. We have seen cases, however, in which it was also necessary to remove general plethora by small bleedings, a state of body which naturally increases in a great degree all inflammatory foci. The secretions of the kidneys should be most especially excited in *P. galeata*. The sympathy between the secretion of urine and of sweat is obvious enough: hence tercbinthinates have been found useful in porrigo. In the same stage much will depend on the local measures which are used. These should be (in the inflammatory stage) confined to the following: 1. The head should be frequently washed and well fomented with tepid water; the hair in some parts shaved; but, when fores are plentiful, carefully cut the loose hairs, and those which are quite loose may be taken out with a pair of pincers. 2. After the ablution, the head should be well dried with a soft cloth. 3. A mild ointment of spermaceti and suet to be spread on lint, and applied over the fore parts; a cap being placed over this, which must fit pretty tight; for pressure will do some good in this complaint. These little attentions, unimportant as they appear, are of the highest consequence in the treatment of Porrigo. As to how long these measures are to be persisted in, must be a matter entirely at the discretion of the practitioner. Certain it is, that most men err by stimulating too soon; hence, if no very great amendment took place, we should not depart from this plan too hastily; and, at all events, not while redness and extreme tenderness remained, nor until a dry and indolent state of the scab is sufficiently apparent. It is in this stage that stimuli are requisite: and of these the records of medicine furnish a large number. Most of these have in some cases cured Porrigo; but, like all medicines of this class, they are very uncertain in their operation. They must be used at first in small proportions, and may be gradually augmented to such an excess, that even a blister may ultimately be borne. The stimuli most in request are the mercurial ointments, as the ung. hydrargyri præcipitati, hyd. nitrico-oxydi, and especially of the hydrargyrus nitratus; those prepared with sulphur, tar, hellebore, and turpentine, and the unguentum elemi. To these may be added, on more dubious authority, preparations of mustard, staves-acre, black pepper, capficum, galls, rue, and other acrid vegetable substances. Lotions containing the sulphates of zinc and copper, or the oxymuriate of mercury, in solution, are occasionally beneficial. The more caustic substances are often extremely successful. A lotion containing from three to six grains of the nitrate of silver in an ounce of distilled water, has removed the disease. Touching the patches with the muriated tincture of iron, or with any of the mineral acids, slightly diluted,

in some cases removes the morbid cuticle, and the new one assumes a healthy action. The application of a blister, in like manner, sometimes effectually accomplishes the same end. Alibert recommends a mixture of equal parts of sulphur and charcoal incorporated with various proportions of cerate.

γ. *P. favosa*, honey-comb scall or tetter, (fig. 3.) Pustules common to the head, trunk, and extremities; peafized; flattened at the top; in clusters, often uniting; discharge fetid; scabs honey-combed, the cells filled with the fluid.

This disease begins with an eruption of large soft straw-coloured pustules. These are not in general globular, with a regularly-circular margin; but somewhat flattened, with an irregular edge, and surrounded by a slight inflammation. They occur on all parts of the body; sometimes on the scalp alone, and sometimes on the face, or on the trunk and extremities only; but most commonly, they spread from the scalp, especially from behind the ears, to the face, or from the lips and chin to the scalp, and occasionally from the extremities to the trunk and head. They are usually accompanied with considerable itching. Children from six months to four years of age are most liable to this eruption; but adults are not unfrequently affected with it.

The pustules, especially on the scalp, appear at first distinct, though near together; but on the face and extremities they generally rise in irregular clusters, becoming confluent when broken, and discharging a viscid matter, which gradually concretes into greenish or yellowish semi-transparent scabs. The disease extends, by the successive formation of new blotches, which sometimes cover the chin, or surround the mouth, and spread to the cheeks and nose; and on the scalp the ulceration ultimately extends, in a similar manner, over the whole head, with a constant discharge, by which the hair and moist scabs are matted together. Under the last-mentioned circumstances, pediculi are often generated in great numbers, and aggravate the itching and irritation of the disease. On the face, too, a similar aggravation of the symptoms is occasioned, in children, by an incessant picking and scratching about the edges of the scabs, which the itching demands, and by which the skin is kept sore, and the ulceration extended; while the scabs are thickened into irregular masses, not unlike a honey-comb, by the accumulating and concreting discharge. On the lower extremities considerable ulcerations sometimes form, especially about the heels, and roots of the toes; and the ends of the toes are sometimes ulcerated, the pustules arising at their sides, and even under the nails.

The ulcerating blotches seldom continue long, or extend far, before the lymphatic system exhibits marks of irritation, probably from the acrimony of the absorbed matter. When the scalp or the face is the seat of the disease, the glands on the sides of the neck enlarge and harden, being at first perceived like a chain of little tumours, lying loose under the skin; and the submaxillary and parotid glands are often affected in a similar manner. At length some of them inflame, the skin becomes discoloured, and they suppurate slowly, and with much pain and irritation. The eruption, in these situations, is likewise often accompanied by a discharge from behind the ears, or from the ears themselves, with a tumid upper lip, and inflammation of the eyes, or obstinate ulcerations of the edges of the eyelids. When the eruption appears on the trunk, although the pustules there are smaller and less confluent, and the scabs thinner and less permanent, the axillary glands are liable to be affected in the same way.

The discharge from the ulcerated surfaces, especially on the scalp, when the crusts and coverings are removed, exhales an offensive rancid vapour, not only affecting the organs of smell and taste, but the eyes, of those who examine the diseased parts. The acrimony of the discharge is also manifested by the appearance of inflammation,

tion, followed by pustules, ulceration, and scabbing, on any portion of the sound skin, which comes into frequent contact with the parts diseased: thus, in young children, the breast is inoculated by the chin, and the hands and arms by contact with the face. The arms and breast of the nurse are also liable to receive the eruption in the same manner; but it is not so readily communicated to adults as to children.

The *P. favosa* requires the exhibition of the same alteratives, internally, as have been recommended for the cure of the *P. crustacea*, in doses proportioned to the age and strength of the patient. The diet and exercise should also be regulated with care: all crude vegetables and fruits on the one hand, and stimulating substances, whether solid or fluid, on the other, should be avoided; and milk, puddings, and a little plain animal food or broths, should be alone recommended. If the patient be of a squalid habit, or suffers under any strumous affection, the bark and chalybeates, or the solution of muriate of barytes united with the former, will contribute materially to the restoration of health. There is commonly some degree of inflammation present, which contra-indicates the use of active stimulants externally. The unguentum zinci, or the ung. hydrargyri præcipitati albi, mixed with the former, or with a saturnine ointment, will be preferred as external applications, especially where the discharge is copious: and the ointment of the nitrate of mercury, diluted with about equal parts of simple cerate and of the ceratum plumbi superacetatis, is generally beneficial; but the proportion of the unguentum ceræ must be varied according to the degree of inflammation. A poultice is often useful for the larger ulcerations.

A severe modification of this malady sometimes attacks the face of adults, but is easily removed by a course of purges and by emollient poultices.

δ. *P. lupinosa*, dry tetter: pustules minute, in small patches, mostly commencing on the scalp; patches terminating in dry delving scabs, resembling lupine-seeds; the interstices often covered with a thin whitish exfoliating incrustation. Found chiefly in early life.

This requires the same constitutional treatment as the preceding varieties. Its local treatment must also be the same, varying however the form of these to a due relation with the intensity of the disease.

ε. *P. furfuracea*, scurfy tetter, (see fig. 2. Plate XI.) Pustules very minute, with little fluid; seated on the scalp; terminating in scurfy scales. Chiefly found in adults.

This variety differs from the others in the greater dryness of its exfoliation. This aridity is often so great as to render the complaint likely to be mistaken for Lepriasis, or some other of the *scaly* cutaneous desquations. From them it may be distinguished by this circumstance; viz. that *scaly* diseases are not preceded by moist or pustular eruption; there is no moisture except what arises from rupture of vessels, produced by scratching; the hair is not detached; neither are they infectious.

The *Porrigo furfuracea* is often accompanied by enlargement of the glands of the throat. The treatment is the same as the other varieties of *Porrigo*; viz. to repress vascular action in the inflammatory stage, and excite the secretions in the latter; which latter plan may be sooner put in force in this than in another variety of *Porrigo*. Dr. Good gives, as a last variety,

ζ. *P. areata*. This disease, which he supposes bears some affinity to the *Area* of Celsus, the *Trichosis area* of this system, or the *Porrigo decalvans* of Bateman, is inserted because "the author had seen numerous instances of it, and often simultaneously in the same family, as though contagious." It is thus defined: "Clusters of very minute pustules seated on the scalp, in circular plots of baldness, with a brown or reddish furfuraceous surface."

3. *Ecpyesis ethyma*: pustules large; distinct; distant; sparingly scattered; seated on a hard circular red base;

terminating in thick, hard, dark-coloured, scabs. There are three varieties; all invariably connected with constitutional disturbance.

α. *E. vulgare* (Plate XI. fig. 4.) is the slightest form of the disorder, and consists of a partial eruption of small hard pustules, on some part of the extremities, or on the neck and shoulders, which is completed in three or four days. In the course of a similar period, the pustules successively enlarge, and inflame highly at the base, while pus is formed at the apex; and in a day or two more they break, pour out their pus, and afterwards a thinner fluid, which speedily concretes into brown scabs. In a week more, the soreness and inflammation subside, and the scabs soon afterwards fall off, leaving no mark behind.

β. *E. infantile* occurs in weakly infants, during the period of lactation, when an insufficient nutriment is afforded them. The pustules are, in appearance, the same as those of the preceding variety, and go through similar stages of progress in the same time. But the disorder does not terminate here: fresh eruptions of *phlyzacia* continue to rise in succession, and to a much greater extent than in the *E. vulgare*, appearing not only over the extremities and trunk, but on the scalp, and even on the face. Hence the duration of the eruption is much greater than in the preceding variety, being sometimes protracted for several months. Yet the patients usually remain free from fever, and the pain and irritation seem to be inconsiderable, except when a few of the pustules become very large and hard, with a livid base, and ulcerate to some depth: in this case, also, a slight whitish depression is permanently left on the seat of the pustule.

γ. *E. luridum*, (fig. 5.) This differs from the preceding varieties in the dark red colour of the base of the pustules, and their hard and elevated condition. These pustules are moreover of a larger size. The eruptions, both in the growth of the pustules and in the subsequent ulceration, scabbing, and healing, is very slow in its progress. This variety is chiefly confined to advanced age. All the varieties of *Ethyma* are cured by constitutional treatment. In the two first varieties, improvement in the diet of the patient and gentle purges and alteratives, will in a short time effect a cure. In the *E. luridum*, a more comprehensive system of practice must be embraced; and, viewing the disease as symptomatic of a broken-up constitution, our endeavours must be directed to the general state of health, and the removal of the cachectic diathesis. We have already sufficiently treated of this under *Dyspepsia*.

δ. *E. cachecticum*. Most authors describe another variety of *Ethyma*. It is omitted by Dr. Good, probably because it may be doubted whether it be not a consequence of syphilitic or other morbid poison. We are inclined to think it is; but, according to Dr. Bateman, this is not invariably the case. It is thus described by that author: "The disorder usually commences with a febrile paroxysm, which is sometimes considerable. In the course of two or three days, numerous scattered pustules appear, with a hard inflamed base, sometimes first on the breast, but most commonly on the extremities: and these are multiplied day after day by a succession of similar pustules, which continue to rise and decline for the space of several weeks, until the skin is thickly studded with the eruption, under various phases. For, as the successive pustules go through their stages of inflammation, suppuration, scabbing, and desquamation, at similar periods after their rise, they are necessarily seen under all these conditions at the same time; the rising pustules exhibiting a bright red hue at the base, which changes to a purple or chocolate tinge, as the inflammation declines, and the little laminated scabs are formed upon their tops: when these fall off, a dark stain is left upon the site of the pustules. In different cases the eruption varies in its distribution: it is sometimes confined to the extremities, where it is either generally diffused, or clustered in irregular patches; but it frequently extends also over the trunk,

trunk, face, and scalp. The pustules which occupy the breast and abdomen are generally less prominent than those on the face and arms, contain less matter, and terminate rather in scales than in scabs. The febrile symptoms are diminished, but not removed, on the appearance of the eruption; for a constant erethism or hectic continues during the progress of the disease. It is accompanied by great languor, and by much depression both of the spirits and muscular strength; by headach and pains of the limbs, which are described as rheumatic; and by restlessness and impaired digestion, with irregularity of the bowels. There is commonly also some degree of ophthalmia, affecting both the conjunctiva and the tarfi; and the fauces are the seat of a slow inflammation, which is commonly accompanied by superficial ulcerations." The only effectual treatment seems to be to support the constitution by strict dietetic regulations, exercise, &c. and by gentle stimulants; as bark, sarsaparilla, and the mineral acids, &c. and so on till the disease is worn out. It sometimes lasts for several months. We present our readers, in fig. 1. and 2. Plate XII. with a representation of its most common forms.

4. *Ecpyesis scabies*, the itch: eruption of minute pimples, pustular, vesicular, and papular; intermixed or alternating; intolerable itching; terminating in scabs. Found chiefly between the fingers or in the flexures of the joints. (*Scabies*, *Cel. Sauv. Vog. Sag. Bateman.* Pfora, *Linn. Cull. Parr.*) There are five varieties of this disease.

α. *Sc. papularis*, the rank itch: eruption of miliary aggregate pimples; with a papular slightly-inflamed base, and vesicular apex; pustules scantily interspersed; tips, when abraded by scratching, covered with a minute, globular, brown scab.

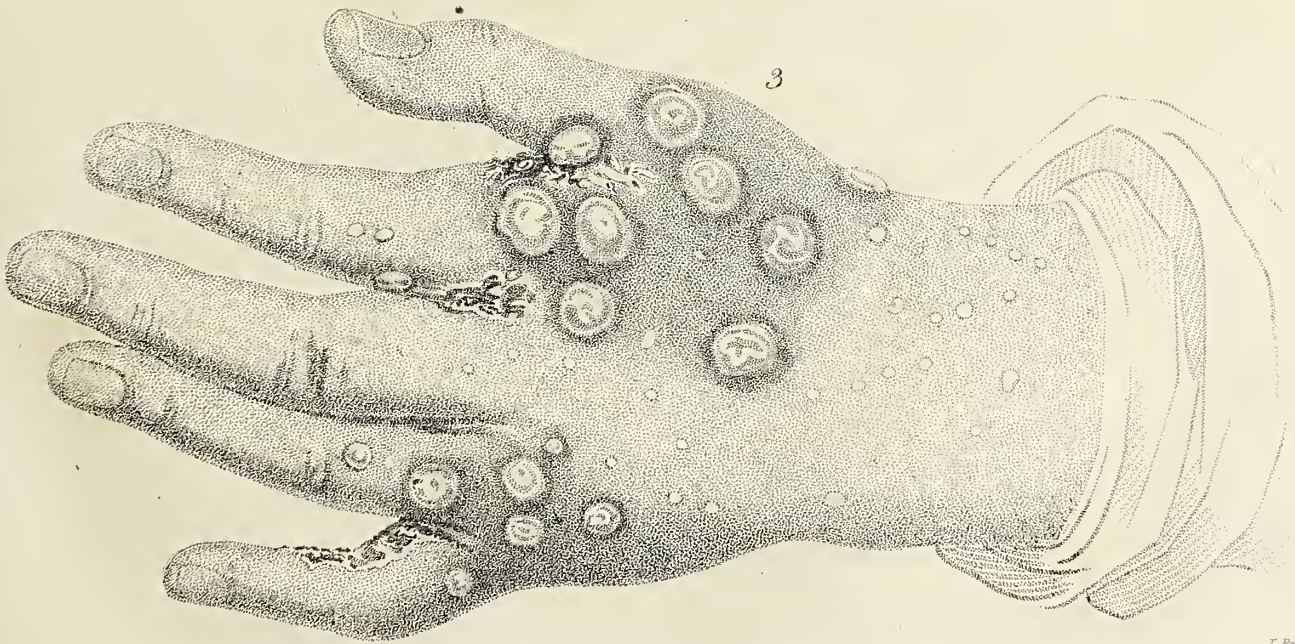
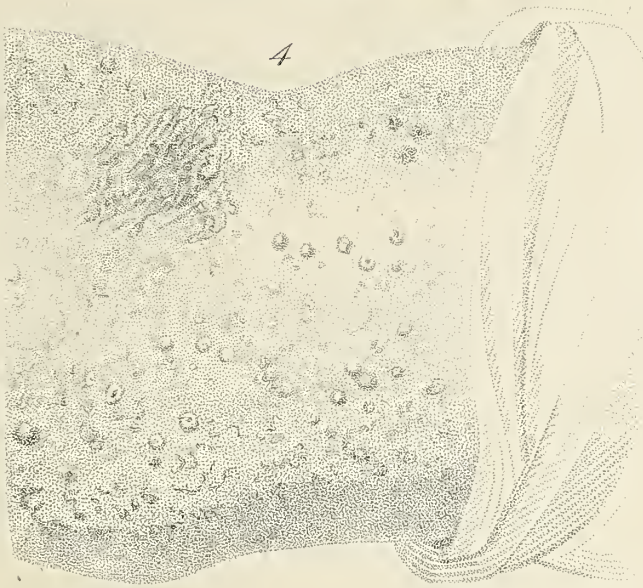
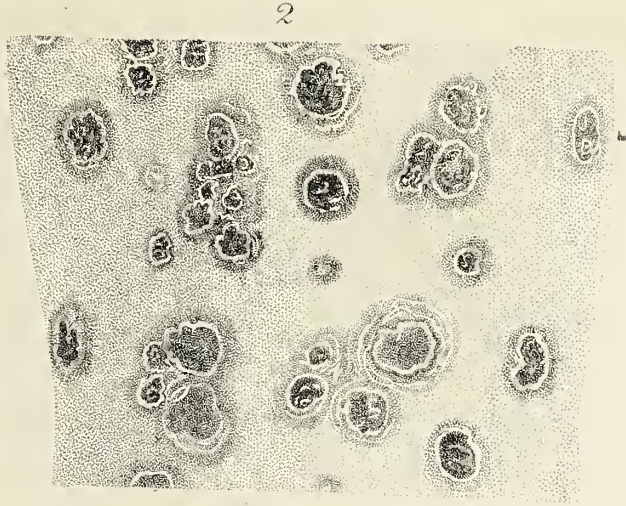
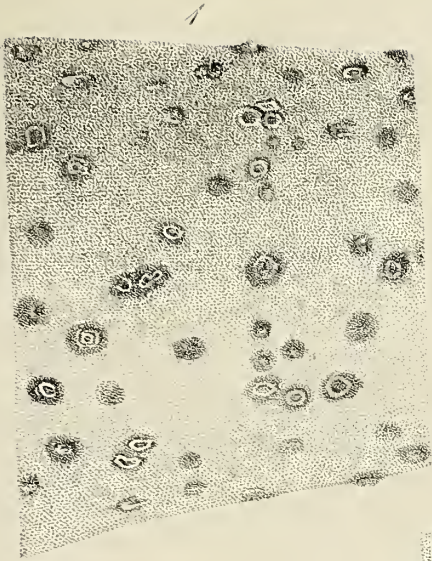
This form of itch is liable to be confounded with Lichen or Prurigo. It may be distinguished from the former by the eruption itself; for the unbroken elevations in *Sc. papularis*, when carefully examined, are found to be vesicular, and not papular; they are often intermixed, in particular situations, with pustules; and, when they break, are succeeded by scabs; whereas in Lichen, the papulæ terminate spontaneously in scurfy exfoliations. In *Scabies*, the eruption is unconnected with any constitutional or internal disorder, and the itching is severe: but in Lichen, there is commonly some constitutional affection, and a tingling sensation, as well as itching. The highly-contagious nature of *Scabies* will, in many cases, have already manifested itself, and remove all doubt; for the Lichen is not thus communicable. In Prurigo, the papulæ, where no friction has been applied, retain the usual colour of the skin, are commonly flatter, or less acuminate, and present no moisture or scab, except when their tops have been forcibly abraded; they are not particularly numerous in the parts above mentioned; and they remain long distinctly papular, without showing any contagious property.

β. *Sc. vesicularis*, (*Sc. lymphatica*, *Bateman.*) Watery itch: eruptions of larger and more perfect vesicles, filled with a transparent fluid, with an uninfamed base; intermixed with pustules; at times coalescing and forming scabby blotches. The vesicles arise with intense itching, chiefly round the wrists, between the fingers, on the back of the hands, and on the feet and toes: they often occur also about the axillæ, the hams, the bend of the elbows, and fossa of the nates, where they are intermixed with pustules; but they do not frequently appear, like the papular species, over the breast and epigastrium, nor on the thighs and upper parts of the arms. In a day or two the vesicles break; and some of them heal under the little scab that concretes upon them. But others inflame, and become pustules, which discharge at length a yellow matter, and extend into small ulcerated blotches, over which a dark scab is ultimately formed. So that, during the progress of the eruption, all these appearances are intermixed with each other: the vesicles, and pustules,

the excoriated blotches discharging pus, the minute dry scabs, and the larger ones succeeding the ulceration, may be observed at the same time. This circumstance constitutes one of the points of diagnosis between this and other vesicular diseases. Of these, however, the Herpes and Eczema, especially the latter, are alone liable to be confounded with *Scabies vesicularis*. The Herpes differs from *Scabies* in the irregularity of its course and termination, and in the arrangement of its vesicles in clusters, which are commonly not numerous, and appear on those parts which *Scabies* is not very apt to attack. The most difficult diagnosis relates to some of the varieties of Eczema, which closely resemble this, and sometimes the former variety of *Scabies*; so that it is not so much from the mere appearances of the eruption, as from the consideration of the collateral circumstances, that a decision is to be obtained. The Eczema can often be traced to distinct sources of irritation affecting the skin, such as exposure to the solar rays, or to great heat, and to the application of acrid substances, such as lime, sugar, mercury, cantharides, &c. It sometimes becomes inflamed after the vesicles have discharged their lymph, but it does not produce the large phlyzacious pustules; and, although the itching is sometimes intense, yet there is commonly a tingling and smarting pain with Eczema, that does not belong to *Scabies*: nor is it ever, like the latter, communicated by contagion.

γ. *Sc. purulenta*, the pocky itch, (see fig. 3. Plate XII.) This eruption consists of distinct prominent yellow pustules, which have a moderate inflammation round their bases, and which mature and break in two or three days, and then ulcerate, with increasing pain and inflammation. These pustules commonly appear first, and attain the largest size, on the hands and feet, especially about the knuckles and roots of the toes, between the fingers, and particularly between the forefinger and thumb, and round the wrists. In these situations, the pustules often exceed two lines in diameter, and assume a prominent globular form. If the disease continue a few weeks, the pustules begin to appear on the other parts of the body which *Scabies* usually attacks, especially about the axillæ, on the back and shoulders, and on the arms and thighs near the joints of the knee and elbow, in the fossa of the nates, and sometimes, though of a smaller size, even about the epigastrium. In several of these situations, where the pustules are largest and numerous, they coalesce, and form irregular blotches, which ulcerate to some extent, with hardness and elevation of the surface; but at length hard and dry scabs are formed, which adhere tenaciously for a considerable time.

The majority of the cases of *Scabies purulenta* occur between the age of seven years and the period of puberty. It cannot be easily mistaken for Impetigo, when it occurs in patches, in consequence of the large size, the greater prominence, and comparatively small number, of its pustules; not to mention the absence of the intense itching, and of contagion, in the former. From the *Porriago favosa* affecting the extremities, it will be distinguished chiefly by its situations about the fingers, axillæ, fossa natum, and flexures of the joints, and by the total absence of the eruption from the face, ears, and scalp; by the nature of the discharge; and by the thin, hard, and more-permanent, scab, which succeeds, instead of the soft, elevated, semi-transparent, scab, formed by the viscid humour of the favi. The only other disease, with which the *Scabies purulenta* has any affinity, is the Ecthyma: but the hard, elevated, vivid red or livid base, which surrounds the pustules of Ecthyma, their slow progress both towards maturity and in the course of suppuration, the deep ulceration, with a hard raised border, and the rounded imbedded scab, which succeed, as well as the distinct and separate distribution of them, will afford the means of discrimination; to which the incessant itching and the contagious property of *Scabies*, may be added.



1. 2. *Ecthryma cachecticum*. 3. *Scabies purulenta*. 4. *I. exotica*.

Engraved for the Encyclopædia Londinensis 1822.

J. Pass sc

δ. *Sc. complicata*; (*Sc. cachectica*, *Bateman.*) Complicated itch: eruption complicated of pustular, vesicular, and papular, pimples co-existing; spreading widely over the body; occasionally invading the face; sometimes confluent and blotchy.

ε. *Sc. exotica*, mangy itch; (see fig. 4.) eruption chiefly of numerous rank pustules, with a hard inflamed base, rendering the skin rough and brownish: itching extreme: abrasion unlimited from excessive scratching. This is produced by handling mangy animals. Several of the varieties found also, occasionally, as sequels upon severe small-pox, or other causes of constitutional debility.

It was formerly supposed that the presence of a minute insect under the skin was the cause of Scabies; it is now generally understood, that, though this insect is sometimes seen, it is so often wanting that it can merely be adventitious. We have given a description and figure of it under the article *ACARUS*, vol. i. p. 51.

Sulphur is a specific for the cure of itch. There is good reason to believe, however, that it is not the only specific. Be this as it may, it is the most effectual and innocent substance we know of. It is usually given in milk internally, and used externally as an ointment. The best mode of applying the sulphur appears to be, to make an ointment of three parts of lard to one of sulphur, which may be scented by any thing that is most agreeable. This is to be most diligently rubbed in before the fire at night; and the patient, having a linen dress prepared which must fit close to the skin, is to put it on, get into bed, and remain there till the following night, when the friction is to be resumed. Another night being spent in bed, the patient is said to arise, in most cases, perfectly free from the Scabies. If however the eruption is not much improved in its appearance, the same process must be repeated. The above plan is given on the authority of one of the first practitioners in this city.

In the severer and more complicated forms of itch, it may sometimes be necessary to premise constitutional treatment, and sedative applications to the fore surface, before the administration of sulphur is begun upon; and, even then, this precaution should be taken some time prior to its external use.

Genus VII. *Malis*, [Gr. from the Heb. מלש, to lay eggs.] Cutaneous Vermination; the cuticle, or skin, infested with animalcules. There are five species, and numerous varieties.

1. *Malis pediculi*, lousiness: cuticle infested with lice, depositing their nits or eggs at the roots of the hair: troublesome itching. Two varieties.

α. *P. humani*: infested with the common louse; chiefly inhabiting the head of uncleanly children, where it produces a greasy scurf, or other filth; and sometimes exulceration and porrigo: occasionally migrates over the body.

β. *P. pubis*. "Infested with the *morpio*, or crab-louse; found chiefly on the groins and eye-brows of uncleanly men: itching extreme, without ulceration." Destroyed by mercurial ointments.

2. *Malis pulicis*, flea-bites: cuticle infested with fleas; often penetrating the cutis with their bristly proboscis, and exciting pungent pain; eggs deposited on or under the cuticle. Two varieties.

α. *P. irritantis*; infested with the common flea, with a proboscis shorter than the body: eggs deposited on the roots of the hair and on flannel.

β. *P. penetrantis*, chiggers: infested with the *chigoe*, or West-Indian flea; with a proboscis as long as the body: often penetrating deeply into the skin, and lodging its eggs under the cuticle, particularly of the feet: producing malignant, occasionally fatal, ulcers. The *chigoe* requires careful extraction.

3. *Malis acari*: cuticle infested with the *tick*; itching harassing, often with smarting pain. Three varieties.

VOL. XIX. No. 1309.

α. *A. domestici*. "Observed on the head in considerable numbers." *Young*.

β. *A. scabiei*. Infested with the itch-tick: burrowing under the cuticle, in or near the pustules or vesicles of the scabies, in those affected.

γ. *A. autumnalis*, harvest-bug-bite: infested with the harvest-bug; less in size than the common mite; inflicting its bite in the autumn, and firmly adhering to the skin: itching intolerable, succeeded by glossy wheals.

4. *Malis filariae*: skin infested with the guinea-worm; winding and burrowing under the cuticle, for the most part, of the naked feet of West-Indian slaves; severe itching; often succeeded by inflammation and fever. See *FILARIA*, vol. vii.

5. *Malis gordii*: skin infested with the hair-worm; chiefly insinuating itself under the cuticle of the back or limbs of infants; producing pricking pains, emaciation, at times convulsions. See *GORDIUS*, vol. viii.

"Though described by writers of great credit, the nature of the disease is uncertain. By some authors the contained fibrils seem to be regarded as a preternatural production of hairs; but the greater number, and among the rest Ambrose Paré, decidedly ascribe to them a living principle. It appears therefore to be a species of the *Gordius*, or hair-worm; some of which infest other animals in a like manner; and especially the *Cyprinus alburnus*, or bleak, which, at the time, appears to be in great agony." *Good's Nosology*, p. 496.

Genus VIII. *Ecphyma*, [from ἐκφύω, to draw out; in contradistinction both to *Phyma*, an inflammatory tumour, and *Emphyma*, a tumour without inflammation, originating below the integuments.] Cutaneous excrescence; superficial, permanent, indolent, extuberance; mostly circumscribed. (*Phymatosis*, *Young*.) Four species.

1. *Ecphyma caruncula*, caruncle: soft, fleshy, often pendulous excrescence of the common integument. Found over the surface generally. Found also, occasionally, as a sequel of lues, about the arms and sexual organs. It derives, in many instances, a particular name from its shape, or position; as *ficus*, when fig or raisin shaped; *encanthis*, when seated on the canthus or angle of the eye.

2. *Ecphyma verruca*, wart: firm, harsh, arid, insensible extuberance of the common integuments. Found chiefly on the hands. Three varieties.

α. *V. simplex*; simple and distinct: sessile or pedicel.

β. *V. lobosa*; full of lobes and fissures.

γ. *V. confluens*; in coalescing clusters.

Warts may, according as they are large or small, be destroyed by caustic, ligature, or the knife. When the latter is used, caustic must be applied for some time after, to destroy the roots of the morbid growth. Warts, as Dr. Good tells us, are destroyed in Sweden by the *Gryllus verrucivorus*, or wart-eating grasshopper, which has green wings spotted with brown. The common people catch it for this purpose; and it is said to operate by biting off the excrescence, and discharging a corrosive liquor on the wound.

3. *Ecphyma clavus*, corn: roundish, horny, cutaneous, extuberance; with a central nucleus sensible at its base. Found chiefly on the feet and toes from the pressure of ill-formed shoes.

The most efficient way to destroy a corn is to remove the exciting cause; viz. pressure. This, however, is no easy matter; because all shoes at present made are quite of an opposite form to the natural figure of the human foot; and, if large shoes be worn for a time, they only aggravate the distress that ensues when a tight one is put on. Frequent bathing with warm water affords great relief to the uneasy sensations of a corn; and, when well soaked, the top of the corn, which, from its projection, of course renders the pressure on it greater, may be cut

off. Moreover, when sufficiently softened by warm-bathing, corns may be removed by gently picking them round their circumference with a needle till they can be pulled out without giving pain. Sometimes a little diachylon plaster laid on a corn keeps it soft, and promotes its dissolution. Cutting, as commonly practised, does harm. These growths are sometimes connected with the periosteum, and hence arise those deep-seated pains in the bones which often attend them.

4. *Ecphyma callus*: callous extuberant thickening of the cuticle; insensible to the touch. Found chiefly on the palms of the hands and soles of the feet as the consequence of hard labour.

Genus IX. *Trichosis*, [from *τριχῆς*, the hair.] Morbid organization or deficiency of hair. Eight species.

1. *Trichosis setosa*: hairs of the body thick, rigid, and bristly.—Thrown off and renewed every autumn: six lines long, two or three thick, erect: five sons affected as the father; *Phil. Transf.* vol. v. No. 424. See also *Journ. de Med.* Mar. 1756. *Paullini*, Cent. I. Obf. 31.

2. *Trichosis plica*, matted or plaited-hair: hairs vascularly thickened; inextricably harled, and matted, by the secretion of a glutinous fluid from their roots; contagious. Usually, but not always, appearing in, or confined to, the hairs of the scalp.—In the beard, *Eph. Nat. Cur.* Dec. II. ann. viii. 94.—Hairs of the cuticle, *Id.* Obf. 71.—Of the pudendum, *Id.* Dec. I. ann. iii. 220. *Paullini*, Cent. I. Obf. 77.

Sometimes preceded by hemicrania, or other constitutional affection; and occasionally a sequel of psoriasis. In Poland it appears to be endemic; but it is not peculiar to that country. Notwithstanding the popular error by which this practice is opposed, the best way of getting rid of this dirty disease, is to shave off the hair, and wash the head regularly and repeatedly. The same means may be used for the cure of the local ulceration which scratching is apt to induce in this disease, as those recommended for *Porriago*.

3. *Trichosis hirsuties*: growth of hairs in extraneous parts, or superfluous growth in parts common. The most frequent variety is that of bearded women.

4. *Trichosis distrix*: hairs of the scalp weak, slender, and splitting at their extremities.

5. *Trichosis poliosis*: hairs prematurely grey, or hoary.

6. *Trichosis atrix*, baldness: decay and fall of the hair. Three varieties.

α. *A. simplex*: hairs of the scalp of a natural hue; but gradually dying at the bulbs, or loosened by relaxation of the integument.

β. *A. calvities*; hair gray or hoary; baldness chiefly on the crown of the head and confined to it. Mostly common to advanced age.

γ. *A. barbæ*; decay and fall of the beard.

7. *Trichosis area*; (*Porriago decalvans*, *Bateman*.) Patches of baldness without decay or change of colour in the surrounding hair; exposed plots of the scalp glabrous, white, and shining; sometimes spreading and coalescing, rendering the baldness extensive. The hair will often be reproduced under the regular and continued use of stimulating embrocations. *Dr. Good* gives two varieties, taken from *Celsus*.

α. *Diffuens*; bald plots of an indeterminate figure; existing in the beard as well as in the scalp: obstinate of cure. Common to all ages.

β. *Serpens*; baldness commencing at the occiput, and winding in a line, not exceeding two fingers breadth, to each ear, sometimes to the forehead: often terminating spontaneously. Chiefly limited to children.

8. *Trichosis decolor*: hair of the head of a preternatural hue.

α. *Cærulea*; of a blue colour. *Ephem. Nat. Cur.* Dec. II. an. iv. App. p. 203. An. vi. obf. 226.

β. *Denigrata*; changed from another hue to a black. *Paullini*, Cent. III. Obf. 59: the sequel of a fever. *Bo-*

relli, Cent. III. Obf. 2; from exsiccation.—*Schenk*, *Observ. Med.* i. 4; from terror.—*Schurig*, *Spermatol*: from white to black; the colour of the beard changed also.

γ. *Viridis*. Of a green colour. *Paullini*, Cent. I. Obf. 93. *Bartholin*. *Hist. Anat.*

δ. *Variegata*. Spotted, like the hair of the leopard. *Paullini*, Cent. IV. obf. 67. *Ephem. Nat. Cur.* Dec. III. ann. iii. Obf. 184.

The hair occasionally grows, and has sometimes changed its hue, after death. *Eph. Nat. Cur.* *passim*.

Genus X. *Epichrosis*, [i. e. a spotted or coloured surface.] Simple discoloration of the surface. (*Spilofis*, *Young*.) Six species.

1. *Epichrosis leucasmus*, (*Vitiligo*, *Bateman*.) White, glabrous, shining, permanent spots, preceded by white transitory elevations or tubercles of the same size; often coalescing, and creeping in a serpentine direction; the superincumbent hairs falling off, and never re-sprouting. Common to the surface; but chiefly found about the face, neck, and ears.

There is no considerable constitutional disorder combined with this affection; but it has proved exceedingly unmanageable under the use of both internal and external medicines. The mineral acids internally, and the application of diluted caustic and spirituous substances externally, have been chiefly employed, but with little obvious effect.

2. *Epichrosis spilus*, mole: brown permanent circular patch; solitary; sometimes slightly elevated, and crested with a tuft of hair.

3. *Epichrosis lenticula*, freckles: cuticle stigmatized with yellowish-brown dots, resembling minute lentil-seeds; gregarious; often transitory. Found chiefly on the face, neck, and hands, of persons possessing delicate constitutions, and red hair. When of a larger size, the Greeks called them *phaciæ* (*φακίαι*). *Cels.* VI. 5.

4. *Epichrosis ephelis*, sun-burn: cuticle tawny by exposure to the sun; often spotted with dark freckles, confluent or corymbose; disappearing in the winter.

5. *Epichrosis aurigo*: cuticle saffron-coloured, without apparent affection of the liver or its appendages; colour diffused over the entire surface; transient: chiefly in new-born infants.

6. *Epichrosis pœcilia*: cuticle marbled generally, with alternate plots or patches of black and white. *Blumenbach* gives examples from a Tartar tribe, whose skin was naturally spotted like the leopard's. *De Generis Humani varietate nativa*.

Chiefly found among Negroes, from an irregular secretion or distribution of the pigment which gives the black hue to their rete mucosum. In Albinos, whether among blacks or whites, the secretion appears to be entirely suppressed from constitutional debility or other defect. The subjects of this disease are commonly called *spotted* or *pye-balled negroes*.

The different hues of black, copper-coloured, olive, and red, by which different nations are distinguished in different parts of the world, cannot be regarded as diseases. They are as natural to them as a fair complexion to an European, and only constitute distinct features in the different varieties of the human race. They are, however, regarded as diseases by *Plenck*, who has entered them in his class *MACULÆ*, under the generic terms of *rubedo cutis*, *nigredo cutis*, and *albor cutis*; by the last intending, not the inhabitants of Europe or Asia Minor, but Albinos, or those included under the genus *Alphosis* of the present system.

Some of these natural, and many morbid, discolorations have often been found relieved by cosmetics; as that of *Homburg*, which is a dilute solution of oxymuriate of mercury, with a mixture of ox-gall. *Hartmann's* cosmetic was a simple distillation of arum-root in water. If the hands be deeply discoloured, they may be whitened by being exposed to the fumes of sulphur. In the American

rican states, a black has occasionally been known to have the whole of the colouring pigment absorbed and carried off during a fever, and to rise from his bed transformed into a white man. See the same subject treated by M. Bose, Pr. de Mutato per Morbum colore corporis humani, Lipsi. 1785. Büchner relates the case of a man who, on the contrary, on recovery from a severe fever had his face tinged with a black hue; probably from a morbid secretion and deposit of a black pigment along with the rete mucosum of the face. Plenck asserts that he once saw a man with a green face, the right side of the body black, and the left yellow, produced by previous disease.

CLASS VII. TYCHICA, [i. e. accidental; from τυχη, a fortuitous event, a case that rarely happens.]

FORTUITOUS LESIONS OR DEFORMITIES.

The whole of this Class is contained under the articles MONSTER and SURGERY; fortuitous lesions under the latter, and deformities under the former. We have only therefore, in this place, in order to render our Classification complete, to give Dr. Good's enumeration of the orders, genera, and species.

Order I. APALOTICA, [from απαλοτης, softness.] Disorders affecting the Soft Parts. The organization of the soft parts injured or interrupted by violence or by over-exertion. This order contains five genera.

Genus I. *Tresis*, [i. e. a wound, or perforation.] Forcible solution of continuity in a soft part, commencing externally. There are four species.

1. *Tresis vulnus*, a wound. Of this there are four varieties; as the wound may be either a simple cut, or lacerated, or deep, or contused, as a gunshot or splintery wound.

2. *Tresis punctura*, a puncture. Three varieties.
 α. *P. simplex*; simple division by a sharp piercing instrument.

β. *P. incuspidata*; the point of the instrument broken off, and remaining in the course of the puncture.

γ. *P. venenata*; the pointed instrument loaded with an acrid or poisonous material; as the arrows of barbarians with the lama or ticusas; the fang of the tarantula and several other spiders; the sting of the wasp, hornet, or scorpion.

3. *Tresis excoariatio*: the substance of a soft part abraded at its surface. Two varieties.

α. *E. simplex*; confined to the skin; chiefly produced by friction.

β. *E. complicata*; deeper than the integument, with contusion, or loss of subjacent substance.

4. *Tresis caufis*, a burn.

Genus II. *Thlasma*, [from θλαω, to bruise.] Forcible derangement in the structure of a soft part, without division of the external integument. Three species.

1. *Thlasma concussio*, concussion, without extravasation of blood.

2. *Thlasma contusio*; external compression; with extravasation of blood, and discolouration of surface.

3. *Thlasma stremma*, a strain, or wrench.

Genus III. *Rhegma*, [from ρηγνυμι, to break.] Laceration. Four species.

1. *Rhegma ligamentare*; laceration of a ligament.

2. *Rhegma musculare*; of a muscle or its tendon.

3. *Rhegma vasculare*; of a blood-vessel.

4. *Rhegma viscerale*; of a viscus.

Genus IV. *Hernia*, [from ἕρως, a branch.] Rupture. Seven species.

1. *Hernia inguinalis*, rupture from the groin. Four varieties. α. *Intestinalis*; β. *Omentalis*; γ. *Duplicata*; and δ. *Congenita*.

2. *Hernia femoralis*, femoral or crural rupture. This

admits of an intestinal, omental, or duplicate, variety, as in the preceding species.

3. *Hernia umbilicalis*, umbilical rupture. Admits of three varieties, as the protrusion may be of the stomach, liver, or spleen.

4. *Hernia ventralis*, ventral rupture. Varied as in the preceding species, and the varieties distinguished by the same names.

5. *Hernia ischiatica*, hernia of the foramen ovale.

6. *Hernia vesicalis*, rupture of the urinary bladder. Two varieties.

α. *Simplex*; the naked bladder alone protruding.

β. *Complicata*; accompanied with a portion of intestine or omentum.

7. *Hernia diaphragmatica*, protrusion of a portion of intestine into the chest through an aperture in the diaphragm.

Genus V. *Enthesis*, [from ενθημι, to put in.] Irritation or obstruction of a natural passage by the introduction of an improper material. Five species.

1. *Enthesis œsophagea*: improper material obtruded into the œsophagus.

The more common substances are hairs, small feathers, fish-bones, fruit-stones, and various pieces of money. These have often remained fixed for a very long time; and have occasionally been found to migrate to very remote parts. A needle has continued in the œsophagus for nine years before it was loosened and discharged; *Kehring*, Specil. Anat. obs. 42. A fish-bone, after long obstruction, worked its way through the substance of the œsophagus, and was at length thrown out at the cutis; *Arculari*, *Practica*, cap. 57. The point of a sword, for thirty years buried in the eye, was at last ejected by the palate; *Hoechlietter*, Dec. VI. cas. 9. The œsophagus has sometimes been large enough to allow a half-crown to pass without injury, which has been evacuated by the rectum. A half-crown piece of this kind is in Dr. Hunter's museum. See also *Baillie's Morb. Anat.* for several other curious examples.

2. *Enthesis ventricularis*; improper material swallowed into the stomach. Two varieties.

α. *Mechanica*; hard and indigestible substances; as a knife, a nail, pieces of money, a multitude of fruit-stones.

β. *Venenata*; poisonous substances, vegetable, mineral, or chemical. See POISON.

3. *Enthesis intestinalis*; improper material lodged in the intestinal canal. Occasionally discharged by an abscess at a distance; sometimes, when pointed and slender, as pins or needles, migrating to a remote organ. See *Phil. Trans.* 1768-9. *Lond. Med. Journ.* iv. 77. vi. 36, 401. and *xlvi.* 389.

4. *Enthesis trachealis*: improper material lapsed or inhaled into the trachea. Two varieties.

α. *Mechanica*; impeding the passage.

β. *Mephitica*; noxious to the respiration.

5. *Enthesis urethralis*: foreign substance broken in the urethra, or dropped from it into the bladder. Chiefly fragments of bougies, improperly manufactured, or continued to be employed by the patient after being worn out.

Order II. STEREOTICA, [from στερεος, hard, firm.] Disorders affecting the Hard Parts. The continuity or connexion of the hard parts impaired or interrupted by violence or over-exertion. This order has four genera.

Genus I. *Catagma*, [i. e. a fracture.] Forcible division of a bone into two or more parts. (Class, *Parr.*) Two species.

1. *Catagma fractura*, a broken bone. The varieties are four, as the fracture may be simple, splintery, compound, or complicated with other injury.

2. *Catagma fissura*; bone cracked; the divided edges still in contact. Chiefly affecting the cranium, though

the long bones are occasionally subject to it, and especially the ribs. Three varieties.

α. *F. subjacens*; fissure immediately below the external injury.

β. *F. contra-jacens*, counter-fissure; fissure and severest symptoms on the opposite side of the skull to the external injury.

γ. *F. complicata*; combined with a counter-stroke producing concussion or extravasation. See a singular case of Le Dran's, in which the outer table of the head was fissured; the inner had a small bony scale thrown off from it; and concussion with extravasation took place on the opposite side of the skull. *Obj.* xvii.

Genus II. *Campsis*, [from *καμπτω*, to bend.] A bone or cartilage forcibly bent from its proper shape without breaking.

Campsis depressio, a single species. The bone or cartilage flattened or bent inwards. Found chiefly in young subjects; and principally on the cranium and ensiform cartilage of the chest; the bone often recovering its proper figure with the gradual growth of the frame.

Genus III. *Exarthrema*, [from *εξαρθερω*, to put out of joint.] Dislocation; extrusion of a bone from its seat of articulation. Three species.

1. *Exarthrema luxatio*, a luxation: the bone, easily and extensively moveable, forced completely from its articulating cavity.

2. *Exarthrema subluxatio*, subluxation: the bone forced partially from its cavity, and resting on the edge of the socket.

3. *Exarthrema loxarthrus*, twisted, or oblique joint: the bone, slightly and narrowly moveable, forcibly loosened in its articulation, and distorted in its relative position. Chiefly occurring in the bones of the chest, with subsequent gibbosity, especially in young persons; and in the bones of the carpus and tarsus, producing crooked wrists and splay-feet.

Genus IV. *Diastrasis*, [from *διαστειμι*, to separate.] Separation of bones. Three species.

1. *Diastrasis epiphytica*: separation of a bone from its epiphysis. Confined to the stages of infancy and feeble adolescence; for the epiphyses of bones in a healthy constitution become gradually apophyses, or constituent parts of the bones themselves. Often mistaken by the unskilful for a luxation; and aggravated by vain and painful attempts to effect a reduction.

2. *Diastrasis cartilaginea*: separation of bones connected by an intervening cartilage. Exemplified most commonly in the separation of the symphysis pubis in cases of preternatural labour; though other instances are not unfrequent.

3. *Diastrasis sutoria*: separation of connecting sutures. A separation of the sutures of the skull is usually fatal. Mr. B. Bell mentions one instance of an injury of this kind that terminated favourably. *Surg.* vol. vi.

Order III. MORPHICA, [from *μορφη*, form.] Monstrosities of Birth. Six genera.

Genus I. *Metrocelis*, [from *μητηρ*, mother, and *κηλις*, a spot.] Mother's marks. Congenital discolourations on the surface. (*Nævus*, *Sauv.* &c.) Five species.

1. *Metrocelis spilosa*: simple, superficial, circumscribed stain; for the most part yellow, brown, or red. Three varieties.

α. *Circularis*; with a circular or orbicular outline.

β. *Foliacea*; leaf-shaped.

γ. *Arachnoides*; with slender claw-shaped or spider-legged ramifications.

2. *Metrocelis fructiformis*; dark-coloured, in the form of fruit. The fruits chiefly represented are the cherry, currant, and grape, with a smooth surface; and the mul-

berry, raspberry, and strawberry, with a papulous surface. Two varieties.

α. *Pediculata*; possessing a footstalk.

β. *Sessilis*; fixed to the surface by a broad base.

3. *Metrocelis turgescens*: large, loose, sanguine, irregular-shaped tumour; sensibly composed of a congeries of bloated and distorted vessels. (*Nævus cavernosus*, *Plenck.*)

4. *Metrocelis diffusa*: discoloration spreading indeterminate over a limb, or a large part of the body. Riedlin describes a case of universal discoloration from a fright of the mother, making an approach to *Epichrosis pœcilia*.

5. *Metrocelis cana*: hair of the scalp hoary at birth.

Genus II. *Olophonia*, [from *αλλυμι*, I lose, and *φωνη*, voice.] Congenital misconstruction of the vocal organs. Four species.

1. *Olophonia narium*; misconstruction of the nostrils. Two varieties.

α. *Obstruens*; impeding the utterance, from imperforation or other cause.

β. *Defectiva*; the organization incomplete.

2. *Olophonia linguæ*: misconstruction of the tongue or its appendages. Three varieties.

α. *L. adhefiva*; adhesion of the tongue to the surrounding parts.

β. *L. frænata*; tongue tied beneath by contraction of the frænum, or its extending too near the tip.

γ. *L. deglutatoria*, frænum loose or absent, and the tip of the tongue doubling back upon the fauces.

3. *Olophonia palati*: misconstruction of the palate.

4. *Olophonia labii*: misconstruction of the lips. Three varieties.

α. *L. lobata*, hare-lip; lobed or divided in the middle; edges separated and convex.

β. *L. bilobata*; lip bilobed, or doubly divided.

γ. *L. prolapsa*; one or both lips strikingly broad and projecting.

Genus III. *Paræsthesis*, [i. e. imperfect sense.] Congenital misconstruction of the external organs of sense. Here we have only three species noted.

1. *Paræsthesis auditus*: misformed organ of hearing. Three varieties.

α. *A. flacca*, flap-ear: lobe of the ear broad, loose, and pendent. Said to be a common deformity among the natives of Siam. The source of the surname of *Flaccus* in ancient Rome.—A beetle-headed *flap-ear'd* knave. *Shakespeare.*

β. *A. obstruens*, imperforate ear.

γ. *A. defectiva*, congenital deafness.

2. *Paræsthesis olfactus*: misformed organ of smell. Two varieties.

α. *O. obstruens*; impeding the entrance of scents from imperforation or other cause.

β. *O. defectiva*; the organization incomplete.

3. *Paræsthesis visus*: misformed organ of sight. Two varieties.

α. *V. unoculata*; possessing only one eye.

β. *V. pupillaris*; pupil incomplete in its power of vision.

Genus IV. *Percipplanchnia*, [from *πηρος*, defective, and *σπλαγχνον*, viscus.] Congenital misconstruction of the viscera. Six species.

1. *Percipplanchnia cranii*: misconstruction of the head. Three varieties.

α. *C. capitosa*, jolt-head: head enormously bulky; contents solid.

β. *C. hydropica*; head enormously bulky, from dropsical affection; hydrocephalus.

γ. *C. cerebralis*; brain incomplete in quantity or organization. Some have been born without a cranium, and a fleshy

a fleshy mass instead of brain. *Vallijneri*, 330. *Soemmering*.—Without brain or medulla oblongata; *Dufour*, Journ. de Med. xxxv.—Acephalous; lived eleven hours. *Aët. Med. Berol. Dec. I. viii.*—Lived five days; another case six days. *Plouquet*.

2. Perosplanchnia cordis: the heart misconstructured or misplaced. Four varieties.

α. C. perforata; the two ventricles communicating.

β. C. translativa; heart transposed to the right side.

γ. C. expers; heart totally wanting.—See *Hewson* on the Lymph. Syst. Part. II. p. 15. There were other defects besides the total absence of the heart. "The circulation had been carried on merely by an artery and a vein, whose coats therefore probably were muscular."

δ. C. multiplicata; heart duplicate, or more than duplicate.—Double; see d'Abouville, *Amer. Phil. Transf. vol. i.*—In a partridge; *Tode*, *Annalen v.*—In a dog; *Paullini*, p. 43.—In a hen; *Eph. Nat. Cur. Cent. VIII. Obs. 2.*—Triple: found several times in geese. *Eph. Nat. Cur. passim.*

3. Perosplanchnia alvei: the intestinal canal or its involucre misconstructured or perverted. Three varieties.

α. A. perforans; the intestines perforating the involucre. See *Calder Ed. Med. Ess. I. art. xiv.* Intestines appeared externally, having fallen through a perforation above the navel: child in health when born, but died four days afterwards.

β. A. defectiva; some of the parts wanting. See *Dinmore*, *Lond. Med. Journ. XI. 339.* Parietes deficient. *Aët. Soc. Med. Hafn.*

γ. A. obstruens; obstruction in the alvine passage, from imperforation or other cause.

4. Perosplanchnia hepatis: misconstruction of the liver.

5. Perosplanchnia vesicæ: misconstruction of the bladder or urinary channel.—Bladder deficient. *Duncan*, *Edin. Med. Journ. iv. 403.* Urethra imperfect and imperforate: urine discharged from a papilla near the navel: child otherwise in health: age not mentioned. *Mowath*, *Edin. Med. Ess. vol. iii. art. xiv.*

6. Perosplanchnia genituræ: misconstruction of the genital organs, or their appendages. Three varieties.

α. G. superflua; organization superfluous or anomalously multiplied. Double uterus and vagina. *Phil. Transf. 1774, p. 472.*—Double penis. *Schenck. Plouquet.*—Penis of enormous size. *Memoires concernant les Arts. 1672. p. 27. Wolff*, *Lect. Memorab. I. 434.*

β. G. defectiva; organization incomplete. One or both testicles defective; generally from emasculation. Prepuce or clitoris imperfect or wanting. Vesciculæ feminales confusedly united, and wanting their excretory ducts. The necessary result of this defect in an adult must be dyspermia, and consequently agnesia. See *Baillie*, *Morb. Anat. Fasc. viii. Pl. I. fig. 2.*

γ. G. obstruens; obstruction in the male or female passage from imperforation or other cause.

Genus V. *Peromelia*, [from *πρῶτος*, defective, and *μέλος*, a member.] Congenital misconstruction or mutilation of the limbs. Four species.

1. *Peromelia decurtata*: limbs curtailed of their proper length; as the arms or legs preternaturally abridged.

2. *Peromelia truncata*: limbs or parts of a limb totally wanting. Six varieties.

α. Capitis; head totally wanting.

β. Brachii; γ. Cruris; destitute of one or both arms or legs.

δ. Manus; ε. Pedis; destitute of one or both hands or feet.

η. Complicata; destitute of various limbs. *Mifs Bevan*, thus preternaturally mutilated, exhibited herself a few years ago in this metropolis: a mere head and trunk, with the rudiments only of shoulders and lower limbs. She was about thirty years of age, of agreeable face, form of body, and manners; well educated; worked

with her needle by means of the tongue; and painted miniature portraits with great delicacy and close resemblance, by holding her pencil between the right cheek and shoulder; by the same contrivance she wrote a neat running hand.

3. *Peromelia contorta*: limbs incurvated or confused in their organization. Five varieties.

α. Colli; wry-necked.

β. Gibbosa; hump-backed or hump-shouldered.

γ. Valga; bow-legged or bandy-legged.

δ. Plauta; splay-footed or splay-handed; having the foot or hand turned inwards. Hence the name of *Plautus*, the Roman dramatic poet.

ε. Loriformis; club-footed or club-handed.

4. *Peromelia superflua*: limbs or parts of a limb superfluous. Two varieties.

α. *Digitorum*; supernumerary fingers or toes. This peculiarity is often propagated to succeeding generations. See the account of the six-fingered family mentioned by *Maupertuis*; and *Mr. Carlisle's* account of the family of the *Colburns* of America, one of whom was lately exhibited in this metropolis as a boy of extraordinary powers in arithmetical calculations. *Phil. Transf. 1814, p. 94.* and our article *LONDON*, vol. xiii. p. 314. Some of the families of the ancient *Philistines* appear to have possessed the same peculiarity; (2 Sam. xxi. 20.) As also several among the *Romans*; for which see *Pliny*, lib. xi. cap. 43.

β. *Crurum*; lower extremities superfluous.

Genus VI. *Polyperia*. [from *πολυς*, many, and *πῦρος*, defective.] Congenital misconstruction of various parts or organs. Three species.

1. *Polyperia promiscua*: the parts or organs of one cavity confused with those of another. Two varieties.

α. *Translativa*; transposition of organs from their proper seat; as the abdominal viscera in the thorax. *Macaulay*, *Med. Obs. i. 25.*—Total transposition of the abdominal and thoracic viscera; *Phil. Transf. 1674.*

β. *Vascularis*; inverted distribution of the arteries. *Baillie*, *Pl. 21.*

2. *Polyperia superflua*: superfluous organization general, or extending to various organs. Four varieties.

α. *Biceps*; head double.

β. *Bicorpor*; body double.

γ. *Convovens*; one individual enclosed within another. *G. W. Young*, *Medico-chir. Transf. i. 234.*

A similar monstrosity in the vegetable world is to be found in the *Transactions of the Stockholm Academy*, vol. i. p. 414, under the title of *Pomerantz med et inneslutit foster*. It consists of one orange growing within another. The fruit was exhibited to the Society by *Count Tessin*.

δ. *Hermaphroditus*; genital organs of both sexes in one individual. See *ANATOMY*, vol. i. p. 623. and *Plate VI.*

3. *Polyperia defectiva*: defective organization general, or extending to various organs. Two varieties.

α. *Nanus*, dwarf; the organization of the whole form distinctly developed, but inordinately diminutive.

β. *Mola*, mole; general organization imperfectly and indistinctly developed. A twin-mole without a heart, is mentioned by *Le Cat* in *Phil. Transf. 167. 1.*

To the general principles of therapeutics laid down at pages 96 & seq. and to the practical details of the same science so largely dwelt upon under every species of our numerous catalogue of diseases, we have nothing further to add. Dismissing, therefore, the subject of the action of material agents on the human frame, we come to the consideration of the mode in which these agents are to be prepared, combined, and modified, to ensure their most efficient operation. This embraces that branch of the healing art called *Pharmacy* or more properly *Pharmacology*. *Materia Medica* is the term which is now used in the *Pharmacopœia* to designate the raw materials. In a more extended series, it might be made to comprehend all

the substances, however prepared, ready for the use of the physician. The *Materia Medica* consists of three kinds of substances; those derived from animals, those derived from vegetables, and those taken from the mineral kingdom. These divisions, as far as regards the substances themselves, when subjected to the operation of chemistry, run into each other. From the animal kingdom, however, very few medicines are derived: the most important that occurs to us is the *Lytta*, or blistering-fly. The vegetable kingdom furnishes a vast number; and from every part of plants, trees, and shrubs, peculiar substances are occasionally derivable. Our pharmacopœias abound with many vegetable substances which are never used by practitioners in general. This superabundance of materials was owing, in the first instance, to an absurd notion, that every individual plant in existence was endowed with curative powers over some particular malady; and, in the second, to that want of discrimination which leads men to mistake partial coincidence for invariable or general law. The chief thing which the pharmacist has to attend to in the preparation of vegetables, is their preservation. The manner of *drying*, therefore, whether in regard to its suddenness or tardiness, the time of gathering; the mixing with other herbs, &c. are all points to be intimately attended to: for some plants, as the colchicum and squill especially, lose their effects entirely if not pulled at a particular season, or if dried in an improper manner.

For the convenience of exhibition, the virtues of plants are extracted (for immediate use) by *infusion*; i. e. the power of cold or boiling water on a plant for a certain length of time; and by *decoction*, or the actual boiling of the substance. More permanently, the virtues of plants are preserved in *tinctures*, i. e. fluids containing a large proportion of spirits of wine; and by *extracts*, procured by means of solution and evaporation. By the last process the *essential oil* is separated from the more unstable constituents of the plant. The common oils are separated by expression. The substances derived from the mineral kingdom are prepared by the common operations of chemistry, as precipitation, crystallization, &c. Hence the necessity that the pharmacopœist should be well versed in the *details* of practical chemistry. The magnificent progress of this art has purged our Pharmacopœia of many of its useless or incongruous substances, and likewise corrected that evil habit of prescribing which caused the practitioner to combine salts which decomposed each other. At the same time chemistry caused vegetable substances to go very much out of use, at least among those at all influenced by the fashion of the day. For, presuming on their accurate knowledge of our science to interfere with the practitioner of the more difficult one of medicine, some chemists endeavoured to ridicule these august bodies who had compiled the modern Pharmacopœia, because they had not paid sufficient attention to chemical laws. In this impertinent attempt, they were entirely unsuccessful, because all scientific practitioners knew how much depended on those minute operations of mineral or vegetable substances which elude the present knowledge of the chemist; and they saw the folly of trusting to theory, and discarding a medicine which experience showed could cure a disease, merely because it was unscientifically compounded.

But, from whatever source medicines are derived, much of their effect depends on their judicious combination. In the first place, the practitioner must be careful not to combine any minerals in a prescription which are capable of decomposing each other; for, though we have defended the occasional inattention to this rule in learned bodies and on general experience of its utility, it nevertheless ought to be rigorously attended to in forming a prescription. The peculiar affinities of the various salts are easily learnt and remembered. Of the effect of minerals on vegetables we do not know much. We may remark that, generally speaking, alkalies extract more efficiently the properties

of vegetables; on some occasions, acids seem to have a similar effect; but this is uncertain. In the case of opium and some other narcotics, the mineral acids seem to restrain the deleterious effect of the drug. The analysis of vegetables, as pursued by the French chemists, promises to furnish us at some future period with more certain information in regard to the operation of minerals over vegetables; but at present we do not know enough to form any important general information on this head. In the combination of various vegetable products in the same prescription, we have only to look to the medical operation of these substances, because they have rarely any chemical effect on each other. Generally speaking, it is wrong to combine in the same formula medicines which do not operate on the same organs: thus we should not combine diuretics and purges, nor emmenagogues and sudorifics. On the other hand, medicines which do act on the same structure may be combined with the utmost advantage: Thus a small dose of epsom salts, of fenna, and buckthorn-juice, in combination, operates much more actively and certainly than a large dose of any one of these drugs. Again; two or three diuretics mixed together will often operate when they have separately failed to produce any effect. But this combination of drugs, so useful to the practitioner, does not succeed effectually if pushed beyond the extent of three or four articles; and it should also be recollected, that, if a simple drug does perform its office, it is wrong to mix it with others, because we thereby fail to improve that part of medicine we know so little of; viz. the particular effect of particular drugs.

Besides combining medicines for the sake of increasing their force, we sometimes combine them to restrain any *contingent* operation of a drug, which operation is not essential to the cure, and is injurious to the system; as when we combine sulphuric acid with opium, a combination which does not hinder the narcotic effect of the opium, but prevents its stimulating effect, which may do hurt; or when we give opium with calomel, and thus ensure salivation while we restrain diarrhoea. A medicine added to another in the above manner, for the prevention of any unpleasant effect, is called a *corrective*. A medicine which increases the operation of another is called an *adjunct*.

A less important point of consideration in prescribing is to render a medicine more pleasant to the palate of the patient, by syrups, by acids, &c. but, in doing this, we must be careful not to interfere with the operation of the active ingredients, and thus sacrifice an important to a trifling matter. At the same time, so numerous are the formula in common use, that we shall seldom find it necessary to prescribe medicines which cannot absolutely be taken; and at all events we must avoid prescribing medicines which cannot be mechanically united, as acids with oleaginous substances; and so on.

Prescriptions are generally written in the Latin language, which of all others is the most proper, because it is more or less known to the whole world, and because, being less familiar with it than with our own, we both read and write it with peculiar care. The quantities of medicine are not written in Latin, however, but are expressed by signs. Some have strongly urged the propriety of writing the quantities as well as the names of the drugs at full length; but we cannot see that this would be attended with fewer mistakes than the present mode; since the tedium of writing a long word might induce carelessness, and the signs in use are sufficiently clear, and may be rapidly written in the most correct manner. We must except, however, the too close resemblance of the drachm and ounce signs, which cannot be defended. The first sign used in medicine is the *R*, which is commonly supposed to be an abbreviation of *Recipe*, Take, (which word it is now understood to mean in all prescriptions;) but by others is stated to have descended to us from those of the ancients who believed much in sidereal influence, and

and who used it as a sign of some planet, probably Jupiter. The next mark is for the ounce, ℥; for the drachm, ℥; for the scruple, ℥; but, having no mark for grains, we use gr. To these we append the number of ounces, drachms, &c. required, (still adhering to old forms,) not in figures, but in Roman numerals; as ℥i, one ounce; ℥ij, two drachms; ℥iij, three scruples, &c. We have also this mark, ℥, or ℥s, for half; and, more recently, ℥ for minim, or drop. ℥ is the mark for pound, though seldom used; Q for a pint; and ā, or ana, for equal quantities of two or more articles previously mentioned.

Into the mode of preparing drugs we shall not enter, as being generally known to the medical profession through the medium of the first elementary works, and as being of no use to the general reader. The London Pharmacopœia of 1809 contains all that is necessary to be known with regard to the preparation of the drugs therein mentioned; and the mode of preparing those of more recent introduction may be found in *Thompson's Conspectus*, or in *Gray's Supplement*. To those who wish to study the science of pharmacy in a more scientific manner, we strongly recommend the work of *Dr. Paris*, entitled "Pharmacologia."

ALPHABETICAL LIST of the MATERIA MEDICA,
With the usual Doses.

The doses given by different practitioners vary so much, that any general table of them must necessarily be imperfect, and can only be expected to guard the young practitioner from error. The quantities are meant for adults; and either of the two quantities here set down, or any intermediate one, may be used as a dose, except when the word *to* is inserted between them, which means, "that the quantity should be gradually raised from the former to the latter," and sometimes it may be carried much beyond it. Some articles, as far as their effects are concerned, may be given at once in much larger quantities, and their dose is rather therefore estimated by convenience, on account of bulk: such, however, it does not appear necessary to distinguish particularly. The same article is often used in different quantities, to produce different effects: such second effects, when they are *emetic* or *cathartic*, are in marked instances accordingly given under the former, with E or C prefixed, as may be instanced in the article Antimonium tartarizatum.

Abitis Refina	gr. x	℥s
Abſinthium	℥j	℥j
Acaciæ Gummi	℥s	℥ij
Acetum Colchici	℥s	℥iſs
— Scillæ	℥s	℥iſs
Acidum aceticum	℥j	℥℥s
— benzoicum	gr. x	℥s
— citricum	gr. x	℥s
— muriaticum	℥x	℥xl
— nitricum dilutum	℥x to	℥xl
— sulphuricum dilutum	℥x to	℥xl
Aconiti Folia	gr. j to	gr. v
Æther rectificatus	℥s	℥ij
Ærugo	gr. ¼ to	gr. j
Allii Radicis Succus	℥j	℥℥s
Aloes ſpicatæ Extractum	gr. v	gr. xv
— vulgaris Extractum	gr. v	gr. xv
Alumen	gr. x	℥s
Ammoniacum	gr. x	℥s
Ammoniacæ Murias	gr. x	℥s
— Carbonas	gr. v	℥j
Anethi Semina	gr. x	℥j
Aniſi Semina	gr. x	℥j
Anthemidis Flores	gr. x	℥j
Antimonii Oxydum	gr. j	gr. x
— Sulphuretum	gr. x	℥s
— Sulphuretum præcipitatum	gr. j	gr. v
Antimonium tartarizatum	gr. ¼	gr. ℥s
	E	gr. j
		gr. ij

Aqua Anethi		
— Carui		
— Cinnamomi		
— Fœniculi		
— Menthæ piperitæ	℥ij	℥iv
— viridis		
— Pimentæ		
— Pulegii		
Argentii Nitras	gr. ℥s to	gr. v
Armoraciæ Radix	℥j	℥j
Arsenici Oxydum præparatum	gr. ⅓ to	gr. ¼
Aſari Folia	gr. x	℥j
Aſſaſœtidæ Gummi-refina	gr. x	℥℥s
Balaſamum Peruvianum	gr. x	℥℥s
— Tolutanum	gr. x	℥℥s
Belladonnæ Folia	gr. ℥s to	gr. v
Benzoinum	gr. x	℥℥s
Biſtortæ Radix	gr. x	℥j
Cajuputi Oleum	℥j	℥v
Calami Radix	gr. x	℥j
Calamina præparata	gr. x	℥j
Calumbæ Radix	gr. x	℥j
Cambogia	gr. ij	gr. xij
Camphora	gr. iij	℥j
Canellæ Cortex	gr. x	℥℥s
Capſici Baccæ	gr. v	gr. x
Cardamines Flores	℥j	℥j
Cardamomi Semina	gr. v	℥℥s
Carui Semina	gr. x	℥j
Caryophylli	gr. v	℥℥s
— Oleum	℥ij	℥v
Cascaſillæ Cortex	gr. x	℥j
Caffiæ Pulpa	℥℥s	℥j
Caſtoreum	gr. v	℥j
Catechu Extractum	gr. x	℥ij
Centaurei Cacumina	gr. xv	℥j
Cetaceum	℥j	℥℥s
Cinchonæ cordifoliæ Cortex	gr. x	℥℥s
— lancifoliæ Cortex	gr. x	℥℥s
— oblongifoliæ Cortex	gr. x	℥℥s
Cinnamomi Cortex	gr. v	℥j
— Oleum	℥j	℥iij
Coccus	gr. v	℥j
Colchici Radix	gr. j	gr. v
Colocyathidis Pulpa	gr. j	gr. v
Confectio Amygdalæ	℥j	℥j
— Aromatica	gr. x	℥j
— Aurantii	℥j	℥j
— Caffiæ	℥j	℥j
Confectio Opii	gr. x	℥℥s
— Roſæ caninæ	℥j	℥j
— Gallicæ	℥j	℥j
— Scammonææ	℥j	℥j
— Sennæ	℥s	℥℥s
Conii Folia	gr. ij to	℥j
Contrajervæ Radix	gr. x	℥℥s
Copaiba	℥j	℥j
Coriandri Semina	℥j	℥j
Cornu uſtum	℥℥s	℥ij
Creta præparata	℥℥s	℥ij
Croci Stigmata	gr. x	℥j
Cumini Semina	℥j	℥j
Cupri Sulphas	gr. j to	gr. v
Cuprum ammoniatum	gr. ℥s to	gr. v
Cuſpariæ Cortex	gr. x	℥j
Dauci Semina	℥j	℥j
Decoctum Aloes compositum	℥℥s	℥ij
— Cinchonæ	℥j	℥iv
— Cydoniæ	℥j	℥iv
— Dulcamaræ	℥℥s	℥ij
— Hordei	℥iv	O. ℥s
— compositum	℥iv	O. ℥s
— Lichenis	℥j	℥iv
— Sarſaparillæ	℥iv	O. ℥s
— compositum	℥iv	O. ℥s
Decoctum		

Decoctum Senegæ	3fs	3ij	Lavandulæ Flores	3j	3j
— Ulmi	3iv	O. fs	Lauri Baccæ et Folia	gr. x	3fs
Digitalis Folia	gr. fs to	gr. iij	Lichen	3j	3j
Dolichi Pubes	gr. v	gr. x	Linum catharticum	3fs	3j
Dulcamaræ Caulis	3j	3i	Liquor Ammoniacæ	m̄x	m̄
Elemi	gr. x	3fs	— Ammoniacæ Acetatis	3ij	3vi
Extractum Aconiti	gr. j to	gr. v	— Ammoniacæ Carbonatis	3fs	3i fs
— Aloes	gr. v	gr. xv	— Antimonii tartarizati	m̄x	m̄xx
— Anthemidis	gr. x	3j	— — — — — E	3j	3ij
— Belladonnæ	gr. j to	gr. v	— Arsenicalis	m̄v	m̄xij
— Cinchonæ	gr. x	3fs	— Calcis	3ij	O. fs
— — — — — refinofum	gr. x	3fs	— Ferri alkalini	3fs	3j
— Colocynthidis	gr. v	3fs	— Hydrargyri oxymuriatis	3j	3fs
— — — — — compositum	gr. v	3fs	— Potassæ	m̄x	3fs
— Conii	gr. v	3j	— Potassæ Subcarbonatis	3fs	3fs
— Elaterii	gr. fs	gr. iij	Lytta	gr. fs to	gr. iij
— Gentianæ	gr. x	3fs	Magnesia	3fs	3j
— Glycyrrhizæ	3j	3fs	— Carbonas	3fs	3ij
— Hæmatoxyli	gr. x	3fs	— Sulphas	3j	3i
— Humuli	gr. v	3j	Malva	3j	3j
— Hyofcyami	gr. v to	3j	Manna	3fs	3ij
— Jalapæ	gr. x	3j	Mastiche	gr. x	3fs
— Opii	gr. fs to	gr. v	Marrubium	3j	3j
— Papaveris	gr. ij to	3j	Mel Boracis	3j	3ij
— Rhei	gr. x	3fs	— despumatum	3j	3j
— Sarfaparillæ	gr. x	3j	— Rosæ	3j	3fs
— Taraxaci	gr. x	3j	Mentha piperita	gr. x	3j
Ferri Sulphas	gr. j to	gr. v	— viridis	gr. x	3j
— Carbonas	gr. ij to	gr. x	Menyanthes	3fs	3j
Ferrum ammoniatum	gr. iij	gr. xv	Mezerei Cortex	gr. j	gr. x
— tartarizatum	gr. x	3fs	Miftura Ammoniaci	3fs	3j
Filicis Radix	3j	3fs	— Amygdalæ	3j	O. fs
Fœniculi Semina	3j	3j	— Assafœtidæ	3fs	3i
Galbani Gummi-refina	gr. x	3fs	— Camphoræ	3fs	3ij
Gentianæ Radix	gr. x	3j	— Cornu ufti	3iv	O. fs
Glycyrrhizæ Radix	3fs	3j	— Cretæ	3ij	3ij
Granati Cortex	3j	3j	— Ferri Composita	3j	to
Guaiaci Refina	gr. x	3fs	— Guaiaci	3j	3ij
Hæmatoxyli Lignum	3j	3j	— Moschi	3fs	3ij
Hellebori fœtidi Folia	gr. x	3j	Mofchus	gr. ij	3j
— nigri Radix	gr. x	3j	Mucilago Acaciæ	3j	3j
Humuli Strobili	gr. x	3j	— Amyli	3j	3j
Hydrargyri Nitrico-oxydum	gr. fs	gr. ij	Myrrificæ Nuclei	gr. v	gr. x
— Oxydum cinereum	gr. ij	gr. x	Myrrha	gr. x	3j
— — — — — rubrum	gr. fs	gr. ij	Oleum Amygdalæ	3fs	3j
— Oxynurias	gr. ʒ to	gr. fs	— Anifi	m̄v	m̄x
— Submurias	gr. fs	gr. ij	— Anthemidis	m̄v	m̄x
— Submurias	gr. v	gr. xv	— Carui	m̄j	m̄v
— Sulphuretum rubrum	gr. x	3fs	— Caryophylli	m̄ij	m̄vj
Hydrargyri cum Creta	gr. x	3fs	— Cinnamoni	m̄j	m̄ij
— præcipitatus albus	gr. v	gr. x	— Juniperi	m̄ij	m̄x
— purificatus	3fs	3iv	— Lavandulæ	m̄j	m̄v
Hyofcyami Folia	gr. v	gr. xv	— Lini ufitatiffimi	3fs	3j
Jalapæ Radix	gr. x	3fs	— Menthæ piperitæ	m̄j	m̄ij
Infufum Anthemidis	3fs	3iv	— — — — — viridis	m̄ij	m̄v
— Armoraciæ compositum	3fs	3iv	— Origani	m̄j	m̄ij
— Aurantii compositum	3fs	3iv	— Pimentæ	m̄ij	m̄v
— Calumbæ	3fs	3iv	— Pulegii	m̄j	m̄v
— Caryophyllorum	3fs	3iv	— Ricini	3ij	3j
— Cafcarillæ	3fs	3iv	— Rosmarini	m̄ij	m̄v
— Catechu	3fs	3iv	— Succini	m̄x	3fs
— Cinchonæ	3fs	3iv	— Sulphuratum	m̄x	3fs
— Cufpariæ	3fs	3iv	— Terebinthinæ rectificatum	m̄x	3fs
— Digitalis	3i	3ij	Olibanum	gr. x	3fs
— Gentianæ compositum	3fs	3iv	Olivæ Oleum	3fs	3j
— Lini	3fs	O. fs	Opium	gr. fs	gr. v
— Quaffiæ	3iv	3iv	Opoponax	gr. x	3fs
— Rhei	3fs	3iv	Origanum	gr. v.	3j
— Rosæ	3fs	O. fs	Oxymel	3j	3j
— Sennæ	3fs	3iv	— Scillæ	3fs	3ij
— Simaroubæ	3fs	3iv	Petroleum	m̄x	3fs
Ipecacuanhæ Radix	gr. fs	gr. ij	Pilulæ Aloes compositæ	gr. x	gr. xxv
— — — — — E	gr. v	3fs	— — — — — cum Myrrha	gr. x	3j
Juniperi Baccæ	3fs	3j	— Cambogiæ compositæ	gr. x	3j
Kino	gr. x	3fs	— Ferri cum Myrrha	gr. x	3j
					Pilulæ

Pilulæ Galbani compositæ	gr. x	ʒss	Spiritus Carui	ʒj	ʒss
Hydrargyri	gr. v	ʒj	Cinnamomi	ʒj	ʒss
Submuriatis	gr. v	gr. x	Juniperi compositus	ʒj	ʒss
Saponis cum Opio	gr. iij	gr. x	Lavandulæ	ʒj	ʒss
Scillæ compositæ	gr. x	ʒj	compositus	ʒj	ʒss
Pimentæ Baccæ	gr. v.	ʒj	Menthæ piperitæ	ʒj	ʒss
Piperis longi Fructus	gr. v.	ʒj	viridis	ʒj	ʒss
nigri Baccæ	gr. v	ʒj	Myristicæ	ʒj	ʒss
Plumbi acetæ	gr. fs to	gr. ij	Pimentæ	ʒj	ʒss
Porri Radicis Succus	ʒj	ʒss	Pulegii	ʒj	ʒss
Potassæ Acetas	ʒj	ʒss	Rosmarini	ʒj	ʒss
Carbonas	gr. x	ʒss	Spongia usta	ʒj	ʒss
Nitras	gr. x	ʒss	Stannum	ʒj	ʒss
Subcarbonas	gr. x	ʒss	Staphisagriæ Semina	gr. iij	gr. x
Sulphas	ʒj	ʒss	Styracis Balsamum	gr. x	ʒss
Sulphuretum	gr. v	gr. xv	Succinum	ʒss	ʒj
Superfulphas	ʒj	ʒij	Sulphur lotum	ʒss	ʒij
Supertartras	ʒj	ʒj	præcipitatum	ʒss	ʒiij
Tartras	ʒj	ʒj	Syrupi	ʒj	ʒij
Pulegium	gr. x	ʒj	Tabaci Folia	gr. fs	gr. v
Pulvis Aloes compositus	gr. x	ʒj	Tamarindi Pulpa	ʒss	ʒij
Antimonialis	gr. v	gr. x	Taraxaci Radix	ʒss	ʒj
Cinnamomi compositus	gr. v	gr. x	Terebinthina Canadensis	ʒj	ʒj
Contrajervæ compositus	gr. xv	ʒss	Chia	ʒj	ʒj
Cornu usti cum Opio	gr. xv	ʒss	vulgaris	ʒj	ʒj
Cretæ compositus	ʒss	ʒj	Oleum	℥x	ʒss
Cretæ compositus cum Opio	ʒj	ʒij	Testæ præparatæ	ʒss	ʒij
Ipecacuanhæ compositus	gr. v	ʒj	Tinctura Aloes	ʒss	ʒj
Kino compositus	gr. v	ʒj	composita	ʒss	ʒij
Scammonæ compositus	gr. x	ʒj	Affæcætida	ʒss	ʒij
Sennæ compositus	ʒj	ʒj	Aurantii	ʒss	ʒij
Tragacanthæ compositus	gr. x	ʒj	Benzoini composita	ʒss	ʒij
Pyrethri Radix	gr. iij	gr. x	Calumbæ	ʒss	ʒij
Quassia Lignum	gr. v	ʒss	Camphoræ composita	ʒss	ʒss
Quercus Cortex	gr. x	ʒss	Capfici	ʒss	ʒss
Rhamni Baccæ	ʒj	ʒij	Cardamomi	ʒj	ʒss
Rhei Radix	gr. x	ʒss	composita	ʒss	ʒss
Rosæ caninæ Pulpa	ʒj	ʒj	Cascarillæ	ʒss	ʒij
centifoliæ Petala	ʒj	ʒj	Castorei	ʒss	ʒij
Gallicæ Petala	ʒj	ʒj	Catechu	ʒss	ʒij
Rosmarini Cacumina	gr. x	ʒss	Cinchonæ	ʒj	ʒss
Rubia Radix	ʒss	ʒj	composita	ʒj	ʒss
Rutæ Folia	gr. xv	ʒij	Cinnamomi	ʒj	ʒiij
Sabinæ Folia	gr. x	ʒss	composita	ʒss	ʒij
Sagapenum	gr. x	ʒss	Digitalis	℥x ad	℥xl
Salicis Cortex	gr. x	ʒss	Ferri ammoniacalis	ʒss	ʒj
Sapo durus	gr. v	ʒss	Muriatis	℥x	ʒss
Sarsaparillæ Radix	ʒj	ʒj	Gentianæ composita	ʒj	ʒij
Sassafras Lignum	ʒj	ʒj	Guaiaci	ʒj	ʒij
Scammonia Gummy-resina	gr. v	ʒj	ammoniata	ʒj	ʒij
Scillæ Radix recens	gr. v	gr. xv	Hellebori nigri	ʒss	ʒj
exsiccata	gr. j	gr. iij	Humuli	ʒss	ʒj
Senegæ Radix	ʒj	ʒij	Hyoſcyami	℥x to	ʒj
Sennæ Folia	ʒj	ʒj	Jalapæ	ʒj	ʒss
Serpentariæ Radix	gr. x	ʒss	Kino	ʒss	ʒij
Simaroubæ Cortex	gr. x	ʒss	Lyttæ	ʒss	ʒij
Sinapis Semina	ʒj	ʒss	Myrrhæ	ʒss	ʒj
Soda tartarizata	ʒj	ʒj	Opii	℥x	ʒss
Carbonas	gr. x	ʒss	Rhei	ʒss	ʒss
Sodæ Boras	gr. x	ʒss	compositæ	ʒss	ʒss
Subcarbonas	gr. x	ʒss	Scillæ	℥x	ʒj
exsiccata	gr. v	gr. xv	Sennæ	ʒij	ʒj
Sulphas	ʒj	ʒj	Serpentariæ	ʒss	ʒij
Spartii Cacumina	ʒj	ʒj	Valerianæ	ʒss	ʒij
Spigeliæ Radix	gr. x	ʒss	ammoniata	ʒss	ʒij
Spiritus Ætheris aromaticus	ʒss	ʒj	Zingiberis	ʒj	ʒij
compositus	ʒss	ʒj	Tormentillæ Radix	gr. x	ʒss
nitrici	ʒss	ʒj	Toxicodendri Folia	gr. ij	gr. xv
fulphurici	ʒss	ʒj	Tragacantha	gr. x	ʒj
Ammonia	ʒss	ʒj	Tuffilago	ʒss	ʒj
compositus	ʒss	ʒj	Valerianæ Radix	ʒj	ʒij
fœtidus	ʒss	ʒj	Veratri Radix	gr. ij	gr. v
succinatus	℥x	ʒss	Vinum Aloes	ʒss	ʒj
Anifi	ʒss	ʒss	Ferri	ʒj	ʒss
Armoraciæ compositus	ʒss	ʒss	Ipecacuanhæ	℥xx	℥xl
					Vinum

Vinum Ipecacuanhæ	E	3ij	ʒfs
— Opium	.	℞x	ʒfs
Ułmi Cortex	.	ʒj	ʒj
Uva Ursi	.	gr. x	ʒj
Zinci Oxydum	.	gr. iij	gr. x
— Sulphas	.	gr. j	gr. v
— — — — —	E	gr. xv	ʒfs
Zingiberis Radix	.	gr. v	ʒfs.

As the foregoing doses are intended for the adult patient, we shall here subjoin Gaubius's Table of the proportionate doses for children; though it will immediately occur to the judicious practitioner, that the quantities must vary, not with age only, but with sex, constitution, and still more with the intensity of the disease.

For an Adult	—	—	1	e. g.	ʒj
From 21 Years to 14	—	—	$\frac{2}{3}$		ʒij
14	7	—	$\frac{1}{2}$		ʒfs
7	4	—	$\frac{1}{3}$		ʒj
4		—	$\frac{1}{4}$		gr. xv
3		—	$\frac{1}{6}$		ʒfs
2		—	$\frac{1}{8}$		gr. viij
1		—	$\frac{1}{12}$		gr. v.

In making our acknowledgments to the authors from whose works we have derived the large body of information compressed into this article, we must be excused for omitting the names of a multitude of writers who have merely furnished a few insulated facts or cursory observations. We must be excused also from inserting the names of some whose labours have afforded us information, lest we should attribute to any one opinions which he does not hold, but which our own error may have caused us to attribute to him. Lastly, we hope to stand excused for some whom we have inadvertently forgotten.

The historical part of this Treatise has been chiefly compiled from the works of Sprengel, Freind, Haller, Miller, Le Clerc, Blumenbach, Schultze, &c. and from Good's History of Medicine.

In the history of the present state of medicine, we have employed Sir Charles Morgan's Appendix to Lady Morgan's "Italy." Broughton's Letters from Portugal. Clarke's Notes on the Hospitals of Italy, France, &c. The Revue Medicale. Journal des Débats; and several excellent treatises and extracts in the Quarterly Journal of Foreign Medicine, 1820, 21. M. Esquirol's Memoire présenté au Ministre de l'Interieur. Clarke on the Climate and Diseases of the South of France and Italy. Bianchi's translation of Chani Zadek Mehemmed Ata-Oullah, a work lately published in Turkey on Surgery and Anatomy.

For the history of Nosology we are entirely indebted to Dr. Good, as well as for the Classification itself. And we here again beg leave to tender to this gentleman our admiration of his philological knowledge. It cannot be supposed, from the general tenor of our views, but that we look forward to a system of medicine which should be very much released from the trammels of a never-ending list of names; but, at the same time, as far as grand divisions and an accurately-constructed nomenclature are regarded, we humbly offer our opinion, that Dr. Good has left little to be wished. As a piece of medical information, we cannot avoid mentioning that when nine-tenths of this article were published, Dr. Good gave to the world a large work, entitled the Study of Medicine, which is intended to render complete his labours in this science. We have not yet seen it; but report speaks very favourably of its merits.

The general principles of Diagnosis have been for the most part taken from Dr. Marshall Hall's work "On Diagnosis."

The short sketch of General Pathology is drawn from the well-known works of Parry, Nicholl, and Brouffais.

The Pathological Anatomy interspersed over a large portion of the article, we have taken from the systematic works of Baillie, Farre, Laennec, and Brouffais; or from practical monographs.

The authors whom we have consulted in the class Cœliaca, or diseases of the digestive function, are—Daubenton, Abernethy, Philip, Hall, Brouffais, Parry, Hunter, Hamilton, and J. Johnson; Baillie, White, Coley, Sherwin, and Arnott, on changes of structure in the intestinal tube; J. Johnson, Bayle, Farre, and Heberden, on hepatic and dysenteric maladies; Brera, Baillie, Hooper, and Chamberlaine, on worms.

In the class Pneumatica, or diseases of the respiratory function, we have borrowed much from Badham, Hastings, Bree, and Alcock.

For the order Pyrethica, we are indebted to Cullen, Darwin, Bateman, Clutterbuck, Armstrong, Jackson, Frank, Nicholls, Park, Fordyce, J. Johnson, and Bancroft.

The nature and treatment of Empresma, or internal inflammations, have been discussed at full, but from too many sources to admit of enumeration. With regard to inflammation of the serous membrane, we cannot avoid directing the reader's attention to the extracts from Brouffais, Pemberton, Baron, and Laennec. And, as to the numerous diseases of the heart, the labours of Corvisart, Laennec, and Portal, have mainly assisted our descriptions.

Among Dysthetica, or diseases from general morbid habit of body, the disease Phthisis, or consumption, is enriched by the observations of Scot, Beddoes, Southey, Mansford, and Duncan, among practical writers; and the still more valuable ones of Baillie, Bayle, and Laennec, in relation to necrotomy.

The class Genetica is composed of a very compressed analysis of the whole of Dr. Mansfield Clarke's excellent work "On the Diseases of Females;" and by various remarks from Rowley and others of the old school, in which these diseases were so much considered.

The genus Hydrops, or dropsy, is deduced from the writings of Cullen, Parry, Blackall, Laennec, and Scarpa. This disease, as it affects the head under the form of Hydrops capitis, is treated of conformably with the opinions and observations of Yeats, Cheyne, and Gölis.

Our account of Calculous Diseases is taken from Marcet, Henry, Wollaston, Majendie, and Prout.

The whole description of Cutaneous Diseases is taken almost literally from the works of Willan and Bateman, with the exception of the therapeutical part, which has received some small improvements since the writings of those accurate and judicious writers.

Among the more compendious systems from which we have derived assistance, we have to mention the contemporary Cyclopædia of Dr. Rees, and the Encyclopædia Britannica; the French "Dict. des Sciences Médicales;" the Medical Dictionary of James, and the more recent and excellent one of Dr. Parr.

Lastly, we must not forget to mention our obligations to the Medico-chirurgical Review, to the Quarterly Journal of Foreign Medicine, the Edinburgh Medical Review, and the London Medical and Physical Journal, for several excellent analyses, and for some recent and curious cases.

PATHOPOIEA, *f.* [from the Greek *παθος*, passion, and *ποιω*, to cause.] The act of moving the passions; the method made use of to move the passions; an address to the passions.

PA'THOS, *f.* [Greek.] Passion; vehemence; warmth; affection of mind; energy; that which excites the passions: long since introduced into our language, but passed over by Dr. Johnson.—“Lord, if thou wilt pardon this people!” It was a vehement *pathos*; “If thou wilt pardon it!” He saith no more, but, “If thou wilt not, put me out of the book of life.” Here is a vehement prayer; and with this he slacks the wrath of God, and quencheth it. *Dr. Westfeild's Disc.* 1646.—By the simplicity of its conduct, it diminishes the *pathos* of the fable. *Mason's Pref. to Elfrida.*—Before these books became common, affecting situations, the combination of incident, and the *pathos* of catastrophe, were almost unknown. *Wharton's Hist. of E. P.*

PA'THROS, [Heb. the spread of ruin.] A city and canton of Egypt, of which the prophets Jeremiah and Ezekiel make mention; Jerem. xlv. 1. 15. Ezek. xxix. 14. xxx. 14. We do not very well know its situation, though Pliny and Ptolemy the geographer speak of it by the name of *Phaturis*; and it appears to have been in Upper Egypt. Isaiah (xii. 2.) calls it Pathros; and it is the country of the Pathrusim, the posterity of Mizraim, of whom Moses speaks, Gen. x. 14. Ezekiel threatens them with an entire ruin. The Jews retired thither notwithstanding the remonstrances of Jeremiah; and the Lord says by Isaiah, that he will bring them back from thence to their own land. *Isaiah*, xi. 11.

PA'TI. See **PATTA**.

PA'TIA, a river of South-America, which rises near Popayan, and runs into the Pacific Ocean in lat. 2. 15. N.

PATIA'LA, a town of Hindoostan, in the circar of Sirhind: twelve miles south-west of Sirhind, 130 north-west of Delhi. Lat. 30. 18. N. lon. 76. 5. E.

PATIBLE, *adj.* [from *patior*, Lat. to suffer.] Sufferable; tolerable; to be borne.

PATIBULARY, *adj.* [from *patibulum*, Lat.] Belonging to the gallows.

PATIBULATED, *adj.* Hung on a gibbet. *Cole.*

PATIENCE, *f.* [Fr. from *patientia*, Lat.] The power of suffering; calm endurance of pain or labour.—Christian fortitude and *patience* have their opportunity in times of affliction and persecution. *Sprat's Sermons.*

The king-becoming graces,
Devotion, *patience*, courage, fortitude;
I have no reliſh of them. *Shakespeare's Macbeth.*

The quality of expecting long without rage or discontent; long-suffering.—Necessary *patience* in seeking the Lord, is better than he that leadeth his life without a guide. *Eclus. xx. 32.*—Have *patience* with me, and I will pay thee all. *St. Matthew.*—Perseverance; continuance of labour:

He learnt with *patience*, and with meekness taught;
His life was but the comment of his thought. *Harte.*

The quality of bearing offences without revenge or anger:

The hermit then assum'd a bolder tone,
His rage was kindled, and his *patience* gone. *Harte.*

Sufferance: permission.—By their *patience* be it spoken, the apostles preached as well when they wrote, as when they spake the gospel. *Hooker.*—A species of RUMEX.—*Patience*, an herb, makes a good boiled salad. *Mortimer.*

PATIENCE is that calm and unruffled temper with which a good man bears the evils of life, from a conviction that they are at least permitted, if not sent, by the best of Beings, who makes all things work together for good to those who love and fear him.

The evils by which life is embittered may be reduced to these four: 1. Natural evils, or those to which we are by nature subject as men, and as perishable animals. The greatest of these are, the death of those whom we love,

and of ourselves. 2. Those from which we might be exempted by a virtuous and prudent conduct, but which are the inseparable consequences of imprudence or vice, which we call punishments; as infamy proceeding from fraud, poverty from prodigality, debility and disease from intemperance. 3. Those by which the fortitude of the good are exercised; such as the persecutions raised against them by the wicked. To these may be added, 4. The opposition against which we must perpetually struggle, arising from the diversity of sentiments, manners, and characters, of the persons among whom we live.

Under all these evils patience is not only necessary but useful: it is *necessary*, because the laws of nature have made it a duty, and to murmur against natural events is to affront providence; it is *useful*, because it renders our sufferings lighter, shorter, and less dangerous.

The man, therefore, who possesses this virtue (*patience*), in this ample sense of it, stands upon an eminence, and sees human things below him: the tempest indeed may reach him; but he stands secure and collected against it upon the basis of conscious virtue, which the severest storms can seldom shake, and never overthrow.

Men will have the same veneration for a person who suffers adversity without dejection, as for demolished temples, the very ruins of which are revered and adored.

Patience, however, is by no means incompatible with sensibility, which, with all its inconveniences, is to be cherished by those who understand and wish to maintain the dignity of their nature. To feel our own misery with full force is not to be deprecated. Affliction softens and improves the heart. Tears, to speak in the style of figure, fertilize the soil in which the virtues grow. And it is the remark of one who understood human nature, that the faculties of the mind, as well as the feelings of the heart, are ameliorated by adversity. But, in order to promote these ends, our sufferings must not be permitted to overwhelm us. We must oppose them with the arms of reason and religion; and to express the idea in the language of the philosopher, as well as the poet, of Nature, every one, while he is compelled to feel his misfortunes like a man, should resolve also to bear them like a man:

Resign'd in ev'ry state,
With *patience* bear, with prudence push, your fate;
By suffering well our fortune we subdue,
Fly when the frowns, and when she calls pursue.

PA'TIENCE, a small island near the coast of America, in Naragansett Bay, belonging to the state of Rhode Island.

PA'TIENT, *adj.* [Fr. *patiens*, Lat.] Having the quality of enduring: with *of* before the thing endured.—To this outward structure was joined strength of constitution, *patient* of severest toil and hardship. *Fell.*—Wheat, which is the best sort of grain, of which the purest bread is made, is *patient* of heat and cold. *Ray.* Calm under pain or affliction.—Be *patient*, and I will stay. *Shakespeare's Hen. VI.*

Griev'd, but unmov'd, and *patient* of your scorn,
I die. *Dryden's Theocritus.*

Not revengeful against injuries. Not easily provoked.—Warn them that are unruly, support the weak, be *patient* toward all men. 1 *Theff. v. 14.*—Persevering; calmly diligent.—Whatever I have done is due to patient thought. *Newton.*—Not hasty; not viciously eager or impetuous:

Too industrious to be great,
Nor *patient* to expect the turns of fate. *Prior.*

PA'TIENT, *f.* That which receives impressions from external agents.—Malice is a passion so impetuous and precipitate, that it often involves the agent and the *patient*. *Gov. of the Tongue.*—Action and passion are modes which belong to substances: when a smith with a hammer strikes a piece of iron, the hammer and the smith are both agents or subjects of action; the one supreme, and the other

other subordinate; the iron is the *patient*, or the subject of passion, in a philofophical fenfe, becaufe it receives the operation of the agent. *Watts's Logick.*

To proper *patients* he kind agents brings,
In various leagues binds difagreeing things. *Creech.*

A person difeafed. It is commonly ufed of the relation between the fick and the phyfician.—Through ignorance of the difeafe, through unreafonablenefs of the time, inftead of good he worketh hurt, and out of one evil throweth the *patient* into many miferies. *Spenser.*—It is fometimes, but rarely, ufed abfolutely for a fick perfon.—It is wonderful to obferve, how inapprehenfive thefe *patients* are of their difeafe, and backward to believe their cafe is dangerous. *Blackmore.*

Nor will the raging fever's fire abate
With golden canopies or beds of ftate;
But the poor *patient* will as foon be found
On the hard matrefs or the mother ground. *Dryden.*

To PA'TIENT, *v. a.* [*patienter*, Fr.] To compofe one's felf; to behave with patience. *Obfolete.*—*Patient* yourfelf, good mafter friar, quoth he, and be not angry. *Robinfon's Tr. of More's Utopia*, 1551.—*Patient* yourfelf, madam, and pardon me. *Titus Andronicus.*

PATIEN'TIA, *f.* in botany. See RUMEX *patientia*.

PATIEN'TIA, (Straits of,) a channel of the Eastern Indian Sea, between the ifland of Bachian and the fourth coast of Gilolo.

PA'TIENTLY, *adv.* Without rage under pain or affliction.—*Patiently* refign what juftly thou haft loft. *Milton's P. L.*

Ned in the gout
Lies rack'd with pain, and you without,
How *patiently* you hear him groan!
How glad the cafe is not your own. *Swift.*

Without vicious impetuofity; with calm diligence.—Could men but once be perfuaded *patiently* to attend to the difates of their own minds, religion would gain more profelytes. *Calamy's Sermons.*

PA'TIENTNESS, *f.* The ftate or quality of being patient.

PATIGU'MO, *f.* [a corruption of the French words *pate de guimauve*.] The name of a fort of pafte or cakes much ufed on the continent as an agreeable and ufeul remedy for catarrhal diffluxions; and fuppofed by Dr. Percival to confift of gum-arabic combined with fugar, the whites of eggs, and the powdered fubftance of the marfh-mallow, *guimauve*.

PATIMA, *f.* [fo named by Aublet from its Caribean name, *Patima-rana*.] In botany, a genus of the clafs pentandria, order monogynia, natural order of rubiacæ, *Juff.* Generic characters—Calyx: perianthium fuperior, of one leaf, the limb with about five incifions. Corolla and ftamina unknown. Piftillum: germen inferior, firmly united to the bottom of the calyx; ftyle and ftigma wanting. Pericarpium: berry green, roundifh, crowned with the margin of the calyx, of four, five, or fix, cells. Seeds numerous, very finall, imbedded in foft pulp.—*Effential Character.* Calyx fuperior, almoft entire, of fix obtufe angles; berry crowned by the calyx, moftly five-celled, many feeded.

Patima Guianenfis, the only fpecies known, is a native of low marfhy places in Guiana, bearing fruit in May. Root perennial. Stems numerous, fhubby, erect, three feet high, tubular, cylindrical. Leaves oppofite, on long ftalks, very large, ovate-oblong, acute, fmooth, entire. Fruit axillary, confifting of green berries, on longifh folitary ftalks. *Aublet's Guiana*, vol. i. p. 197.

PATIN. See PATEN.

PA'TIN (Guy), a French phyfician diftinguifhed for his wit and learning, was born in 1601 of respectable parents in humble life, at Hodenc in Bray, near Beauvais. He was for fome time a corrector of the prefs at Paris, where he obtained the efteem and friendship of Riolan, a

celebrated phyfician. It was probably through his encouragement that he turned his ftudies to medicine, in which he graduated in 1627, and was admitted among the faculty of Paris. He practifed during his life in that city, much efteemed by many perfons of diftinction for his learning, and for the cauftic vivacity of his converfation, but too much attached to his liberty to pufh his way at court, or among the great. Zealous in maintaining the privileges and honour of the faculty, he was elected to the poft of dean in 1650, and was appointed fucceffor to Riolan the younger, in the chair of phyfic at the College-royal. He delivered himfelf in Latin with fo much fluency and choice of expreffion, that it became quite a fafhion at Paris to attend upon his thefes. In his medical opinions he was a moft orthodox follower of the ancients, and a determined oppofer of innovations, both in theory and practice. In the difputes concerning the ufe of chemical remedies, efpecially antimoniales, which then divided the faculty, he diftinguifhed himfelf as their bittereft adverfary; nor was he in the leaft fparing of perfonalities againft thofe who employed medicines of that clafs. All unfortunate cafes in which they had been exhibited he fet down as fo many murders, and he kept a particular register which he termed the *Antimonial Martyrology*. In his own practice he was a greater fhedder of blood than almoft any other of the Parifian fchool, which was noted for phlebotomy; and he generally imputed the death of a patient to the want of fufficient perseverance in the ufe of the lancet. With this inftrument and a few fimple remedies, particularly of the purgative clafs, he thought that every thing might be effected, within the power of the healing art. He, juftly perhaps, derided the costly compounds and pretended fpecifics with which the apothecaries' fhops at that time abounded; and had rational notions of the general operation of medicines, though under the influence of falfe theories and ftrong prejudices with refpect to particular articles.

In other matters Patin was one who speculated freely. Without joining the Proteftants, he cultivated a friendship with many of that communion, and was not behind any of them in his keen ftrictures on the bigotry and fuperftition of the Roman-catholic church. He feems, indeed, in his private opinions to have concurred with the philofophers of the time; and it has been noted as a very *unehriftian* fentiment, that he confoled himfelf for the idea of quitting this world, with the hope of meeting Aristotle, Plato, Virgil, Galen, and Cicero, in the other. He read much and upon a variety of fubjects, and was eager in the purchafe of new and valuable books, of which he poffeffed a copious collection. This learned and fingular man died in 1672, in his feventy-firft year. He wrote few works in his own profefion, and thofe of little importance. After his death a great number of his Letters were given to the public, which have been the chief means of preferving his memory. Of thefe there are two collections; one addreffed to various friends, printed in 1685 and 1692, two volumes, 12mo. the other all written to his friend Charles Spon, of Geneva, and publifhed by that family in 1718, two volumes, 12mo. Patin's Letters are an amufing mifcellany of political and literary intelligence, biographical anecdotes, free opinions, medical hiftory and criticism, with a plentiful mixture of spleen and farcafm. It is difficult to fay whether he lathed moft feverely the court and miniftry, the clergy, or the chemical docters. He has been accused of giving credit to idle reports, efpecially in difparagement of thofe whom he hated; and it would not be fafe to rely upon the authority of his narratives, which are often only the lie of the day; (fee *Curiofities of Literature*, vol. i. p. 200.) Nevertheless, the pictures which he gives of the manners and fentiments of the time are in moft refpects equally juft and lively. Moft of his medical opinions are to be found in thefe letters, with fome extraordinary instances of practice. They are copioufly interlarded with Latin, in which language his phrafeology is much more cultivated than in his mother-tongue;

tongue. All his letters have been published together in five or six volumes. *Halleri Bibl. Med.*

PATIN (Charles), second son of the preceding, a physician and eminent antiquary, was born at Paris in 1633. He made an extraordinary progress in learning, and at the age of fourteen sustained theses in Greek and Latin before a large and splendid audience. He was designed for the bar, and became a licentiate in law at Poitiers, and afterwards an advocate in the parliament of Paris. He abandoned however this profession for that of physic, in which he took the degree of doctor in 1656. He had begun to practice with great reputation, when a circumstance occurred which obliged him to quit France for fear of imprisonment. The cause of his disgrace is involved in some obscurity; but it is said, that having been sent into Holland by a great prince in order to buy up all the copies of a work of court-scandal, and burn them on the spot, he saved a number of them and dispersed them among his friends. His father, in his letters, lamenting his son's misfortune, gives no hint of such a fact, but mentions the discovery of some obnoxious books in his library. Charles Patin, after passing some time in travelling into Holland, England, Germany, and Switzerland, finally settled with his family in Italy, and in 1676 was made professor extraordinary of medicine at Padua: he had the chair of surgery in 1681, and of the practice of medicine in 1683, which posts he filled with so much distinction, that the republic of Venice conferred on him the order of St. Mark. He was aggregated to the *Academia Naturæ Curiosorum*, and was for many years chief and director of the Academy of *Ricovrati*. He died at Padua in 1693. This learned person was the author of numerous works in the Latin, French, and Italian, languages. Those by which he is best known relate to the medallic science, in which he was a great proficient. The following are upon that subject: 1. *Familix Romanæ ex antiquis Numismatibus*, 1663, folio; this is chiefly founded on the work of Fulvius Ursinus. 2. *Introduction à l'Histoire par la Connoissance des Médailles*, 1665, 12mo. 3. *Imperatorum Romanorum Numismata*, 1671, folio. 4. *Thesaurus Numismatum*, 1672, 4to. 5. *Practica delle Medaglie*, 1673, 12mo. 6. *Suetonius ex Numismatibus illustratus*, 1675, 4to. He likewise published several Orationes and other pieces relative to medicine; an Account of his Travels; *Lycæum Patavinum*, or Lives of the Professors of Padua; and some tracts relative to antiquities.

The wife and two daughters of Charles Patin were learned, and were all members of the Academy of *Ricovrati*, at Padua.—The wife wrote A Collection of Moral and Christian Reflections.—*Charlotte Catharine*, the eldest daughter, pronounced a Latin oration on the raising of the siege of Vienna, which was printed. She also published "*Tabellæ selectæ*," being an explanation of forty-one engravings from the most celebrated painters.—*Gabrielle-Charlotte*, the youngest daughter, published a Latin dissertation on the phoenix on a medal of Caracalla, and a panegyric oration on Louis XIV. *Gen. Biog.*

PATINA, or **PATINE**, *f.* A name given to the rust of medals. This rust, which, when genuine, gives value to medals, is sometimes counterfeited, and a false patina is substituted for that which is true. For detecting these forgeries, see the article **MEDAL**, vol. xiv. p. 828, 9.

PATINO, an island in the Grecian Archipelago, which was the ancient *Patmos*. See **PATMOS**.

PATINOO'N, a town of Hindoostan, in Marawar: twenty-seven miles north-west of Ramanadporum.

PATIO'QUA, a town of Mexico, in the province of Guaxaca: sixty-five miles south of St. Yago de los Valles.

PATIVIL'CA, a town of Peru, in the jurisdiction of Santa, remarkable for the remains of a large Indian building, supposed to have been the palace of a cacique; situated on the coast of the Pacific Ocean. Lat. 10. 25. S.

PATIX'A, or **GRAND RIVER**, a river of Brasil which runs into the Atlantic in lat. 15. 50. S.

VOL. XIX. No. 1310.

PAT'KUL (John Reinhold), was born of a noble family in Livonia, a northern province belonging to the crown of Sweden. The Livonians having been stripped of their privileges, and great part of their estates, by Charles XI. Patkul was deputed to make their complaint; which he did with such eloquence and courage, that the king, laying his hand upon his shoulder, said "You have spoken for your country as a brave man should, and I esteem you for it." Charles, however, who added the baseness of hypocrisy to the ferocity of a tyrant, was determined to punish the zeal and honesty which he thought fit to commend; and a few days afterwards caused Patkul to be declared guilty of high treason, and condemned to die. Patkul, however, found means to escape into Poland, where he continued till Charles was dead. He hoped that his sentence would have been then reversed; but, being disappointed in this expectation, he applied to Augustus king of Poland, and solicited him to attempt the conquest of Livonia from the Swedes; which, he said, might be easily effected, as the people were ready to shake off their yoke, and the king of Sweden was a child incapable of compelling their subjection.

Augustus took the hint, and possessed himself of Livonia. Afterwards, when Charles XII. entered the province to recover it, Patkul commanded in the Saxon army against him. Charles was victorious; and Patkul, some time afterwards, being disgusted at the haughty behaviour of Gen. Fleming, Augustus's favourite, entered into the service of the czar of Muscovy, with whom Augustus was in strict alliance, and a little before Charles compelled Augustus to abdicate the throne of Poland. The czar sent Patkul with the title of his ambassador, into Saxony, to prevail with Augustus to meet him at Grodno, that they might confer on the state of their affairs. This conference took place; and immediately afterwards the czar went from Grodno to quell a rebellion in Astracan. As soon as the czar was gone, Augustus, to the surprise of all Europe, ordered Patkul, who was then at Dresden, to be seized as a state-criminal. By this injurious and unprecedented action, Augustus at once violated the law of nations, and weakened his own interest; for Patkul was not only an ambassador, but an ambassador from the only power that could afford him protection. The cause, however, was this: Patkul had discovered that Augustus's ministers were to propose a peace to Charles upon any terms; and had therefore formed a design to be beforehand with them, and procure a separate peace between Charles and his new master the czar. The design of Patkul was discovered; and, to prevent its success, Augustus ventured to seize his person, assuring the czar that he was a traitor, and had betrayed them both.

Augustus was soon after reduced to beg a peace of Charles at any rate; and Charles granted it upon certain conditions, one of which was, that he should deliver up Patkul. This condition reduced Augustus to a very distressful dilemma: the czar, at this very time, reclaimed Patkul as his ambassador; and Charles demanded, with threats, that he should be put into his hands. Augustus therefore contrived an expedient by which he hoped to satisfy both: he sent some guards to deliver Patkul, who was prisoner in the castle of Konigstein, to the Swedish troops; but by secret orders, privately dispatched, he commanded the governor to let him escape. The governor, though he received this order in time, yet disappointed its intention by his villany and his avarice. He knew Patkul to be very rich; and, having it now in his power to suffer him to escape with impunity, he demanded a large sum for the favour: Patkul refused to buy that liberty which he made no doubt would be gratuitously restored, in consequence of the czar's requisition and remonstrance; and, in the mean time, the Swedish guards arrived with the order for his being delivered up to them. By this party he was first carried to Charles's

head quarters at Albrantstadt, where he continued three months, bound to a stake with a heavy chain of iron. He was then conducted to Casimir, where Charles ordered him to be tried; and he was by his judges found guilty. His sentence depended upon the king; and, after having been kept a prisoner some months uncertain of his fate, he was, on the 28th of September, 1707, towards the evening, delivered into the custody of a regiment of dragoons; next day, the colonel took the chaplain of his regiment aside, and, telling him that Parkul was to die the following day, ordered him to acquaint him with his fate and prepare him for it. About this very time he was to have been married to a Saxon lady of great quality, virtue, and beauty; a circumstance which renders his case still more affecting.

On the 30th of September, he was put into a coach, guarded by one hundred horseman. Being arrived at the place of execution, he found it surrounded by three hundred foot-soldiers. At the sight of the stakes and wheels, his horror is not to be described; for of the manner of his death he had not been informed. After praying most fervently, he bade the executioner do his duty well, and put into his hands some money which he got ready for that purpose. He then stretched himself out upon the wheel; and while they were stripping him naked, he begged the chaplain to pray that God would have mercy on him, and bear up his soul in agony. He did so; and turning to all the spectators, said to them, "Brethren, join with me in prayer for this unhappy man." "Yes (cried he), assist me all of you with your supplications to heaven." Here the executioner gave him the first stroke. His cries were terrible: "O Jesus! Jesus! have mercy upon me." This cruel scene was much lengthened out, and of the utmost horror; for as the headsmen had no skill in his business, the unhappy victim received fifteen several blows, with each of which were intermixed the most piteous groans and invocations of the name of God. At length, after two strokes given on the breast, his strength and voice failed him. In a faltering dying tone, he was just heard to say, "Cut off my head;" and, the executioner still lingering, he himself placed his head on the scaffold: after four strokes with an hatchet, the head was separated from the body, and the body quartered. Such was the end of the renowned Parkul.

Charles XII. has been very generally and severely censured for not pardoning him, and we are not inclined to vindicate the sovereign. Yet it must be remembered, that Parkul was guilty of a much greater crime than that which drew upon him the displeasure of Charles XI. He incited foreign powers to attack his country when under the government of a boy, hoping, as he said himself, that it would in such circumstances become an easy conquest. He was therefore a rebel of the worst kind; and where is the absolute monarch that is ready to pardon such unnatural rebellion? Nothing, however, can palliate the unfeeling barbarity of putting the veteran to the rack. The monarch was one of the credulous philosophers of the time, who believed in the possibility of discovering the methods of transmuting the baser metals into gold. Parkul, while under sentence of death, contrived so far to impose on the senate at Stockholm, as to persuade them that he had, in their presence, converted to gold a quantity of less precious metal. An account of the experiment was transmitted to the king, accompanied with a petition for the life of so valuable a subject; but Charles, blending magnanimity with severity, replied, that he would not do that for interest which he had refused at the call of humanity and the intreaties of friendship.

PATLADAH', a circar of Bengal: bounded on the north-east by Carribarry, on the south and south-east by Dacca, and on the west by Goragot and Islamabad; about thirty miles long, and sixteen broad. The chief towns are Chilmiry and Dewangunge.

PATLY, *adv.* [from *pat.*] Commodiously; fitly.—Which words how *patly*, how *livelily*, do they set out our Saviour's being nailed to the cross. *Barrou.*

PAT'MOS, in ancient geography, an island in the Grecian archipelago, now denominated by navigators *St. Jean de Patino*, celebrated in ecclesiastical history, on account of its being the place of St. John's exile, and still more from the revelations and visions which he received there, and which form the subjects of the Apocalypse, or Revelation. At present it exhibits little more than arid rocks. A grotto in the rock, now converted into a church, is pointed out as the spot where that apostle wrote the Apocalypse. This church belongs to a convent, the abbot of which is prince of the island, and pays annually 1000 crowns to the grand signior, besides presents to the capitan pacha. This prince-abbot was visited by Dr. Clarke, who informs us, (*Travels*, vol. vi.) that the library of the convent is a small oblong chamber, with a vaulted stone roof; he found it to be nearly filled with books of all sizes in a most neglected state; some lying upon the floor, a prey to the damp and worms; others standing confusedly on the shelves, which were printed volumes, some of which were well bound, and in good condition; but *neither of the superiors of this college was able to read.* At the extremity of the chamber he found a heap of Greek MSS. some of which were of the highest antiquity; amongst other specimens of Grecian calligraphy, he found a copy of the twenty-four first Dialogues of Plato, written upon vellum, in the same exquisite character, which remained in the hands of his friend professor Porson until his death. But it is now, with the other MSS. from Patmos, &c. in the Bodleian library at Oxford.

This island is little more than six leagues in circuit; considerably longer than broad, its direction being from north to south, and its form very irregular. Its coasts are intersected by a variety of gulfs and coves, and are remarkable for the number of good harbours which they present to navigators, among which that of Scala is one of the finest in the Archipelago. But, notwithstanding the advantages which these harbours might afford it as a place of trade, it presents to the view of the observer a very wretched appearance. Valleys, which might insure abundance, are uncultivated; and, from their state of abandonment and nakedness, offer, with the hills that surround them, only the same aspect of ruggedness and misfortune. Population, which follows in the train of agriculture and industry, is here singularly diminished; and, while the monasteries swarm with sluggards, the fields become deserts. Such is the account given of this desolate spot by Sonnini. Although it is destitute of wood and rivers, and almost without gardens, its spring-water is pure and its air healthy. The inhabitants are chiefly Greek Christians, sailors or ship-builders, who sail as far as Venice, whither they carry cotton and stockings of their own manufacture. The island abounds with rabbits, pigeons, partridges, and quails. It is sixteen miles south-west of Samos. Lat. 37. 24. N. lon. 26. 24. E.

PAT'MOUR, a town of Hindoostan, in Golconda: twenty-five miles north-north-east of Rachore.

PAT'NA, a city of Hindoostan, and capital of the country of Bahar, and residence of a governor. This is a very extensive and populous city, built along the south side of the Ganges, on an eminence. By this it is secured from the inundations of the river, which would otherwise, at particular seasons, be highly prejudicial and dangerous. Having often been the seat of war, (see the article **HINDOOSTAN**,) it is fortified in the Indian manner, with a wall and a small citadel. It is a place of very considerable trade. Most of the saltpetre imported by the East-India Company is manufactured within the province of Bahar. It is a very ancient city; and probably its modern name may be derived from Paliputra, or Patelpoother, which we suppose to be the ancient Palibothra.

bothra. It is 250 miles north-west of Calcutta. Lat. 25. 37. N. lon. 85. 21. E.

PAT'NA, a town of the province of Bukovina: thirty miles west of Sucfava.

PAT'NA, or PUT'NA, a river of Moldavia, which runs into the Milcow at Focfani.

PAT'NESS, *f.* [from *pat.*] Convenience: propriety; suitability.—This the Holy Spirit wished, in an age so resembling ours, that, I fear, the description with equal *patness* may suit both. *Barrow.*

PATNOU'RA, a town of Hindoostan, in the circar of Kerleh: fifty-five miles north-west of Maltoy.

PATO'KAH, a town of Hindoostan, in Dowlatabad: thirty miles north-west of Darore.

PAT'OMA, a river of Russia, which runs into the Lena in lat. 59. 53. N. lon. 116. 24. E.

PATOMACK, or PATOWMACK. See POTOMACK.

PATOMAT'. See PATAMAT, vol. xviii.

PATON'CE, *adj.* in heraldry. See vol. ix. p. 423.

PATONG', a town of China, of the third rank, in Hou-quang, on the Yang-tse river: fifteen miles west-north-west of Koue.

PATOO'K, or PUT'TOCK, a river of Honduras, which runs into the bay in lat. 15. 55. N. lon. 84. 25. W.

PA'TOS, a river of Brasil, which runs into the Atlantic in lat. 28. 28. S.

PA'TOS, a town of Mexico, in the province of Zacatecas: eighty miles north of Zacatecas.

PATOU', a town of Hindoostan in the circar of Aurungabad: forty-five miles east of Aurungabad.

PATOUAL', a town of Hindoostan, in Baglana: eighteen miles south-east of Bahbelgong.

PATQUASHAGA'MA LA'KE, a lake of Canada: 450 miles west of Quebec. Lat. 48. 20. N. lon. 82. 5. W.

PA'TRA, a town of Hindoostan, in Guzerat; eighteen miles north-north-east of Amond.

PA'TRA. See PATERA, vol. xviii. p. 782.

PA'TRÆ, or PATRAS, in ancient geography, a town of Achaia, on a promontory, north of Mount Panachai-chus. It was more anciently called *Aroë*, derived, as it is said, from *αρω*, I labour, and applied to it, probably from its being the first place of Achaia in which the inhabitants occupied themselves in labour. Patraeus, one of the chiefs of the Achæans who were driven from Lacedæmon on the arrival of the Heraclidæ, enlarged and fortified *Aroë*, and gave it his own name. Of all the Achæans, the inhabitants of Patras were the only persons who defended the Ætolians when they were attacked by the Gauls. This incursion was probably that of the year 278 B. C. and which followed the irruption of this people into Macedonia, in the preceding year, when they were defeated. Augustus, allured by the situation of Patras, collected the scattered inhabitants, and re-established them. He also united several towns under its dominion, and conferred on the inhabitants all the advantages enjoyed by Roman colonies. In the time of Pausanias this town was adorned with a statue of Diana Laphria; an odeum which, next to that of Athens, was the most beautiful in Greece; and a fountain near the temple of Ceres, where oracles were issued for the relief of bodily maladies.

PATRA'NA, or PASTRANA, a town of New Castile in Spain, with the title of a duchy. It is seated between the rivers Tajo and Tajuna, in lat. 40. 26. N. lon. 2. 45. W.

PA'TRAS, a sea-port town of the Morea, situated on the south coast of the entrance into the gulf of Lepanto. (See the preceding article.) This town is the see of a Greek archbishop, and contains 10,000 inhabitants, according to Dr. Holland. Consuls from England, Holland, and Venice, have been accustomed to reside here. The principal articles of trade are coarse oil, silk, honey, wheat, manna, &c. In the year 1447 this place made a brave defence against sultan Murat, and held out till peace was concluded, when the Morea was surrendered

to the Turks. The port is choked with mud, and the road for vessels is very indifferent; the Turks repair nothing. This place is twenty-eight miles north-east of Chiarenza. Lat. 38. 33. N. lon. 21. 43. E.

PATRE'E, a town of Hindoostan, in Guzerat: seventy miles west of Amedabad.

PA'TRES, *f.* [Latin.] FATHERS; the name generally given in catholic countries to the monks of the great orders of monachism, as Benedictines, Augustines, and Bernardines; while the immense progeny of St. Francis were commonly styled *Fratres*, Brothers. In any legal instrument, however, they were all styled *Fratres*; and they subscribed themselves so in their correspondence; but, when a gentleman or lady addressed any monk or friar, he or she always used the name of *Pater*, Father, by courtesy. There seems to be no peculiar rule on the subject.

PATRES CONSCRIPTI, a denomination given to the senators of Rome. The first hundred senators, appointed by Romulus, were called simply *Patres*, Fathers: another hundred being added by Romulus and Tatius, upon the union of the two people, these latter were called *Patres Minorum gentium*, and the former *Majorum gentium*. At length, Tarquinius Priscus making up the number three hundred, the two latter classes were called *Patres Conscripti*, because "written down" to the former.

Livy, however, gives a different account of their origin. He tells us, that, when Brutus filled up the places of the senators cut off by Tarquin with others chosen out of the equestrian order, those new senators only had the appellation given them of *Patres Conscripti*. Lib. i. c. 1.

PA'TRIA, a town of Naples, in Lavora, near a lake to which it gives name: thirteen miles north-west of Naples.

PA'TRIA, [Lat. the country.] The men of a neighbourhood. Thus, when it is said *inquiratur per patriam*, a jury of the neighbourhood is meant. *Jacob.*

PA'TRIARCH, *f.* [formed of the Gr. *πατρις*, family, and *αρχων*, chief.] One of those first fathers who lived towards the beginning of the world; and who became famous by a long line of descendants. Abraham, Isaac, and Jacob, and his twelve sons, are the patriarchs of the Old Testament. Seth, Enoch, &c. were antediluvian patriarchs. Long life and a number of children were the blessings of the patriarchs.

The patriarchal government consisted in the fathers of families; and their first-born after them, exercising all kinds of ecclesiastical and civil authority in their respective households; and to this government, which continued till the time of the Israelites dwelling in Egypt, some have ascribed an absolute and despotic power, extending even to the punishment by death. In proof of this they allege, among other instances, the sentence of Judah with regard to Tamar, Gen. xxxviii. 24. concerning which it is observed, that Jacob, the father of Judah, was still living; that Tamar was not one of his own family; and that she had been guilty of adultery, the punishment of which was death by burning, and that Judah on this occasion might speak only as a prosecutor. See Jennings's Jewish Antiq. vol. i. Sydney's Discourses concerning Government, chap. i. sect. 7.

PATRIARCH is also used in Christendom, for the bishops in possession of some of the grand sees independent of the papal jurisdiction; or for the chief bishop over several countries or provinces, as an archbishop is of several dioceses; who hath several archbishops under him. See PATRIARCHATE.

The patriarchate has been always esteemed the supreme dignity in the church; so that, to rise by degrees, the *bishop* had only under him the territory of the city of which he was bishop; the *metropolitan* commanded a province, and had for suffragans the bishops of his province; the *primate* was the chief of a diocese, and had several metropolitans under him; and the *patriarch* had under him several dioceses, and the primates themselves were under him. But this order was not always observed.

Uther,

Usher, Pagi, De Marca, and Morinus, attribute the establishment of the grand patriarchates to the apostles. They suppose that the apostles, according to the description of the world then given by geographers, pitched on the three principal cities in the three parts of the known world; viz. Rome, in Europe; Antioch, in Asia; and Alexandria, in Africa: and thus formed a trinity of patriarchs.

Others, far from attributing this institution to the apostles, maintain that the name patriarch was unknown at the time of the council of Nice; and that, for a long time afterwards, patriarchs and primates were confounded together, as being all equally chiefs of dioceses, and equally superior to metropolitans, who were only chiefs of provinces. Hence it is that Socrates gives the title patriarch to all the chiefs of dioceses, and reckons ten of them. In effect, it does not appear, that the dignity of patriarch was appropriated to the five grand sees of Rome, Constantinople, Alexandria, Antioch, and Jerusalem, till after the council of Chalcedon, in 451. For, when the council of Nice regulated the limits and prerogatives of the three patriarchs of Rome, Antioch, and Alexandria, it did not give them the title of patriarchs, though it allowed them the pre-eminence and privileges thereof. Thus, when the council of Constantinople adjudged the second place to the bishop of Constantinople, who, till then, was only a suffragan of Heraclea, it said nothing of the patriarchate. Nor is the term patriarch found in the decree of the council of Chalcedon, whereby the fifth place is assigned to the bishop of Jerusalem; nor did these five patriarchs govern all the churches. There were still many independent chiefs of dioceses, who, far from owning the jurisdiction of the grand patriarchs, called themselves patriarchs: such as that of Aquileia; nor was Carthage ever subject to the patriarch of Alexandria. Mosheim supposes, that those prelates who enjoyed a certain degree of pre-eminence over the rest of the episcopal order, were distinguished by the Jewish title of patriarchs in the fourth century. Eccl. Hist. vol. i.

The authority of the patriarchs grew by insensible degrees, till at length we find, that, about the close of the fifth century, all affairs of moment, within the compass of their patriarchate, came before them; either at first hand, or by appeals from the metropolitans. They consecrated bishops; assembled yearly in council the clergy of their respective districts; pronounced a decisive judgment in those cases where accusations were brought against bishops; and appointed vicars or deputies, clothed with their authority, for the preservation of order and tranquillity in the remoter provinces. Nothing, in short, was done without consulting them; and their decrees were executed with the same regularity and respect as those of the princes. It must, however, be observed, that the authority of the patriarchs was not acknowledged through all the provinces without exception. Several districts, both in the eastern and western empires, were exempted from their jurisdiction.

PATRIARCH is also applied to the chief of several churches in the East, who live out of communion with the Roman church; such are the patriarch of the Armenians, residing in the monastery of St. Gregory; the patriarch of the Abyssinians, called *Abuna*; the patriarchs of the Copti, the Jacobites, &c. See GREEK CHURCH, vol. viii. p. 969.

PATRIARCHAL, or PATRIARCHICAL, *adj.* Belonging to patriarchs; such as was possessed or enjoyed by patriarchs.—Nimrod enjoyed his *patriarchal* power; but he against right enlarged his empire, by seizing violently on the rights of other lords. *Locke*.—By discovering the vanity of our author's whimsical *patriarchal* kingdom, I am led to a certain conclusion. *A. Sidney*.

Such drowsy sedentary souls have they,
Who would to *patriarchal* years live on,
Fix'd to hereditary clay,

And know no climate but their own. *Norris*.

Belonging to hierarchical patriarchs.—Archbishops or metropolitans in France, are immediately subject to the pope's jurisdiction; and, in other places, they are immediately subject to the *patriarchal* sees. *Ayliffe*.

PATRIARCHAL CROSS, in heraldry, is that where the shaft is twice crossed; the lower arms or traverses being longer, and the upper shorter. Such a cross is said to belong to patriarchs, as the triple cross does to the pope.

PATRIARCHATE, or PATRIARCHSHIP, *f.* A bishoprick superior to archbishopricks.—The questions are as ancient as the differences between Rome and any other of the old *patriarchats*. *Selden*.—Prelacies may be termed the greater benefices; as that of the pontificate, a *patriarchship* and archbishoprick. *Ayliffe*.

PATRIARCHY, *f.* Jurisdiction of a patriarch; patriarchate.—Calabria pertained to the patriarch of Constantinople, as appeareth in the novel of Leo Sophus, touching the precedence of metropolitans belonging to that *patriarchy*. *Brewerwood*.

PATRI'CA, a town of the popedom, in the Campagna di Roma: thirteen miles south of Rome.

PATRI'CIAN, *adj.* [*patricien*, Fr. *patricius*, Lat.] Senatorial; noble; not plebeian:

The insulting tyrant prancing o'er the field,
His horse's hoofs wet with *patrician* blood. *Addison*.

PATRI'CIAN, *f.* A nobleman.—Your daughters are all married to wealthy *patricians*. *Swift*.

Noble *patricians*, patrons of my right,
Defend the justice of my cause with arms. *Shakespeare*.

PATRICIAN was a title given, among the ancient Romans, to the descendants of the hundred, or, as some will have it, of the two hundred, first senators chosen by Romulus; and by him called *patres*, "fathers." Romulus established this order after the example of the Athenians; who were divided into two classes, viz. the *επατριδας*, *patricios*, and *δημοτικους*, *populares*. Patricians, therefore, were originally the nobility, in opposition to the plebeians. They were the only persons whom Romulus allowed to aspire to the magistracy; and they exercised all the functions of the priesthood till the year of Rome 495.

At length, the cognizance and character of these ancient families being almost lost and extinguished by a long course of years, and frequent changes in the empire, a new kind of patricians was afterwards set on foot, who had no pretensions from birth, but whose title depended entirely on the emperor's favour. This new patriciate, Zozimus tells us, was erected by Constantine, who conferred the quality on his counsellors, not because they were descended from the ancient fathers of the senate, but because they were the fathers of the republic, or of the empire. This dignity in time became the highest of the empire. Justinian calls it *summam dignitatem*. In effect, the patricians seem to have had the precedence of the *consulares*, and to have taken place before them in the senate; though F. Faber asserts the contrary. What confounds the question is, that the two dignities often met in the same person; because the patriciate was only conferred on those who had gone through the first offices of the empire, or had been consuls. Pope Adrian made Charlemagne take the title of patrician before he assumed the quality of emperor; and other popes have given the title to other kings and princes by reason of its eminence.

PATRICIAN DEITIES, in mythology, were Janus, Saturn, the Genius, Pluto, Bacchus, the Sun, the Moon, and the Earth.

PATRICIANS, in ecclesiastical writers, an ancient sect of heretics, who disturbed the peace of the church in the beginning of the third century; thus called from their founder *Patricius*, preceptor of a Marcionite called Symmachus. His distinguishing tenet was, that the substance of the flesh is not the work of God, but that of the devil: on which account his adherents bore an implacable

cable hatred to their own flesh; which sometimes carried them so far as to kill themselves. They were also called TATIANITES, and made a branch of the ENCRATITÆ.

PATRICIATE, *f.* The order or dignity of patricians.

PATRICIDE, *f.* [*patricidium*, Lat.] The same with PARRICIDE, which see, vol. xviii.

PATRICK, a county of Virginia, containing 4599 whites, and 742 blacks.

PATRICK, a Christian and surname of men.

PATRICK (St.), from the eminent services he rendered to the Irish in converting them from idolatry, is called the archbishop, apostle, and father, of the Hibernian Church; and he has also the honour of being selected as the patron or tutelar saint of that island. The name this saint received at his baptism was *Suceath*, formed from the British language, and expressing "Valour in War." His parents, who were Britons by birth, were of great respectability and repute, and resided at the spot now called Kirk-Patrick, near Dunbarton, where it is generally acknowledged this eminent character was born. But the Irish assert him to have been a Genoese friar, who travelled on foot through Italy, France, and England, to the coast of Scotland, from whence he embarked and landed at Donaghadee in Ireland.

He received the first rudiments of his education at the place of his nativity, and was early conspicuous for an ingenuous and amiable disposition, and for superiority of mental powers. Scarcely arrived at the age of sixteen, he was taken prisoner by certain Irish exiles, and conveyed to that kingdom, where he continued six years in captivity under Milcho, who purchased him as a slave, and bestowed upon him the name of *Cothraig*, signifying "Four Families," and designed to convey the circumstance of his having been purchased from the service of three persons, his masters by capture, to be employed under the fourth, who so named him. During this servitude, from which St. Patrick contrived to escape, he had made himself a perfect master of the Irish language; and he is considered, very early after his return to his native spot, to have conceived the wish of converting the Irish from Paganism to Christianity. The qualifications necessary for this purpose, could not however be attained in Britain, where few only were then remarkable for any particular mental acquirement; passing, therefore, over to the continent, he studied the Scriptures for thirty-five years, first under St. Martin, the bishop of Tours, his mother's uncle, who ordained him deacon; and next under the no less celebrated St. German, bishop of Arles, who advanced him to priest's orders, and, for reasons unknown, gave the third name by which history speaks of him, of *Mauin*, or *Maginim*. By St. German he was recommended to the particular consideration of Celestine, the sovereign pontiff, who consecrated him a bishop, and again changed his name to *Patricius*, or Patrick, not only in allusion to the respectability of his descent, but to give lustre and weight to the important mission with which he intended to intrust him, of converting the Irish; and his receiving this fourth name is considered as forming a remarkable coincidence with the fact of his having been called Cothraig, in allusion to the four families, or four masters, whom he served! Celestine had before deputed Palladius to preach the doctrines of Christianity to the Irish; but that learned doctor had returned unsuccessful from his mission; and hence arose the favourite adage in the sister country of "Not to Palladius, but to Patrick, did the Lord vouchsafe the conversion of Hibernia."

In the year 441, as asserted by most authors, though so early as 432 by others, St. Patrick landed at Wicklow, from whence he proceeded to Dublin and Ulster, at which latter place he founded a church; and, after labouring with considerable success for about seven years, he again

Vol. XIX. No. 1310.

visited Britain, which he delivered from the then prevalent heresies of Pelagius and Arius; established the great church of St. Andrew at Menevia, afterwards called St. David's; and settled the bishopric of the Isle of Man. These important duties executed, St. Patrick returned to Ireland, nearly the whole of which island he brought to the Christian faith, after the most indefatigable and zealous efforts of about the further period of thirteen years. He then once more visited Rome, to render an account of the happy success of his mission, which he had executed with so much discretion as not to occasion the martyrdom of even one of his companions, nor of any of those for whose salvation he had so strenuously exerted his noble faculties. About the year 472, he founded the archbishopric of Armagh, between which place and his church at Ulster, afterwards the famous abbey of Saul, he passed the remainder of his long and well-spent life, dying at the latter place on the 17th March, 493, in the 120th year of his age. The most current belief favours his having been buried in the abbey of Saul, in the county of Down; but there have been arguments adduced in proof of his having been interred at Glastonbury, in England, and many more that his remains were deposited at Glasgow, in Scotland. Cambrensis positively affirms, that "the bodies of St. Patrick, St. Bridget, and St. Columb, were not only buried at Down, but were also there taken up and translated into shrines by John de Courfey about 1185."

The miracles attributed to St. Patrick are numerous; some of a nature too much out of the line of modern belief to be repeated; others too closely bordering on the efforts of other saints to create much interest, such as having swam across the Shannon with his head under his arm; &c. &c. Nor should we have noticed them at all, but from the circumstance that Jocelin's "Acts of St. Patrick" have been deemed of sufficient authenticity to be introduced to notice in the vulgar tongue, so recently as 1809, after having been left undisturbed in the Latin in which it was originally penned, in the early part of the twelfth century, when superstition and ignorance were at the greatest height in Europe. From this legend we shall therefore select the history of one miracle, performed not *by* St. Patrick, but *on* St. Patrick. It will show, moreover, with what ingenuity the Irish Papists have contrived to eat meat on the anniversary of their tutelar saint. "A desire of eating meat once came on St. Patrick, until, being ensnared and carried away by his desire, he obtained swine's flesh, and concealed it in a certain vessel; thinking that he might thus satisfy his appetite privily, which should he openly do, he would become to his brethren a stone of offence, and a stumbling-block of reproach. He had not long quitted the place, when lo! one stood before him, having eyes before and behind; whom, when Patrick beheld, he marvelled who he was, and what meant his eyes fixed before and behind did earnestly ask; and he answered 'I am the servant of God; with the eyes fixed in my forehead I behold the things that are open to view, and with the eyes that are fixed in the hinder part of my head I behold a monk hiding flesh-meat in a vessel, that he may satisfy his appetite privily.' This he said, and immediately disappeared. Then Patrick, striking his breast with many strokes, cast himself to the earth, and watered it with such a shower of tears as if he had been guilty of all crimes; and, while he thus lay on the ground, mourning and weeping, the angel Victor, so often before mentioned, appeared to him in his wonted form, saying, 'Arise, let thine heart be comforted, for the Lord hath put away thine offence; and hence-forward avoid backsliding.' Then Patrick, rising from the earth, utterly renounced and abjured the eating of flesh-meat, even through the rest of his life; and he humbly besought the Lord that he would manifest unto him his pardon by some evident sign. Then the angel bade Patrick bring forth the hidden meats, and put them into water; and he did as

the angel bade; and the flesh-meats, being plunged into the water, and taken thereout, immediately became fishes. This miracle did St. Patrick often relate to his disciples, that they might restrain the desire of their appetites. But many of the Irish, wrongfully understanding this miracle, are wont on St. Patrick's day, which always falls in the time of Lent, to plunge flesh-meats into water, when plunged in to take out, when taken out to dress, when dressed to eat, and call them 'Fishes of St. Patrick.' But hereby every religious man will learn to restrain his appetite, and not to eat meat at forbidden seasons, little regarding what ignorant and foolish men are wont to do." Life and Acts of St. Patrick, &c. now first translated from the original Latin of Jocelin, the Cistercian Monk of Furnes, who flourished in the early part of the twelfth century. By E. L. Swift, Esq. 1809.

Mr. Swift has apologized for introducing the work of Jocelin to a British public in the following terms:—"Many and extraordinary are the miracles recorded of St. Patrick by Jocelin; but, without requiring the reader's assent to all these, the work ought not to be cast aside with contempt or ridicule. It tends to establish a point which the patriot feeling of every Irishman would gladly support; *The existence of St. Patrick, and the conversion of our country by his apostolic labours*: nor can the improbability or the impossibility of its recorded wonders invalidate the presumption. Philosophy may disdain, and Pyrrhonism may deride, the legendary page of old Jocelin; but, as miracles of a much higher rank have too often met no higher respect, let us, before we pity the monk of Furnes and gratulate our own superior wisdom, consider whether implicit belief be not at least as safe as absolute scepticism. The occasion, however, of these may not seldom be traced; the effects of natural causes, operating on enthusiastic minds, were gradually shaded by allegory and heightened by tradition, until the original act was exalted into a miracle."

The marvellous blessing which St. Patrick is said to have bestowed upon Ireland of never breeding venomous creatures, is currently credited in that island, but merits not serious refutation. Several eminent writers, not doubting the fact of reptiles, &c. not being found in Ireland, have attempted to account for it, from the peculiar salubrity of the air and soil, to the manifest injury of the fame of St. Patrick; and they even adduce instances of places being alike free from reptiles, in this country: such as the parish of Dorchester, in Oxfordshire, West of Watlington; the manor of Lindley, near Bosworth, Leicestershire, &c. &c. Innumerable are the other advantages imputed by the Irish to the partiality of St. Patrick for their island; among which may be noticed the Introduction of the Latin Letters, and with them the Roman Language, as actually possessing evidences of truth.

The wearing of Shamrock on the Feast of St. Patrick, is attributed by some to the following circumstance: When he first endeavoured to plant the seeds of Christianity in Hibernia, he found great difficulty in inculcating the doctrine of the Trinity in the minds of his rude and barbarous auditors; and therefore had recourse to a visible image to illustrate his discourse. Thus when expounding that tritheistical mystery, he held in his hand a leaf of the shamrock, or *trefoil*, as not only representing the divisibility of the Divinity into three distinct and equal parts, but also its junction or union in one stem or original. This ingenious mode of accounting for the wearing of the shamrock may possibly have truth for its basis; although it is more probable, that, as the shamrock had been, long before the time of St. Patrick, considered the national badge or emblem, it was originally worn on his anniversary, to mark him as their patron, or tutelary saint. His anniversary in our almanac is marked for the 17th of MARCH. See that word, vol. xiv. p. 341.

In the year 1470, being the eleventh of Edward the

Fourth, an order of Knights of the Garter was instituted in Ireland: though, for reasons which have eluded research, this order was abolished so early as twenty-four years after its establishment. On the 11th March, 1783, a new order was instituted, denominated "Knights of the Illustrious Order of St. Patrick," of which his majesty, his heirs, and successors, were ordained perpetual sovereigns, and to which several of the most eminent characters under the united monarchy of Great Britain and Ireland, have been elected knights. See the article KNIGHTHOOD, vol. xi. p. 822. and HERALDRY, vol. ix. p. 773.

PATRICK (Simon), a learned English prelate, was the son of a mercer at Gainsborough in Lincolnshire, where he was born in the year 1626. After being well grounded in grammar-learning by an excellent classical master, in 1644 he was sent to the university of Cambridge, where he was admitted a sizar of Queen's College. He took his degree of B. A. in 1647, and in the following year was chosen fellow of his college. In 1641, he proceeded M. A. and about the same time received holy orders from Dr. Joseph Hall, the ejected bishop of Norwich. Soon afterwards he became domestic chaplain to sir Walter St. John of Battersea, who presented him to that living towards the beginning of the year 1658. About this time he commenced author, by publishing his "*Mensa mystica*; or a Discourse concerning the Sacrament of the Lord's Supper: to which is added, a Discourse concerning Baptism," 8vo. This piece was followed, in 1659, by another, entitled "The Heart's Ease; or, a Remedy against all Troubles; with a consolatory Discourse, particularly directed to those who have lost their Friends and dear Relations," 12mo. which has undergone numerous impressions. In 1661, Mr. Patrick was elected master of Queen's College, notwithstanding the king's recommendation of Mr. Anthony Sparrow; but, the affair being brought before the king and council, judgment was soon given against Patrick; and some, if not all, of the fellows who had voted for him were ejected. Upon the ejection of Dr. Manton from the rectory of St. Paul's, Covent Garden, under the act of uniformity in 1662, Mr. Patrick was presented to that benefice by the earl of Bedford; and he endeared himself very much to the parishioners, not only by his excellent preaching and exemplary manners, but particularly by his constant residence with them during the dreadful time of the plague in 1665. In the year 1666, being desirous of proceeding in divinity, his disgust at what had taken place in his old college determined him against keeping his acts at Cambridge, and he therefore entered of Christ-Church-college, Oxford; where he was at first incorporated B. D. and soon afterwards admitted D. D. About the same time he was appointed chaplain in ordinary to the king. In the year 1672, he was made a prebendary of Westminster; and was for some time sub-dean of that church. His next promotion was to the deanery of Peterborough, in 1679; where he completed and published, but not before the year 1686, "The History of the Church at Peterborough," folio, from the manuscript of Simon Gunton, formerly a prebendary of that church. This work was considerably enlarged by the editor, who added a supplement containing a fuller account of the abbots and bishops of Peterborough than had been given by Mr. Gunton.

During the reign of king James II. Dr. Patrick, at the hazard of all that was dear to him, showed his zealous attachment to the protestant religion, by writing and preaching against the errors of the church of Rome. In the year 1686, he ably sustained his part in a conference with two Romish priests in the king's presence, of which the following account is given by bishop Kennet in the third volume of his Complete History of England. "The Protestant champions were, Dr. Simon Patrick, and Dr. William Jane, professor of divinity in Oxford. Those on the Popish side were one Gifford, a doctor of the Sorbonne,

Sorbonne, and Mr. Tilden, who, having turned Roman-catholic at Lisbon, went under the name of Dr. Godden; and the subject of their dispute was, the rule of faith, and the proper judge in controversies. This conference was very long; and at last the Romish doctors were pressed with so much strength of reason and authority against them, that they were really put to silence. Whereupon, his majesty, going off abruptly, was heard to say, he never saw a bad cause so well, nor a good one so ill, maintained." Our author's zeal for the Protestant religion led him to oppose, to the utmost of his power, the reading of James's Declaration for Liberty of Conscience, which was published in order to favour the papists; and he also assisted Dr. Tenison in establishing a school at St. Martin's, in order to counteract the influence of the popish one opened at the Savoy, for the purpose of making converts of the children of poor Protestants.

At the revolution, that attention and respect were paid to Dr. Patrick which his services and abilities merited, and he was called upon to preach before the prince and princess of Orange. Soon afterwards he was appointed one of the commissioners for reviewing the Liturgy; and, as he had an excellent talent at devotional composition, he revised the Collects throughout the whole course of the year: drawing up most of them anew, and rendering them more suitable to the Epistles and Gospels of the day. In the year 1689, he was nominated to fill the vacant see of Chichester; and immediately after his consecration he visited his new diocese, in which he discharged in all respects the duties of a faithful and vigilant pastor. He was employed, with others of the episcopal bench, in settling the affairs of the church of Ireland; with which view they sent back to that country all the clergy who had fled into England for refuge from the tyranny and persecution of the late reign, and recommended to their majesties several worthy persons to fill the vacant bishoprics. In the year 1691, our prelate was translated to the see of Ely, which was vacant by the deprivation of Dr. Francis Turner for refusing to take the oaths to the new government. In this situation he fulfilled the duties of the episcopal function with the utmost application, zeal, and integrity, while he continued to prosecute his studies with great assiduity. He established lectures in two churches in Cambridge, with a salary to each of 30*l.* a-year, for afternoon-sermons every Sunday. He also showed himself a benefactor to his see by the improvements which, at a considerable expense, he introduced into its temporalities. At the same time he showed himself a benefactor in the noblest sense to the public at large, by the valuable writings, consecrated to the interests of piety and virtue, which he was continually committing to the press. He died at Ely in 1707, in the eighty-first year of his age.

Bishop Patrick was a man of extensive learning and eminent abilities, and possessed great merit as a writer. Of the excellence of his public character we have already made mention; and in private life he was exemplary for the ardour of his piety, the sanctity of his manners, his integrity, candour, and charity, and the other virtues which constitute the good man and the Christian. Bishop Burnet ranks him among those who were indeed an honour to the church, and to the age in which they lived. Among his publications are numerous devotional, practical, and miscellaneous, pieces, tracts against popery, sermons, &c. But the most valuable of his works are his "Commentaries" upon the historical books of the Old Testament, and "Paraphrases" on the books of Job, Psalms, Proverbs, Ecclesiastes, and the Song of Solomon, which made their appearance at various times from the year 1679, and, after having been frequently reprinted in octavo and quarto, were collected into three volumes folio. The Paraphrases were first in the order of publication. These volumes, with Lowth's Commentaries upon the Prophets, Arnald's upon the Apocrypha, and Whitby's on the New Testament, form a collection of

English exegetical works which is held in high estimation, and, when complete, now sells for an exorbitant price. *Neal's Hist. Purit.* vol. iv. *Gen. Biog.*

PA/TRICK'S (St.), a small island in the Irish Sea, near the east coast of Ireland. Lat. 53. 36. N. lon. 6. 5. W.

PA/TRICK'S (St.), a small town, the chief of Camden county, Georgia; situated on Great Satilla river, about thirty-two miles from its mouth.

PATRICK'S PURGATORY, the name of one of the small islands in Lough Derg, a lake in the southern part of the county of Donegal, Ireland. This island itself is but 126 yards long by forty-four broad; and the cave, which is called the Purgatory, is sixteen feet and a half by two wide, and so low that a tall man cannot stand erect in it. It holds exactly nine persons; and a tenth could not remain in it without great inconvenience. The floor is the natural rock, and the whole is covered with large stones and sods. It was imagined in the dark ages, that "whoever repented and was armed with true faith, and entering that pit continued there a night and a day, should be purged from all his sins, and also, during his abode there, should not only see the pains of the damned, but the joys of the blessed." There were also in the island a monastery for regular canons of St. Austin, seven chapels, and six churches dedicated to St. Patrick and other saints. The cell was demolished in 1497, by order of pope Alexander VI. and in 1630 the lords justices ordered it to be broken open; the monks were driven away; and it was left in ruins. The place, however, still continues to be frequented in the month of May, June, and July. This island, the lake, and river, are all supposed by some antiquaries to have derived their name from *dearg* or *dirg*, "a cave," and the cave to be spoken of in the Puranas of the Indian Bramins. Mr. Wilford considers Ireland as the Suvarneya of the Puranas. Suvarneya was from the earliest periods considered as the abode of the Pitris, (i.e. fathers or manes.) A place where the pitris could be seen is positively declared to be a narrow cave in a small island in a lake the waters of which were bitter. In it was the entrance of the Dirghe, or long passage into the infernal regions, which is often mentioned in the Puranas. The name Dirghe, and the description of the cave, certainly much resemble that in Ireland, whilst the change of Pitris to Patricius is less difficult than many changes which have occurred in proper names. Still it seems incredible that Ireland should have been known to the Indians, and connected in any way with their fables. Ware and other antiquarians maintain the pagan origin of the ceremony, and Dr. Ledwich, who denies that such a person as St. Patrick ever existed, supposes the story of the cave to be "a pagan tale of purgatory, trumped up with every circumstance that could work on the hopes and fears" of the Irish, so as to render them more obedient to papal authority. Here then the learned doctor and his respectable antagonist (general Vallancey) are not much at variance, could the former admit the oriental origin of what both consider as a relic of paganism. The most discouraging circumstance attending discussions of this kind, is, that as on one hand, after much labour employed in investigation, certainty cannot be attained, so on the other, if it could, it would be attended with no practical benefit. For, of what consequence is it, whether the purgatory were an eastern or western fable; whether it originated with a real St. Patrick, or was a fiction of a later age? See Ledwiche's Antiquities of Ireland, and Vallancey's Prospectus of a Dict. of the Irish Language.

PA/TRICK TOWN, a town of America, in the district of Maine, and county of Lincoln, having 138 inhabitants.

PA/TRICKSBOURNE, a village in Kent, about four miles east of Canterbury. It is noted by some for the antiquity of its church, and a curious Saxon door-way, carved with a variety of figures; a few paces further is Bifrons, built by Robert Bargrave, esq. or by his lady, if one may judge by this motto, which was placed upon it: *Diruta edificat uxor bona, edificata diruit mala.*—Not far

from

from the last-mentioned village is that of Bekeſbourn, where ſeveral of the archbishops of Canterbury formerly had a ſmall but elegant palace; the gateway of which ſtill remains. In this pariſh is Howletts, formerly the feat of Sir Philip Hales. *Wilkes's Britiſh Directory.*

PATRIMONIA, a town of the iſland of Corſica: four miles weſt of Baſtia.

PATRIMONIAL, *adj.* [Fr. from *patrimony*.] Poſſeſſed by inheritance.—The expence of the duke of Ormond's own great *patrimonial* eſtate, that came over at that time, is of no ſmall conſideration in the ſtock of this kingdom. *Temple.*

Their *patrimonial* ſloth the Spaniards keep,
And Philip firſt taught Philip how to ſleep. *Dryden.*

Claimed by right of birth; hereditary.—I pant for *patrimonial* ſkies. *Young.*

No longer doubting, all prepare to fly,
And repoſeſs their *patrimonial* ſky. *Dryden.*

PATRIMONIALY, *adv.* By inheritance.—Good princes have not only made a diſtinction between what was their own *patrimonially*, as the civil-law books term it, and what the ſtate had an intereſt in. *Davenant.*

PATRIMONIO, or **PATRIMONY OF ST. PETER**, a province of the Popedom, or the eccleſiaſtical ſtates; ſo called, as it is ſaid, becauſe it was granted by the emperor Conſtantine, to ſupport a church which he had built in honour of St. Peter, and the uſe of the pope. This country is bounded on the north by the Orvietan and part of Umbria, on the eaſt by the Safina and Campagna di Roma, on the ſouth-weſt by the Mediterranean, and on the north-weſt by the duchy of Caſtro; about forty-three miles in length, and thirty-two in breadth. The country is fertile in corn and fruit, and produces a conſiderable quantity of alum. The principal places are Viterbo, Monte Fiaſcone, Bolsena, Civita Caſtellana, and Civita Vecchia.

PAT'RIMONY, *f.* [*patrimonium*, Lat.] An eſtate poſſeſſed by inheritance.—Incloſures they would not forbid, for that had been to forbid the improvement of the *patrimony* of the kingdom. *Bacon.*

So might the heir, whoſe father hath, in play,
Waſted a thouſand pounds of ancient rent,
By painful earning of one groat a-day,
Hope to reſtore the *patrimony* ſpent. *Davies.*

Their ſhips like waſted *patrimonies* ſhow;
Where the thin ſcattering trees admit the light,
And ſhun each other's ſhadows as they grow. *Dryden.*

PAT'RINGTON, a town of England, in the North Riding of the county of York, ſituated on a river which runs into the Humber; of conſiderable antiquity, and ſaid to have been called *Prætorium*. It has a weekly market on Saturday; and three fairs, March 28, July 18, and December 6, for ſhoes, linen and woollen drapery, copper and tin ware, toys, &c. The pariſh-church is a large and ſpacious edifice; its tower is ſurmounted by a lofty ſpire. Patrington ſtands within leſs than a mile of the eſtuary of the Humber, which forms here a ſmall creek, capable of affording ſhelter and anchorage to veſſels of ſmall burden. According to the parliamentary returns of 1811, the town and pariſh contained 190 houſes, and a population of 1016 inhabitants. It is eighteen miles eaſt-ſouth-eaſt of Hull, 192 north of London: lat. 53. 50. N. lon. 0. 10. E.

About a mile and a half to the north-weſt of Patrington is the pleaſant village of Wineſtead, which is adorned with two elegant villas, the ſeats of the late ſir Robert d'Arcy Hildyard, bart. and of Henry Maſters, eſq. The former ſeat is denominated Wineſtead-hall; and both, being ſituated upon gently-riſing ground, command a beautiful proſpect of the town of Patrington, the Humber, and Sunk-Iſland. This iſland has its name from the circumſtance of its having been entirely under water till the reign of Charles I. when it began to appear by the

receding of the ocean. At firſt, only a few acres were left dry at low water; but, as it increaſed in extent every year, it was at length embanked, and laid down as paſture land. Other embankments, however, were made at ſubſequent periods, in proportion as the waters retired; ſo that the iſland is now of conſiderable extent, and only ſeparated from the Holderneſs marſhes by a ditch a few feet in breadth. The laſt embankment was effected in 1808, and incloſed an area of 4570 acres. Sunk iſland is divided into ſeveral farms; and a church has lately been built upon it, for the accommodation of the inhabitants. The ſoil is peculiarly fertile.

Spurn-head, or Spurn-point, ſituated about ten miles to the ſouth-eaſt of Patrington, conſtitutes the extremity of the noted Ocellum Promontorium of Ptolemy, which projects nearly half-way acroſs the entrance into the Humber. Its preſent name of Spurn-head is of Saxon origin; the verb *ſpurnian*, ſignifying to explore or ſpy out. A light-houſe is placed here, as a guide to veſſels navigating the eſtuary. Somewhere in this vicinity was anciently the celebrated ſea-port Ravenspur, or Ravenſer, remarkable in the annals of England as the landing-place of Henry IV. in 1399, and of Edward IV. in 1471, when theſe princes came to contend for the poſſeſſion of the Engliſh ſceptre. This town has long ſince been ſwallowed up, either by the ocean or by the Humber; ſo that the ſpot on which it ſtood is uncertain. Several other towns and villages hereabouts have experienced a ſimilar fate: among them are mentioned Hide, Friſmerk, Tharlethorpe, Redmayr, Pennysmerk, Upſal, and Pottenſleet; all of which Dr. Gibſon ſuppoſes were overflowed in the 30th or 38th year of Edward III. when the tides are recorded to have riſen to a moſt extraordinary height. The inundation of Ravenspur, however, muſt have taken place at a much later period.

Near the village of Halfham, about three miles and a half beyond Wineſtead, is a ſuperb maufoleum, erected by the late William Conſtable, eſq. as a burying-place for that family. The architecture of this building diſplays an union of elegance and ſimplicity, which at once captivates the eye, and is appropriate to the nature of the ſtructure. The poſition of this maufoleum is lofty, and the ſurrounding grounds are covered with trees. Near this is (the remains of) the village of Hornſey, almoſt ſurrounded by an arm of the ſea. North-weſt of Hornſey, at ſome diſtance from the ſea, ſtands KILHAM, which ſee, vol. xi. *Beauties of England*, vol. xvi. *Wilkes's Britiſh Directory*, vol. iv.

PAT'RLOT, *f.* [Fr. from the Latin *patria*, country.] One whoſe ruling paſſion is the love of his country. This word is old in our language. Cotgrave calls a "*patrot*, one's countryman." The French *patrot* he renders "a father or protector of the country."—Joſeph merited the name of the ſaviour of Egypt. And if any worthy *patrot*, out of a like providence, ſhall before-hand gather up the commodities into a publick magazine, for the common benefit and relief of the people, upon the pinch of an enſuing neceſſity, he is ſo far out of the reach of cenſure, as that he well deſerves a ſtatue with the inſcription of a public benefactor. *Bp. Hall's Caſes of Conſe.*

Here tears ſhall flow from a more generous cauſe,
Such tears as *patrots* ſhed for dying laws. *Pope.*

It is ſometimes uſed ironically for a factious diſturber of the government.

Gull'd with a *patrot's* name, whoſe modern ſenſe
Is one that would by law ſupplant his prince;
The people's brave, the politician's tool:
Never was *patrot* yet, but was a fool. *Dryden.*

PAT'RLOT, *adj.* Actuated by the care of one's country; wiſhing and endeavouring to promote the public good.—That his [Swift's] *patrot* ſpirit was reſtrained ſo long, is not to be wondered at. *Delany's Obſ. on Orrery's Life of Swift.*

Al!

Ah! let not Britons doubt their social aim,
Whose ardent bosoms catch this ancient fire!
Cold interest melts before the vivid flame,
And patriot ardours, but with life, expire. *Shenstone.*

PATRIOTIC, *adj.* Full of patriotism. Dr. Johnson has repeatedly used this word in an ironical way.—Dennis declares with great *patriotic* vehemence, that he who allows Shakespeare learning, and a learning with the ancients, ought to be looked upon as a detractor from the glory of Great Britain. *Farmer's Essay on the Learning of Shakespeare.*—During the protectorship of Cromwell, a time of which the *patriotic* tribes still more ardently desire the return, the Spanish dominions were again attempted. *Johnson's Falkland's Islands.*

PATRIOTISM, *f.* Love of one's country; zeal for one's country.—Being loud and vehement either against a court, or for a court, is no proof of *patriotism*. *Bp. Berkeley's Maxims, 1750.*—It is the quality of *patriotism* to be jealous and watchful, to observe all secret machinations, and to see public dangers at a distance. *Johnson's Patriot.*

PATRIOTISM, or the love of our country, is one of the noblest passions that can warm and animate the human breast. It includes all the limited and particular affections to parents, children, friends, neighbours, fellow-citizens, and countrymen. It ought to direct and limit their more confined and partial actions within their proper and natural bounds, and never let them encroach on those sacred and first regards we owe to the great public to which we belong. Were we solitary creatures, detached from the rest of mankind, and without any capacity of comprehending a public interest, or without affections leading us to desire and pursue it, it would not be our duty to mind it, nor criminal to neglect it: but, as we are parts of the public system, and are not only capable of taking in large views of its interests, but by the strongest affections connected with it, and prompted to take a share of its concerns, we are under the most sacred ties to prosecute its security and welfare with the utmost ardour, especially in times of public trial.

“Zeal for the public good (says Mr. Addison) is the characteristic of a man of honour and a gentleman; and must take place of pleasures, profits, and all other private gratifications: and whosoever wants this motive, is an open enemy, or an inglorious neuter, to mankind, in proportion to the misapplied advantages with which nature and fortune have blessed him.” Wherever love of our country prevails in its genuine vigour and extent, it swallows up all sordid and selfish regards; it conquers the love of ease, power, pleasure, and wealth; nay, when the amiable partialities of friendship, gratitude, private affection, or regards to a family, come in competition with it, it will teach us to sacrifice all, in order to maintain the rights, and promote and defend the honour and happiness, of our country. To pursue therefore our private interests in subordination to the good of our country; to be examples in it of virtue, and obedient to the laws; to choose such representatives as we apprehend to be the best friends to its constitution and liberties; and, if we have the power, to promote such laws as may improve and perfect it; readily to embrace every opportunity for advancing its prosperity; cheerfully to contribute to its defence and support; and, if need be, to die for it:—these are among the duties which every man, who has the happiness to be a member of our free and excellent constitution, owes to his country.

This powerful and sublime passion, by depriving man, in some measure, of his natural feelings, prompts him to love his country independently of himself. It was owing to it that Decius sacrificed his life; Fabius his honour; Camillus his resentment; Brutus and Manlius their children.

A Spartan lady had five sons in the army, and was in momentary expectation of receiving news from the field of battle. At length a messenger arrives from the camp;

VOL. XIX. No. 1310.

and, with trembling agitation, she applies to him for information. “Your five sons,” said he, “are slain.”—“Base slave! did I ask thee that?”—“Yet we have gained the victory,” replied the messenger.—“Thanks to the gods!” exclaimed the mother; and she instantly flew to the temple to offer up her thanks.

The love of their country, and of the public good, seems to have been the predominant passion of the Spartans. Pedareus, having missed the honour of being chosen one of the three hundred who had a certain rank of distinction in the city, went home extremely pleased and satisfied; saying, “He was overjoyed there were three hundred men in Sparta more honourable than himself.”

The patriotism of the Romans is also well known, and has been justly admired. But examples would be misplaced here, and must be reserved for the article *ROME*. In more modern times, the French may be proud of the patriotism and devotion displayed at the siege of Calais in 1347; and the Swifs will never forget Arnold de Winkelried, that hero whose actions deserve to be transmitted to posterity by the pen of a Livy. He truly devoted himself to his country as a captain and a soldier; and, as this instance of devotion is less known than those we have already alluded to, we shall relate it in few words. Winkelried, who was of the country of Underwald, seeing, at the siege of Sempach, that his fellow-countrymen could not break through the Austrians, because, being armed from head to foot, they had dismounted, and, forming a close battalion, presented a front covered with iron, and bristling with pikes and lances; formed the generous design of sacrificing himself to the safety of his country. “My friends, (said he to the Swifs, who began to be dispirited,) I this day devote my life to procure you the victory: I only recommend to you my family; follow me, and act in consequence of what you see me do.” At these words he ranged them in that form which the Romans called *cuneus*, or wedge, and, forming himself the point of the triangle, marched to the centre of the enemy, and, seizing as many of the pikes as he could grasp in his arms, turned them aside, and opened for those who followed him a passage whereby they penetrated into the centre of this thick battalion. Himself and those who were close to him were presently killed; but the Austrians, once broken, were conquered: the weight of their armour became fatal to them, and the Swifs obtained a complete victory.

PATRIOTSHIP, *f.* The office or dignity of a patriot. *Scott.*

PATRIPASSIANS, in church-history, a name given to the sect of the Sabellians, because they did not believe it was the Son, but the Father himself, that suffered and was crucified. The council of Antioch, held by the Eusebians in 345, says, that those whom the Romans called *Patripassians*, the Eastern people called *Sabellians*: it adds the reason of the name *Patripassians* in their condemnation: viz. that, by the incarnation of the Father, they rendered him comprehensible and passible.

The *Patripassian* heresy was first broached by Praxeas, who was seconded by Victorinus, at the beginning of the third century. They confessed Christ to be God, and that God suffered and died for us; but they confounded the divine persons, and denied in effect the Trinity; meaning by Father, Son, and Spirit, not three persons but one person under three names. So that he who suffered for us was, according to him, as much Father as Son. Tertullian wrote expressly against Praxeas. Hermogenes espoused the error of the *Patripassians*, whence they came to be denominated also *Hermogenians*. Afterwards Noetius gave into it, which occasioned them the name of *Noetians*. His disciple Sabellius the Libyan followed, about the year 250, whence they are called *Sabellians*. Lastly, because Sabellius was of Pentapolis, and the heresy spread much there, it was called the *Pentapopolitan doctrine*. See the article *SABELLIANS*.

5 F

PA'TRIS,

PA'TRIS, a town of Hindoostan, in the circar of Aurungabad: six miles south-east of Aurungabad.

PATRIZI, or PATRICIUS (Francesco), a philosopher and man of letters, was born in 1529 in the island of Cherso on the coast of Dalmatia; but he derived his origin from the family of Patrizi in Sienna. At an early age he was sent for education to Padua, where he studied under some of the most eminent masters of the time. In 1553 he began to appear as an author in some miscellaneous Italian tracts. He finished his studies in the following year; and, after some excursions, returned to his own country. In 1557, with the view of obtaining the patronage of the duke of Ferrara, he published a panegyric poem on the house of Este, entitled, "L'Eridano," in a novel kind of heroic verse of thirteen syllables, not however of his own invention. For several successive years he passed an unsettled life, in which he twice visited the isle of Cyprus, which was his abode for seven years, and which he finally quitted on its reduction by the Turks in 1570 or 1571. He also travelled into France and Spain, and spent three years in the latter country, collecting a treasure of ancient Greek MSS. which he lost on his return to Italy. In 1578 he was invited to Ferrara by duke Alphonso II. to teach philosophy in the university of that city. He had remained there fourteen years, when, upon the accession of Clement VIII. to the papedom, he was appointed public professor of the Platonic philosophy at Rome, which office he filled with great applause till his death in 1597.

Of the various branches of science and literature cultivated by this learned man, ancient philosophy was that by which he most distinguished himself. His work, entitled, "Discussiones Peripateticæ," of which the first part was printed at Venice in 1571, and was reprinted with three others at Basil in 1581, is characterised as a learned, perspicuous, and elegant performance. After having commenced with a very particular account of the Aristotelic philosophy and its author, composed with singular erudition, he becomes a violent oppugner of it, and undertakes entirely to subvert it. In a second work, entitled, "Nova de Universis Philosophia," he proposes a new system, founded upon the Platonic philosophy, but with such additions and alterations as seemed requisite. It is, however, in reality, a compound of useless subtleties and chimeras; and, like many other philosophers, he has shown himself more happy in refuting error than in establishing truth. Yet he deserves praise for having been one of the first moderns who attentively observed the phenomena of nature; and he made good use of the opportunities afforded by his travels to collect remarks concerning various points of astronomy, meteorology, and natural history. He was superior to vulgar prejudices, and rejected the vain science of judicial astrology, then so much in vogue. It is remarkable that in one of his "Dialogues on Rhetoric" he advances, under the fiction of an Ethiopic tradition, a theory of the earth perfectly similar to that afterwards proposed with so much fancy and eloquence by Dr. Thomas Burnet. His propensity to new ideas also appeared in what he wrote respecting the mathematical sciences. In his "Nova Geometria," published in 1587, he attempted to establish certain rules better than those which had been hitherto adopted in geometrical processes; but he appears to have made no converts to his system. His "Parelli Militari," published in 1594, though a work of ingenuity and erudition, drew upon him some ridicule for his projects and speculations in an art of which he was so practically ignorant as that of military engineering. In his "Dieci Dialoghi della Storia," in which he treats at large on the art of writing history, the same spirit has led him into frequent digressions upon speculative topics, which are neither instructive nor amusing. Besides his original writings, he appeared as a learned editor in the following publication: "Oracula Zoroastris, Hermetis Trismegisti, et aliorum ex scriptis Platoniorum collecta, Græce et

Latine, præfixa Dissertatione Historica;" Ferrara, 1594. *Gen. Biog.*

To PATRO'CINATE, *v. a.* [*patrocinor*, Lat. *patrocinor*, old French.] To patronise; to protect; to defend.

PATROCINA'TION, *f.* Countenance; support.— Those shameful libels, those *patrocinations* of treason. *Bp. Hall.*

PATROCLEI'A, or PATROCLEA, one of the Grecian islands, called by various other names, as Gaitharonesé, Asses' Isle, the island of Ebony, Gaidromesa, Gardiner's, &c. which difference of names has caused it to be multiplied and represented as a cluster of islands rather than as one island. It has been said, that ebony grows upon this island; but Dr. Clarke and his companions could not find a single specimen of the Ebenus.

PATRO'CLUS, a Grecian chief at the Trojan war. He was the son of Menæceus, by Sthenele, whom some call Philomela or Polymela. The murder of Clytonymus, the son of Amphidamas, by accident, in the time of his youth, made him fly from Opus, where his father reigned. He went to the court of Peleus king of Phthia. He was cordially received, and contracted the most intimate friendship with Achilles, the king's son. When the Greeks went to the Trojan war, Patroclus went with them at the express desire of his father, who had visited the court of Peleus, and he accordingly embarked with ten ships from Phthia. He was the constant companion of Achilles; lodged in the same tent; and, when he refused to appear in the field of battle, because he had been offended by Agamemnon, Patroclus imitated his example, and by his absence was the cause of much evil to the Greeks. At last, however, Nestor prevailed upon him to return to the war, and Achilles permitted him to appear in his armour. The bravery of Patroclus, together with the terror which the sight of the arms of Achilles inspired, soon routed the victorious armies of the Trojans, and obliged them to fly to the city for safety. He would have broken down the walls; but Apollo, who interested himself for the Trojans, opposed him; and Hector, at the instigation of that god, dismounted from his chariot to attack him as he attempted to strip one of the Trojans whom he had slain. This engagement was obstinate; but Patroclus was at length overpowered by the valour of Hector, and the interposition of Apollo. His arms became the property of the conqueror, and Hector would have severed his head from his body had not Ajax and Menelaus prevented it. His body was at last recovered, and carried to the Grecian camp, where Achilles received it with the loudest lamentations. His funeral rites were observed with the greatest solemnity. Achilles sacrificed near the burning pile twelve young Trojans, four of his horses, and two of his dogs; and the whole was concluded by the exhibition of funeral games, in which the conquerors were liberally rewarded by Achilles. The death of Patroclus, as described by Homer, (*Iliad ix.*) gave rise to new events. Achilles forgot his resentment against Agamemnon, and entered the field to avenge the fall of his friend; and his anger was gratified only by the slaughter of Hector, who had more powerfully kindled his wrath by appearing at the head of the Trojan armies in the armour which had been taken from the body of Patroclus. The patronymic of *Actorides* is often applied to Patroclus, because Actor was father to Menæceus.

PATRO'L, *f.* [*patrouille*, *patouille*, old Fr.] The act of going the rounds in a garrison, to observe that orders are kept. Those that go the rounds:

O thou! by whose almighty nod the scale
Of empire rises, or alternate falls,
Send forth the saving virtues round the land
In bright *patrol*. *Thomson's Summer.*

To PATRO'L, *v. n.* [*patrouiller*, Fr.] To go the rounds in a camp or garrison:

These

These outguards of the mind are sent abroad
And still *patrolling* beat the neighbouring road,
Or to the parts remote obedient fly,
Keep posts advanc'd, and on the frontier lie. *Blackmore.*

PAT'RON, *f.* [*patron*, Fr. *patronus*, Lat.] One who countenances, supports, or protects. Dr. Johnson adds, "Commonly a wretch who supports with insolence, and is paid with flattery."—I'll plead for you as my *patron*. *Shakespeare.*

Ne'er let me pass in silence Dorset's name;
Ne'er cease to mention the continu'd debt,
Which the great *patron* only would forget. *Prior.*

A guardian saint.—St. Michael is mentioned as the *patron* of the Jews, and is now taken by the Christians as the protector general of our religion. *Dryden.*

Thou amongst those saints whom thou dost see
Shall be a saint, and thine own nation's friend
And *patron*. *Spenser.*

Advocate; defender; vindicator.—We are no *patrons* of those things; the best defence whereof is speedy redress and amendment. *Hooker.*—Whether the minds of men have naturally imprinted on them the ideas of extension and number, I leave to those who are the *patrons* of innate principles. *Locke.*—One who has donation of ecclesiastical preferment:

Patrons of sense afraid, but not of vice;
Or swoln with pride, or funk in avarice. *Wesley.*

PATRON, among the Romans, was an appellation given to a master who had freed his slave. As soon as the relation of *master* expired, that of *patron* began; for the Romans, in giving their slaves their freedom, did not despoil themselves of all rights and privileges in them; the law still subjected them to considerable services and duties towards their patrons, the neglect of which was very severely punished.

Patron was also a name which the people of Rome gave to some great man, under whose protection they usually put themselves; paying him all kinds of honour and respect, and denominating themselves his clients; while the patron, on his side, granted them his credit and protection. They were therefore mutually attached and mutually obliged to each other; and by this means, in consequence of reciprocal ties, all those seditions, jealousies, and animosities, which are sometimes the effect of a difference of rank, were prudently avoided: for it was the duty of the patron to advise his clients in points of law, to manage their suits, to take care of them as of his own children, and secure their peace and happiness. The clients were to assist their patrons with money on several occasions; to ransom them or their children when taken in war; to contribute to the portions of their daughters; and to defray, in part, the charges of their public employments. They were never to accuse each other, or take contrary sides; and, if either of them was convicted of having violated this law, the crime was equal to that of treason, and any one was allowed to kill the offender with impunity. This patronage was a tie as effectual as any consanguinity or alliance, and had a wonderful effect towards maintaining union and concord among the people for the space of 600 years; during which time we find no dissensions or jealousies between the patrons and their clients, even in the times of the republic, when the populace frequently mutinied against those who were most powerful in the city.

PATRONA, or **PADRONA**, a town of Syria, near the sea-coast, said to have been founded by Itobalus, contemporary and ally of Ahab king of Israel; the ancient name was *Botrys*, or *Botryum*. Mr. Maundrel found here the remains of an old church and monastery; but these, as well as the town, perfectly ruined and desolate: twenty miles south-west of Tripoli. Lat. 44. 12. N. lon. 35. 35. E.

PAT'RONAGE, *f.* Support; protection.—Lady, most

worthy of all duty, how falls it out, that you, in whom all virtue shines, will take the *patronage* of fortune, the only rebellious handmaid against virtue. *Sidney.*

Here's *patronage*; and here our heart descries
What breaks its bonds, what draws the cloister ties;
Shows what rewards our services may gain,
And how too often we may court in vain. *Creech.*

Guardianship of saints.—From certain passages of the poets, several ships made choice of some god or other for their guardians, as among the Roman Catholics every vessel is recommended to the *patronage* of some particular saint. *Addison.*—Donation of a benefice; right of conferring a benefice.—Advowson signifies the taking into protection, and therefore is synonymous with *patronage*. *Blackstone.*—See the article **ADVOWSON**, vol. i. p. 133.

Arms of **PATRONAGE**, in heraldry, are those on the top of which are some marks of subjection and dependence: thus the city of Paris lately bore the fleurs-de-lis in chief, to show her subjection to the king; and the cardinals, on the top of their arms, bear those of the pope, who gave them the hat, to show that they are his creatures. *Ency. Brit.*

To **PAT'RONAGE** *v. a.* To patronize; to protect. A bad word.—He uses it to *patronage* his theft. *Shakespeare.*

Dar'st thou maintain the former words thou spak'st?
Yes, sir, as well as you dare *patronage*
The envious barking of your faucy tongue. *Shakespeare.*

PAT'RONAL, *adj.* Protecting; supporting; guarding; defending; doing the office of a patron.—The name of the city being discovered unto their enemies, their penates and *patronal* gods might be called forth by charms. *Brown's Vulg. Err.*

PAT'RONESS, *f.* [*patrona*, Lat.] A female that defends, countenances, or supports.—All things should be guided by her direction, as the sovereign *patroness* and protectress of the enterprise. *Bacon.*

Befriend me, night, best *patroness* of grief,
Over the pole thy thickest mantle throw. *Milton.*

A female guardian saint.—They took her for their *patroness*, and consequently for their she-god. *Brevint's Saul and Sam. at Endor.*

With wandering steps to search the citadel,
And from the priests their *patroness* to steal. *Dryden.*

A woman that hath the gift of a benefice.

PAT'RONLESS, *adj.* Without a patron.—The arts and sciences must not be left *patronless*. *Ld. Shaftesbury.*

To **PAT'RONISE**, *v. a.* To protect; to support; to defend, to countenance.—Churchmen are to be had in due respect for their work sake, and protected from scorn; but, if a clergyman be loose and scandalous, he must not be *patronized* nor winked at. *Bacon.*—All tenderness of conscience against good laws is hypocrisy, and *patronized* by none but men of design, who look upon it as the fittest engine to get into power. *South.*

PAT'RONISER, *f.* One who countenances or supports.—That vain-glorious *patronizer* of dissensions and erroneous doctrines. *Skellon's Deism rev.*

PAT'RONSHIP, *f.* The office of a patron. *Scott.*

PATRONYMIC, *adj.* [from the Greek *πατρης*, a father, and *ωνμα*, a name.] Derived as a name from ancestors.

PATRONYMIC, *f.* Name expressing the name of the father or ancestors.—It ought to be rendered "the son," Testonides being a *patronymic*. *Broome.*

Patronymies are derived, 1. From the father; as Peleides, i. e. Achilles the son of Peleus. 2. From the mother; as Philyrides, i. e. Chiron the son of Philyra. 3. From the grandfather on the father's side; as Æacides, i. e. Achilles the grandson of Æacus; Actorides; i. e. Patroclus, the grandson of Actor. 4. From the grand-
2 father

father by the mother's side; as Atlantiades, i. e. Mercury, the grandson of Atlas. 5. From the kings and founders of nations; as Romulidæ, i. e. the Romans, from their founder, king Romulus.

The terminations of Greek and Latin patronymics are chiefly four, viz. *des*, of which we have examples above; *as*, as Thaumantias, i. e. Iris, the daughter of Thaumias; *is*, as Atlantis, i. e. Electra, the daughter of Atlas; and *ne*, as Nerine, the daughter of Nereus. Of these terminations, *des* is masculine; and *as*, *is*, and *ne*, feminine; *des* and *ne* are of the first declension, *as* and *is* of the third.

The Russians, in their usual mode of address, never prefix any title or appellation of respect to their names; but persons of all ranks, even those of the first distinction, call each other by their Christian names, to which they add a patronymic. These patronymics are formed in some cases by adding Vitch (the same as our Fitz) to the Christian name of the father; in others by Of or Ef; the former is applied only to persons of condition, the latter to those of inferior rank. Thus, Ivan Ivanovitch, Ivan Ivanof, is Ivan the son of Ivan; Peter Alexievitch, Peter Alexeof, Peter the son of Alexy. The female patronymic is Efna or Ofna: as Sophia Alexefna, or Sophia the daughter of Alexy; Maria Ivanofna, or Maria the daughter of Ivan.

PATRO'US, a surname of Jupiter among the Greeks, represented by his statues as having three eyes, which some suppose to signify that he reigned in three different places, in heaven, on earth, and in hell.

PATROW'RA, a town of Hindoostan, in Boggilcund: twenty-five miles south-east of Makoonda.

PATRU' (Oliver), a distinguished French pleader, and man of letters, was born at Paris in 1604. His father, who was a procureur in the parliament, brought him up to the bar. After having visited Rome, he returned to Paris, and frequented the courts of law, cultivating with great assiduity the talent of speaking and writing with purity. His reputation procured him admission to the French Academy in 1640; and at his reception he delivered an oration of thanks, which pleased that body so well, that it became thenceforth the rule for every new member to pronounce a similar harangue. Patru was connected with most of the eminent literary characters in France of that period, and was consulted as an oracle upon every question relative to language. Vaugelas derived great assistance from him in his remarks on the French language, for which he has made a proper acknowledgment. Boileau, Racine, and other wits, read their works to him, and profited by his remarks. Racine, indeed, sometimes shrunk from the severity of his animadversions; but the correct Boileau seems to have been fully sensible of their value. As Patru, from what cause we are not informed, fell into a state of indigence, Boileau purchased his library, and generously permitted him to retain it during his life. That a poet should be the pecuniary benefactor of a celebrated pleader, seems contrary to the usual order of things; but Patru was probably more engaged in polishing his style than in turning over law-books and hunting for clients: he was a man of a philosophical spirit, generous, compassionate, and not depressed by the frowns of fortune. His opinions were of the sceptical cast, on which account he was visited by Bossuet in his last illness, for the purpose of exhorting him to edify the public by some demonstrations of religious conviction. "It will more become me (said Patru) to be silent, for men in their last moments talk only through weakness or vanity." On his death-bed he received a visit from the minister Colbert, who brought him a late donation of five hundred crowns. He expired in January 1681, in his seventy-seventh year.

As an author, Patru was principally known by his "Plaidoyers," which have the merit of being free from

the former barbarisms of the bar, but are without warmth or imagination. He also wrote harangues, letters, and the lives of some of his friends, which have a similar character of cold correctness, and have lost their former reputation. The best edition of his works is that of 1732, in two volumes quarto. *Morevi*.

PATSAA'RI, a small island on the east side of the gulf of Bothnia. Lat. 60.48. N. lon. 20.58. E.

PAT'SAH, a town of Hindoostan, in the circar of Surgooja: twenty-five miles north-north-east of Surgooja.

PAT'SCHKAU, a town of Silesia, in the principality of Neisse: thirteen miles west of Neisse, and five south of Munsterberg. Lat. 50.18. N. lon. 16.50. E.

PATSHIKAMIS'TICK, a river of Canada, which runs into the Sable in lat. 49.45. N. lon. 72.36. W.

PAT'TA, or PATI, an island in the Indian Sea, near the coast of Africa, about ten miles in circumference; chiefly inhabited by Arabians, with whom the English, Portuguese, and Indians, trade for ivory and slaves: it is situated near the coast, at the mouth of a river of the same name. Lat. 1.56. S. lon. 43.20. E.

PAT'TALA, in ancient geography, a town of India, that has been commonly referred to the Delta of the Indus. Alexander arrived at this place about the middle of August, 326 years B. C. and, having made proper arrangements for the safety and convenience of his fleet and army, and having viewed also the two principal mouths of the Indus, on which he experienced some degree of surprise, if not of terror, from the "bore," or sudden influx of the tide, he departed by land for Susa, leaving Nearchus with the fleet to follow as soon as the Etesian winds should cease. Nearchus failed in October with the north-east monsoon, conducting, according to Dr. Gillies, in his elegant History of Greece, "the first European fleet which navigated the Indian seas." Pattala is supposed to have been the site of the modern city of TATTA, which see. According to a tradition among the people of Sindy, Pattala stood in the superior delta, whereas Tatta is placed in the inferior delta. *Remell*.

PATTA'LIA, *f.* in natural history, a word used by Aristotle and the rest of the old Greek writers, to express a stag or deer of two years old.

PATTAL'LY, a town of Hindoostan, in Bahar: thirty-three miles east-north-east of Hajypour.

PATTAN', a town of Hindoostan, in Mewat: sixteen miles south-west of Corputly.

PATTAN', a town of Hindoostan, in Visiapour: twenty miles north-west of Sattarah.

PATTAN', or LELIT PATTAN, a city of Asia, in the kingdom of Nepal, containing several temples, and about 24,000 houses: ten miles east of Catmandu. Lat. 28.5. N. lon. 85.10. E.

PATTANCHERU', a town of Hindoostan, in Golconda: twenty miles west-north-west of Hydrabad.

PATTAPOO'W-WINEPE'O, a lake of North America. Lat. 54.50. N. lon. 96. W.

PATTEE'RAH, a river of Thibet, which runs into the Ganges on the borders of Hindoostan.

PATTELBACKERS, one of the smallest Molucca islands. Lat. 0.3. N. lon. 127.21. E.

PAT'TEN, *f.* [*patin*, Fr. from *pate*, or *palle*, a broad foot, which Cotgrave renders also "a plate or band of iron."] A clog of wood with an iron ring, worn under the common shoe by women, to keep them from the dirt.—Their shoes and *pattens* are snouted and piked more than a finger long, crooking upwards, which they call crackowes, which were fastened to the knees with chains of gold and silver. *Camden's Remains*.

Housewives beneath the umbrella's oily shed
Safe through the wet on clinking *pattens* tread. *Gay*.

PATTEN's CREEK, a river of Kentucky, which runs into the Ohio in lat. 38.22. N. lon. 85.50. W.

PAT'TEN-

PAT'TEN-MAKER, *f.* One that makes pattens.

PAT'TENSBURG, a town of Virginia, on James River: 156 miles west of Richmond.

PAT'TENSEN, a town of Westphalia, in the principality of Calenberg, formerly surrounded with walls, moats, and ramparts: six miles south of Hanover.

To PAT'TER, *v. n.* [from *patte*, Fr. the foot.] To make a noise like the quick steps of many feet:

The *pat'tring* hail comes pouring on the main,
When Jupiter descends in harden'd rain. *Dryden.*

The stealing shower is scarce to *patter* heard
By such as wander through the forest walks. *Thomson.*

To PAT'TER, *v. a.* [derived by Mr. Tyrwhitt from *pater-noster*, supposing that the word originally meant to repeat the Lord's prayer; but rather perhaps in ridicule of the Latin prayers of the Romanists; as we have made *hocus hocus* out of *hoc est corpus*. The word is used in Scotland; and in some places of England, Dr. Jamieson observes, they yet say, in derisive language, "to *patter* out prayers."] To recite or repeat hastily.—The people *pat're* and *prai*. *Chaucer's Rom. R.*

PAT'TERGAUT, a town of Hindoostan, in the *subah* of Delhi: twenty miles west of Coel.

PAT'TERGOT'TA, a town of Hindoostan, in Bengal: ten miles east of Pucculoe.

PAT'TERGOT'TA, a town of Assam: fifteen miles east of Genthiah.

PAT'TERGOT'TA, a town of Bengal: twenty-two miles south-west of Dinagepour.

PAT'TERGOT'TA, a town of Bengal: eighteen miles east of Boglipour.

PAT'TERGUR', a town of Hindoostan, in the circle of Sumbul: four miles north-east of Nidjibabad.

PAT'TERN, *f.* [*patron*, Fr. *patroon*, Dutch.] The original proposed to imitation; the archetype; that which is to be copied; an exemplar.—*Patterns* to rule by are to be sought for out of good, not loose, reigns. *Davenant*.—Christianity commands us to act after a nobler *pattern* than the virtues even of the most perfect men. *Rogers.*

Take *pattern* by our sister star,
Delude at once and bless our sight;
When you are seen, be seen from far,
And chiefly chuse to shine by night.

Swift.

A specimen; a part shown as a sample of the rest.—A gentleman sends to my shop for a *pattern* of stuff; if he like it, he compares the *pattern* with the whole piece, and probably we bargain. *Swift*.—An instance; an example.—What God did command touching Canaan, the same concerneth not us otherwise than only as a fearful *pattern* of his just displeasure against sinful nations. *Hooker*.—Any thing cut out in paper to direct the cutting of cloth.

To PAT'TERN, *v. a.* To make an imitation of something; to copy.—The shape [of the temple] they say was revealed to Abraham out of heaven; *patterned* from that which Adam reared in paradise. *Sir T. Herbert's Travels.*

Ay, such a place there is, where we did hunt,
Pattern'd by that the poet here describes. *Shakespeare.*

To serve as an example to be followed. Neither sense is now much in use.—That way of *patterning* a commonwealth, was most absolute; though he [Sir Thomas More] hath not so absolutely performed it. *Sidney's Def. of Poesy.*

When I that censure him do so offend,
Let mine own judgment *pattern* out my death,
And nothing come in partial. *Shakespeare.*

PAT'TERPUR'RA, a town of Bengal: forty-seven miles south-west of Burdwan.

VOL. XIX. No. 1311.

PATTER'RA, a town of Bengal: five miles east of Midnapour.

PAT'TERSON, a town of New Jersey, on the Passaic: fifteen miles north-north-west of New York.

PAT'TERSORT, a town of Prussia, in the circle of Natangen: six miles south-west of Brandenburg.

PAT'TERWALDT, a town of Prussia, in the circle of Natangen: twenty-four miles east-south-east of Kö-nigsberg.

PAT'TI, PATI, or PIATTI, a seaport town of Sicily, in the valley of Demona, situated on the north coast, in a bay or gulf to which it gives name, built on the ruins of Tindaro. It is the see of a bishop, suffragan of Messina: thirty-two miles west of Messina, and forty north of Catania. Lat. 38. 10. N. lon. 15. 2. E.

PAT'TI, a river of Sicily, which runs into the sea one mile east of Patu.

PAT'TIAD', a town of Hindoostan, in Guzerat: thirty-five miles north-west of Gogo.

PAT'TIARY, a town of Hindoostan, in Oude: fifty-five miles east-north-east of Agra, and fifty-five north-west of Canoge. Lat. 27. 35. N. lon. 79. 26. E.

PAT'TICAUT, a town of Hindoostan, in Cochinchina: thirty-eight miles east-north-east of Cranganore.

PAT'TIGAM', a town of Hindoostan, in Orissa: thirty miles north of Orissa, and thirty south-east of Jaypour.

PAT'TINGHAM, a village in Staffordshire, to the west of Wolverhampton; where, in the year 1700, was found a large torques of fine gold, two feet long, three pounds two ounces weight, in shape of a bow of a teakettle, and so flexible that it could be wrapped round the arm, and be easily extended again to its own form. These torques were worn by the ancient Britons, as well as the Romans. *Wilkes's British Directory.*

PAT'TISON (William), an English poet of genius, but whose imprudence made his life miserable, and his decease premature, dying of want and the small-pox at twenty years of age, 1726. He was born at Peafmarsh in Suffex, 1706. *Jones's Biog. Dict.*

PAT'TISON'S CREEK, a river of Virginia, which runs into the Potomack in lat. 39. 32. N. lon. 78. 46. W.

PAT'TMES, a town of Bavaria: ten miles east-south-east of Rain, and eight north of Aicha.

PAT'TON, a township of Centre-county, in Pennsylvania, having 297 persons.

PAT'TSCHOW, or PATZOW, a town of Bohemia, in the circle of Bechin: twenty-three miles east-north-east of Bechin, and thirty-eight south of Prague. Lat. 49. 30. N. lon. 14. 50. E.

PAT'TUN. See PUTTAN.

PAT'TUNGA'H, a town of Hindoostan, in Orissa: eighteen miles north of Sonnepour.

PAT'TY, *f.* [*pâté*, Fr.] A little pie; as, a veal *patty*. It should be *paty*, but it is usually pronounced *patty*.

PAT'TY-PAN, *f.* A pan to bake a little pie in.

PAT'TYA'H, a town of Hindoostan, in Oude: twenty-two miles south-south-west of Canoge.

PAT'TYPOUR, a town of Hindoostan in Bahar: fifty-two miles south-south-west of Patna.

PATUCK'ET, a village of North America, about four miles north-east of Providence, in Rhode-Island; a place of considerable trade and manufactures. Through this village runs Patucket or Pawtucket river, which empties into Seekhonk river at this place. The river Patucket, called in its more northerly course Blackstone's River, has a beautiful fall of water, directly over which has been built a bridge on the line, which divides the commonwealth of Massachusetts from the state of Rhode Island; distant about forty miles south by west from Boston.

PATUL'CIUS, a surname of Janus, which he received a *pateo*, because the doors of his temple were always "open" in the time of war. Some suppose that he received it because he presided over gates, or because the

year began by the celebration of his festivals. *Ovid. Fast.* 129.

To PATULICATE, *v. n.* [from the Lat. *patulus*, open.] To expand; to become open. *Cole.*

PATULOUS, *adj.* [from the Lat. *pateo*, to lie open.] Having an expanded flower, blowing open.

PATURA'GES, a town of Austria, in the district of Mons. The place contains 3208 inhabitants.

PATUX'EN, a river of America, which runs into the Chesapeake thirty miles south of Annapolis, in lat. 38. 21. N. lon. 76. 32. W.

PATUX'ET, a river of America, which runs into the Providence River five miles below the town of Providence.

PATZ'LAWITZ, a town of Moravia, in the circle of Olmutz: eighteen miles south of Olmutz.

PAU, a town of France, and principal place of a district, in the department of the Lower Pyrenees; before the revolution the capital of Bearn; situated on a river called the Gave of Pau. It was the seat of a parliament, a governor, a seneschal, &c. and contained an university, an academy of sciences, two hospitals, a college, and several convents. Here are manufactures of cloth, linen, &c. The hams cured here are highly esteemed. It was the ancient residence of the kings of Navarre; and will be for ever memorable in history, since it was the birth-place of Henry IV. That immortal prince was born in the castle, then the usual residence of the kings of Navarre. "It stands on one of the most romantic and singular spots (says *Wraxall*) I have ever seen, at the west end of the town, upon the brow of a rock which terminates perpendicularly. Below runs the Gave, a river or rather a torrent which rises in the Pyrenees, and empties itself into the Adour. On the other side, about two miles off, is a ridge of hills covered with vineyards, which produce the famous *Vin de Joreçon*, so much admired; and beyond all, at the distance of nine leagues, appear the Pyrenees themselves, covering the horizon from east to west; and bounding the prospect. The castle, though now in a state of decay, is still habitable; and the apartments are hung with tapestry, said to be the work of Jane queen of Navarre, the mother of Henry IV. Gaston IV. count de Foix, who married Leonora heiress of the crown of Navarre, began the edifice in 1464; but his successor Henry d'Albret, grandfather of Henry IV. completed and enlarged it about the year 1519, when he made choice of the city of Pau for his residence, and where, during the remainder of his reign, he held his little court. In a chamber, which by its size was formerly a room of state, is a fine whole-length portrait of that Jane queen of Navarre whom I have just mentioned. Her dress is very splendid, and resembles those in which our Elizabeth is usually painted. Her head-dress is adorned with pearls; round her neck she wears a ruff; and her arms, which are likewise covered with pearls, are concealed by her habit quite down to the wrist. At her waist hangs by a chain a miniature portrait. The fingers of her right hand play on the strings of a guitar; and in her left she holds an embroidered handkerchief. The painter has drawn her as young, yet not in the first bloom of youth. Her features are regular, her countenance thin, and rather inclining to long; the eyes hazel, and the eyebrows finely arched. Her nose is well formed though large, and her mouth pretty. She was a great princess, of high spirit, and undaunted magnanimity. Her memory is not revered by the French historians, because she was the protectress of the Huguenots and the friend of Coligni; but the actions of her life evince her distinguished merit." In one of the adjoining chambers, is another portrait of Henry IV. himself when a boy; and on the second floor is the apartment in which he was born.

The town, or rather city, is divided into the East and West parts: the former contains 5800 inhabitants, and the latter 2785. Nothing can be more delightful than the

environs of this place, enlivened as they are by vineyards, by undulating grounds, and by the meanderings of the river Gave. Pau is 12½ posts east of Bayonne, 21½ west-south-west of Touloufe. Lat. 43. 17. N. lon. 0. 18. W. *Wraxall's Tour through France. Ramond's Travels in the Pyrenees*, 1813.

PAU (St.), a town of Spain, in the province of Catalonia; twelve miles north-west of Gerona.

PAVAGE, *f.* [*pavagium*, Lat.] in our old law-books, money paid towards the paving of streets, or highways.

PAVAIS, or PAVACHE, *f.* in ancient armour, was a large shield, or rather a portable mantlet, capable of covering a man from head to foot, and probably of sufficient thickness to resist the missile weapons then in use. These were, in sieges, carried by servants whose business it was to cover their masters with them, whilst they with their bows and arrows shot at the enemy on the ramparts. In the list of the army that accompanied king Edward III. to Calais, we find many "Pavisors:" these were probably men trained to the use of the pavais, which must have required dexterity as well as courage. The pavaches were sometimes supported by props: they were also used at sea to defend the sides of the vessels, like the present netting of our ships of war: this defence was called a "pavifade," and may be seen in the representation of ancient ships. The pavais was rectangular at top, the sides being consequently parallel, but the angle is rounded off at the bottom. Under the protection of the pavaches, workmen also approached to the foot of the wall in order to sap it.

PAVA'KA, or AGNI, in Hindoo mythology, is the regent of fire, and is a deity frequently invoked in the variety of sacrificial ceremonies observed by that superstitious race. The element of fire being of such vital importance in all the operations of nature, and in its evident and hidden phenomena so striking and mysterious, it has, of course, excited the wonder and invited the research of the vulgar and the wise of all ages and nations. The Sun, the supposed source of heat, is naturally joined with his offspring in the awe and adoration with which each is contemplated; and among the Hindoos, as with other polytheists, we find the attributes and characters of the regents of light and heat often coalescing. The Hindoos have, however, depicted their fire-king in colours and forms not common to others. He is painted of a deep red; with two faces, three legs, and seven arms, riding on a ram, and bearing a flag with that animal on its field. Few, if any, of the numerous ceremonies of the Brahmans are complete without invocatory oblations to the all-pervading element of fire, or to its personification, under the name of Pavaka or Agni; the latter is indeed his most popular and common name. (See *HINDOOSTAN*, vol. x. p. 119.) In sacrificial ceremonies, as ordained by Menu, Agni is generally the deity primarily invoked. A Brahman is directed, in his domestic fire for dressing the food that he daily offers to the gods, to make an oblation, "First, to Agni, god of fire, and to the lunar god, severally; then to both of them at once." (C. iii. v. 85.) Again, in offering to the *Dii Manes*: "The divine manes are always pleased with an oblation in empty glasses, naturally clean, on the banks of rivers, and in solitary spots. First, as it is ordained, having satisfied Agni, Soma, and Yama, with clarified butter, let him proceed to satisfy the manes of his progenitors." C. iii. v. 207, 211.

The Brahmans subdivide the igneous element, first, into two, the solar and terrestrial, or creative and destructive fire. Here Agni, as its general personification, coalesces with Brahma and Siva; and hence, it has been furnished, his two faces. Terrestrial fire is again subdivided into three, viz. the nuptial, the ceremonial or funeral, and the sacrificial. Agni's three feet may allude to these, or to the influence of fire over the three regions of the universe. The sun is preceded by a seven-headed horse, or by seven horses yoked to his car; allusive, it is supposed,

supposed, to the prismatic variety of a ray of light: and fire, like the sun, is supposed by the Hindoo philosophers to emit seven rays. This number is mysteriously repeated in invocations to Agni and Surya, the latter their Phœbus or Apollo. Hence the number of arms bestowed on Agni.

Like other Hindoo deities, Pavaka has a wife, or fakti, (see SWAHA,) who appears to have been a form of Lechemi, the goddess of beauty. (See that article, vol. xii.) In one of the tales of the Puranas, it is related how Lechemi performed tapasya for 100,000 years, in the flower of the padma, or lotos, standing on one foot, in order to obtain Vishnu. She then saw Sri Krishna, or Vishnu, who said, "Thou shalt be my wife when I assume the shape of Varaha; but in the mean time be the fakti of Agni, which fakti, or energy, burns every thing: Vahni, Agni, or Fire, for an hundred years of the gods, will have no other wish but to please thee." She conceived by him: the gestation lasted twelve years, and three beautiful sons were born unto her; Dakshinagni, Garhapatyā, and Ahavanya, three sacred fires. (As. Ref. vol. xi. art. 2.) In this manner the theogonical legends of the Puranas run into each other; very confusedly as would seem on partial examination, but connectedly as it is said will appear whenever that mass of romantic fables shall have been competently inspected. See PURANA.

The number seven, we have seen, is that of the arms of Agni, and of many allusions to him in his form of fire. In the ceremony called *viswadeva*, a comprehensive one to "all the gods," which is the meaning of the word, including the essentials of the whole detail of daily sacrifice, and practised therefore chiefly by Brahmans not exclusively engaged in the priesthood, the mystical number frequently occurs in this invocation; for instance, to Pavaka, or Agni. "Fire! seven are thy fuels; seven thy tongues; seven thy holy sages; seven thy beloved abodes; seven ways do seven sacrifices worship thee; thy sources are seven; may this oblation be efficacious." An explanation of this mysterious passage is given by Mr. Colebrooke, in his Essay on the Religious Ceremonies of the Hindoos, in the seventh volume of the As. Ref.

We have noticed three of the sons of Agni, or Pavaka, in the three sacred fires, by Lechemi, in her form of his fakti. He had three other sons, perhaps by a different wife, named Uttama, Tamasa, and Riavata, whose names occur in the list of seven Menus, or sages. Their names have probably some allusions, direct or inverse, to fire, or heat, or light. By another wife he had nine sons. He had also seven brothers, whose names are varied significations of *flame*.

The three sons of Agni above named, are on other occasions called sons of Brahma. Between Agni or Brahma we see here some identity: both are also painted red. It is in reference to his creative heat that he is connected with Brahma. He is also called *Vahni*, a name likewise of Saraswati, the consort of Brahma. A passage above quoted has shown that the spouse of Agni coalesces with those of the other two persons of the Hindoo head; as doth Agni: his igneous property concentrated, connects him with the destructive Siva, who is also fire; and his light, so intimately related to fire, with Vishnu the conservator. This triple connexion between the deity of heat and the three great powers, is similar to what is remarked of the Sun under the article SURYA.

Sir W. Jones, in his Dissertation on the Gods of Greece, Italy, and India, has the following passage, applicable to the subject of our present article. "The worship of solar or vestal fire may be ascribed, like that of Ophir and Isis, to the second source of mythology, or an enthusiastic admiration of nature's wonderful powers; and it seems, as far as I can yet understand the Vedas, to be the principal worship recommended in them. We have seen that Mahadeva himself is personified by fire; but subordinate to him is the god Agni, often called *Pavaha*, or the Purifier, who answers to the Vulcan of Egypt, where he was

a deity of high rank; and Agni's wife, Swaha, resembles the younger Vesta."

To this deity a portion of the Vedas is ascribed, as having been revealed or promulgated by him. Seven books of the Yajurveda he is the reputed author of: and one of the Puranas, which details his history, is called the Agni Purani. He is therein also named Agnidhra, Aanala, and Jivani: to the latter appellation it is added, "he, who does good to all; from whom sprung the Vedas." Under the article MARUT it is noticed, that the Hindoos have guardians over the cardinal and intermediate points of the heavens. Among these is Pavaka; and he rules or governs the south-east. In the Gita, when Krishna describes his own pre-eminence among all things and creatures, he says to Arjun, "Among the Vasus, I am Pavaka."

PAVAN, or PAVIN, *f.* [*pavane*, Fr. from the Lat. *pavo*, a peacock, as some have supposed; but there is good reason, Mr. Douce believes, for thinking the term is Italian, and derived from the city of *Padua*, where the dance is said to have been invented: yet it was formerly called a *Spanish* dance.] A grave kind of dance; not a light tripping dance, as Dr. Johnson, following Ainsworth, has asserted. The method of performing it, Sir John Hawkins says, was anciently by gentlemen dressed with a cap and sword; by those of the long robe in their gowns; by princes in their mantles; and by ladies in gowns with long trains, the motion of which in the dance resembled that of a peacock's tail.—Your Spanish ruffs are the best wear, your Spanish *pavin* the best dance. *B. Johnson's Alchemist*.—In all sets of lessons for the virginal, from the time of queen Elizabeth to the reign of Charles I. there was a *pavan*, which served as an adagio or slow movement to the gaird, as the saraband did afterwards to the court. *Burney*.

Who doth not see the measure of the moon,

Which thirteen times she danceth ev'ry year;

And ends her *pavin* thirteen times as soon

As doth her brother?

Davis's Orchestra.

PAVANA, in Hindoo mythology, is the regent of the winds, and of the north-west quarter of the heavens; the Hindoos having, as noticed under the article MARUT, a separate ruler or guardian for each cardinal and intermediate point. The name of this deity is usually pronounced *Pavan*; and we may herein recognize the *Favonius* of ancient Italy, a contraction of *Favonius*, the north-west wind of the Mediterranean mythology, derived probably from a *fau*, or antelope, apt emblem of its celerity, and allotted, therefore, in India, as a vehicle for Pavana, who, in pictures, usually appears so mounted. The Puranas contain particular directions to artists in respect to their delineating the gods. In the Matsya Purana, the following point out the attributes of the one in question: "Let Pavana be painted young, clothed in robes of many colours, mounted on a fleet antelope, and with a standard in his hand, which the wind waves behind him as he cleaves the air."

PAUCA'RA, a town of Peru, in the diocese of Guamanga: twenty miles east of Guanca Velica.

PAUCARCOLLA, a town of Peru, which gives name to a jurisdiction, in the diocese of La Paz: thirty-two miles north of Puna.

PAUCARCOLLA, a jurisdiction of Peru, in the diocese of La Paz. The inhabitants feed a great number of sheep, and manufacture the wool, which is coarse. There are some mines of silver, but they are in general filled with water. Puna is the principal town.

PAUCARTAM'BA, a jurisdiction of Peru, situated to the east of Cusco, about seventy-four miles in length. It is fertile in corn and fruit.

PAUCARTAM'BA, a river of South-America, which rises about fifty miles south-west of Cusco, and after a northerly course of about 200 miles through a jurisdiction to which it gives name; it joins the Apurimac.

PAUCILOQUENT,

PAUCILOQUENT, *adj.* [from the Lat. *paucus*, few, and *loquor*, to speak.] Using few words. *Cole.*

PAUCILOQUY, *f.* A speech in few words, a sparing speech. *Johnson.*

PAUCITY, *f.* [*paucitas*, from *paucus*, Lat.] Fewness; smallness of number.—The multitude of parishes, and paucity of schools. *Hooker.*—In such slender corpuscles as those of colour, may easily be conceived a greater paucity of protuberant corpuscles. *Boyle.*—Socrates well understood what he said touching the rarity and paucity of friends. *L'Estrange.*—Smallness of quantity.—This paucity of blood is agreeable to many other animals; as, lizards, frogs, and other fishes. *Brown's Vulg. Err.*

PAUCTON (Alexis), a French mathematician, was born near Laffay, in Mayenne, in 1732. He received his education in the mathematical and naval academy at Nantes; after which he went to Paris, where his integrity and talents obtained for him a considerable share of patronage. He died in the year 1799. His works are; 1. Theory of the Force of Archimedes. 2. A Treatise on the Weights, Measures, and Moneys, of all Countries, ancient and modern. 3. Theory of the Laws of Nature; with a Dissertation on the Pyramids of Egypt.

To PAVE, *v. a.* [*pavio*, Lat. *paver*, Fr.] To lay with brick or stone; to floor with stone.—Let not the court be paved; for that striketh up a great heat in summer, and much cold in winter. *Bacon.*

Should she kneel down,
Her brother's ghost his paved bed would break,
And take her hence in horreur. *Shakespeare.*

I see a city of more precious mold,
With silver pav'd, and all divine with gold. *Dryden.*

To make a passage easy.—It might open and pave a prepared way to his own title. *Bacon.*

PAVEFACTION, *f.* [from *pavefy*.] The act of terrifying. *Cole.*

To PAVEFY, *v. a.* [from the Lat. *paveo*, to be in fear, and *facio*, to make.] To affright. *Cole.*

PAVEL, *f.* in botany. See MOMORDICA.

PAVEMENT, *f.* [*pavimentum*, Lat.] Stones or bricks laid on the ground; stone floor; *floor* is used of stone, but *pavement* never of wood. *Johnson.*—The foundation of Roman ways was made of rough stone joined together with cement; upon this was laid another layer, consisting of small stones and cement, to plane the inequalities of the lower stratum in which the stones of the upper pavement were fixed: for there can be no very durable pavement but a double one. *Arbutnot on Coins.*

The marble pavement closes; he is enter'd
Into his radiant roof. *Shakespeare's Cymbeline.*

A broad and ample road, whose dust is gold,
And pavement stars, as stars to thee appear,
Seen in the galaxy. *Milton, P. L.*

In England, the pavements of the grand streets, &c. are usually of flint or rubble-stone; courts, stables, kitchens, halls, churches, &c. are paved with tiles, bricks, flags, or fire-stones; sometimes with a kind of free-stone, and rag-stone. In some cities, as in Venice for instance, the streets, &c. are paved with brick; churches sometimes are paved with marble, and sometimes with mosaic work, as the church of St. Mark, at Venice. In France, the public roads, streets, courts, &c. are paved with gres or grit, a kind of free-stone. In Amsterdam, and the chief cities of Holland, they call their brick pavement the *burgher-master's* pavement, to distinguish it from the stone or flint pavement, which usually takes up the middle of the street, and which serves for carriages; the brick which borders it being destined for the passage of people on foot.

Pavements of free-stone, flint, and flags, in streets, &c. are laid dry; i. e. in a bed of sand; those of courts, stables, ground-rooms, &c. are laid in a mortar of lime and sand; or in lime and cement, especially if there be

vaults or cellars underneath. Some masons, after laying a floor dry, especially of brick, spread a thin mortar over it; sweeping it backwards and forwards to fill up the joints. The several kinds of pavement are as various as the materials of which they are composed, and whence they derive the name by which they are distinguished: as,

1. *Pebble-paving*, which is done with stones collected from the sea-beach, mostly brought from the islands of Guernsey and Jersey; they are very durable, indeed the most so of any stone used for this purpose. They are used of various sizes, but those which are from six to nine inches deep, are esteemed the most serviceable. When they are about three inches deep, they are denominated bolders, or bowlers; these are used for paving court-yards, and other places not accustomed to receive carriages with heavy weights; when laid in geometrical figures, they have a very pleasing appearance.

2. *Rag-paving* was formerly much used in London, but is very inferior to the pebbles; it is dug in the vicinity of Maidstone, in Kent, from whence it has the name of Kentish rag-stone; there are squared stones of this material for paving coach-tracks and footways.

3. *Purbeck-pitchens*, squared stones used in foot-ways; they are brought from the island of Purbeck, and also frequently used in court-yards; they are in general from six to ten inches square, and about five inches deep.

4. *Squared paving*, for distinction by some called *Scotch paving*, because the first of the kind paved in the manner that has been and continues to be paved, came from Scotland; the first was a clear close stone, called blue wynn, which is now disused, because it has been found inferior to others since introduced in the order they are hereafter placed.

5. *Granite*, a hard material, brought also from Scotland, of a reddish colour, very superior to the blue wynn quarry.

6. *Guernsey*, which is the best, and now almost the only stone in use; it is the same stone with the pebble before spoken of, but broken with iron hammers, and squared to any dimensions required of a prismoidal figure, set with its smallest base downwards. The whole of the foregoing paving should be bedded and paved in small gravel.

7. *Purbeck paving*, for footways, is in general got in large surfaces, about two inches and a half thick; the blue sort is the hardest and the best of this kind of paving.

8. *Yorkshire paving*, is an exceeding good material for the same purpose, and is got of almost any dimensions of the same thickness of the Purbeck; this stone will not admit the wet to pass through it, nor is it affected by the frost.

9. *Ryegate*, or *fire-stone paving*, is used for hearths, stoves, ovens, and such places as are liable to great heat, which does not affect this stone, if kept dry.

10. *Newcastle flags*, are stones about two feet square, and one and a half or two inches thick; they answer very well for paving out-offices, they are somewhat like the Yorkshire.

11. *Portland paving*, with stone from the island of Portland; this is sometimes ornamented with black marble dots.

12. *Swedland paving*, is a black slate dug in Leicestershire, and looks well for paving halls, or in parti-coloured paving.

13. *Marble paving*, is mostly variegated with different marbles, sometimes inlaid in mosaic.

14. *Flat brick paving*, done with brick laid in sand, mortar, or groute, as when liquid lime is poured into the joints.

15. *Brick-on-edge paving*, done with brick laid edge-ways in the same manner.

16. Bricks are also laid flat or edgeways in herring-bone.

17. Bricks are also sometimes set edwards in sand, mortar, or groute.

18. Paving is also performed with paving-bricks.

19. With ten-inch tiles.
20. With foot-tiles.
21. With clinkers for stables and out-offices.
22. With the bones of animals, for gardens, &c. And,
23. We have knob-paving, with large gravel-stones for porticoes, garden-seats, &c.

Pavers' work is done by the square yard; and the content is found by multiplying the length by the breadth.

Pavements of churches, &c. frequently consist of stones of several colours; chiefly black and white, and of several forms, but chiefly square, and lozenges, artfully disposed. Indeed, there needs no great variety of colours to make a surprising diversity of figures and arrangements. M. Truchet, in the Memoirs of the French Academy, has shown by the rules of combination, that two square stones, divided diagonally into two colours, may be joined together chequerwise sixty-two different ways: which appears surprising enough; since two letters, or figures, can only be combined two ways. The reason is, that letters only change their situation with regard to the first and second; the top and bottom remaining the same: but in the arrangement of these stones, each admits of four several situations, in each of which the other square may be changed sixteen times, which gives sixty-four combinations. Indeed, from a further examination of these sixty-four combinations, he found there were only thirty-two different figures; each figure being repeated twice in the same situation, though in a different combination; so that the two only differed from each other by the transposition of the dark and light parts.

The paving of streets is one of the most beneficial regulations of police that have been transmitted to us from our ancestors. Several cities had paved streets before the commencement of the Christian era; nevertheless those which are at present the ornament of Europe, Rome excepted, were destitute of this great advantage till almost the 12th or 13th century. It is probable that those people who first carried on the greatest trade, were the first who paid attention to have good streets and highways, in order to facilitate that intercourse which is so necessary to keep up the spirit of commerce. Accordingly we are told by Isidorus (Origin. l. xv. c. 16.) that the Carthaginians had the first paved streets, and that their example was soon copied by the Romans. Long before that period, however, Semiramis paved highways, as appears by the vain-glorious inscription which she herself caused to be put up. (Strabo, xvi. Diod. ii. 13. Polyæni Stratagem. viii. 26.) The streets of Thebes, and probably those of Jerusalem, were paved. But neither the streets of Rome, nor the roads around it, were paved during the time of its kings. In the year 188, after the abolition of the monarchical form of government, Appius Claudius, being then censor, constructed the first real highway, called after him the Appian Way, and, on account of its excellence, the Queen of Roads. The time when the streets were first paved cannot be precisely ascertained; some have referred this improvement to the year 578 after the building of the city; others to 584; and others to 459; at which several periods some parts of the city and suburbs might have been paved. That streets paved with lava, having deep ruts made by the wheels of carriages, and raised banks on each side, for the accommodation of foot-passengers, were found both at Herculaneum and Pompeii, is well known.

Of modern cities, the oldest pavement is commonly ascribed to that of Paris; (see vol. xviii. p. 445.) but it is certain that Cordova in Spain was paved so early as the middle of the 9th century, or about the year 850. That the streets of London were not paved at the end of the eleventh century, is asserted by all historians. It does not appear when paving was first introduced; but it was gradually extended as trade and opulence increased. Several of the principal streets, such as Holborn, which are at present in the middle of the city, were paved for the first time by royal command in the year 1417; others

VOL. XIX. No. 1311.

were paved under Henry VIII. some in the suburbs in 1544, others in 1571 and 1605, and the great market of Smithfield, in 1614. But the first really-effective paving-act was passed in the year 1771. See the article LONDON, vol. xiii. p. 110.

To PAVEMENT, *v. a.* To floor; to pave. *Not in use.*—Thou God of elements passedst through the air, walkedst upon the waters! Whether thou meantest to terminate this miracle in thy body, or in the waves which thou trodest upon; whether so lightening the one that it should make no impression in the liquid waters, or whether so consolidating the other that the paved waves yielded a firm cauey to thy sacred feet to walk on, I neither determine nor inquire: thy silence ruleth mine: thy power was in either miraculous; neither know I in whether to adore it more. *Bp. Hall's Contempl.*

PAVENT'IA, in mythology, the tutelary goddess of children. Among the Romans this goddess was invoked to avert frightful objects from them.

PAVER, or PAVIER, *f.* One who lays with stones:

For thee the sturdy paver thumps the ground,
Whilst every stroke his labouring lungs resound. *Gay.*

PAVETTA, *f.* [the Malabar name, retained by Rheede and adopted by Linnæus and others.] In botany, a genus of the class tetrandria, order monogynia, natural order of stellatæ, (rubiaceæ, *Juss.*) Generic characters—Calyx: perianthium bell-shaped, very small, obsoletely four-toothed, surrounding the germ. Corolla: one-petalled, funnel-form; tube long, slender, cylindric; border five-parted, spreading, shorter by half than the tube; segments lanceolate. Stamina: filaments four, very short, above the throat of the corolla. Antheræ awl-shaped, spreading, the length of the border. Pistillum: germen inferior, turbinate. Style filiform, twice as long as the corolla; stigma thickish, oblong, oblique. Pericarpium: berry roundish, one-celled. Seeds two, convex on one side, cartilaginous. Gartner says, the berry is two-celled; and the seeds solitary, one often abortive, so that the fruit seems to be one-seeded. There are frequently two coadunate berries, crowned with a double calyx.—*Essential Character.* Corolla one-petalled, funnel-form, superior; stigma curved; berry two-seeded, (one often abortive.) There are nine species.

1. Pavetta indica: smooth; leaves lanceolate-elliptic, stipules smooth within, calyxes obsoletely four-toothed, flowers in bundles. Native of the East Indies. Gartner suspects that the natural number of flowers is two together, as in some species of *Lonicera*.

2. Pavetta tomentosa: leaves elliptical, downy, as well as the flower-stalks; calyx cloven half way down; style twice as long as the corolla. Sent from India by Dr. Roxburgh, along with the former, from which it seems to differ chiefly in its broader leaves, which, like the flower-stalks and calyx, are downy, especially when young. The teeth of the calyx are much more conspicuous than in *P. indica*, and this character appears of consequence, from the consideration of other species.

3. Pavetta villosa: branches and calyxes villose hoary; leaves lanceolate-elliptic; flowers in bundles. Branches opposite, four-cornered, jointed, densely villose, hoary; the last joints more compressed. Leaves on short petioles, opposite, two or three inches in length, acuminate, attenuated at the base, quite entire: the younger ones villose on both sides, hoary; the older almost smooth above, nerved, veinless.

4. Pavetta longiflora, (*Ixora occidentalis*, *Forsk. Arab.* 105.) Branches smooth, leaves lanceolate-elliptic, stipules hairy within, calyxes four-cleft, flowers in bundles. It may be doubted whether it is any thing more than a variety of the preceding. The branches and leaves are quite smooth; the calyx has a few small hairs scattered over it, not visible without a magnifier. It differs from the first species in having the stipules hairy on the inner

5 H side,

side, the flowers twice as large, the calyxes four-cleft, not obscurely four-toothed. These were both found in Arabia Felix by Forskahl.

5. *Pavetta caffra*: leaves obovate, flowers subumbellate, calyxes bristle-awned. This is a smooth tree with round branches. Head of flowers sessile, terminating the shorter branchlets. Flowers in the dried plant black. Native of the Cape of Good Hope.

6. *Pavetta barbata*: leaves lanceolate-oblong, pointed, smooth; panicles forked, divaricated, smooth; tube of the corolla but half the length of the five-cleft limb, bristly at the mouth. Gathered by the late Mr. Christopher Smith, at Honimoa, one of the Moluccas, in 1797. He suspected it to be a *Pavetta*, and we can only presume it to be so. The whole appearance agrees with the figure of the next; and the flowers, as in that, are five-cleft; but their short tube distinguishes them from every other species.

7. *Pavetta pentandra*, (*Psychotria Pavetta*, Swartz. *Cestrum nervosum*, Mill. *Dist.* *Lonicera foliis lanceolato-ovatis*, Plum.) Leaves oblong-lanceolate acuminate, panicle trichotomous axillary, flowers five stamened. This is a shrub, with a stem the height of a man, upright, branched, even. Branches stiff, round, smooth. Leaves petioled, opposite, acuminate, entire, nerved, thin. Flowers white, very sweet-scented. It flowers in the spring; and is commonly called in Jamaica wild coffee. It is as it were a middle species between *Psychotria*, *Coffæa*, and *Pavetta*, which are very nearly allied: but it seems to approach nearest to the last in its inflorescence, and the form of the flowers, although they have five stamens. *Sideroxyloides ferreum* of Jacquin, Amer. 39. which is *Siderodendrum* of Schreber, No. 169. is allied to this. Native of the West Indies. See Mr. Miller's description in *CESTRUM nervosum*, vol. iv.

8. *Pavetta arenosa*: branches brachiate, leaves tubercled opposite. This also is a shrub, unarmed, upright, four feet high, with many brachiate reclining branches. Leaves lanceolate, quite entire, shining, with many prominent tubercles on each side, which make them appear as if they had sand sprinkled on them; whence it is called in Chinese the sand-plant. Flowers white. Native of China, near Canton.

9. *Pavetta parasitica*: stem parasitical, leaves in whorls, flowers in little axillary balls. Stem perennial, woody, a foot high, very much branched. Leaves ovate, tomentose, quite entire. Flowers dusky-yellow, small, villose. Frequent on trees in the gardens of Cochin-china.

To avoid confusion, Loureiro would place such of these plants as have a one-seeded berry in this genus; such as have a two-seeded berry in that of *IXORA*; and those which have a one-celled two-seeded berry in a new genus which he names *POLYOZUS*. See also *COFFÆA* and *PSYCHOTRIA*.

PAUGANA'RY, a town of Hindoostan, in Marawar: ten miles south of Tripatore.

PA'VIA, a city of Italy, on the Tessino, situated in a beautiful plain. The citadel was once strong, but the fortifications have been neglected; the streets are broad and straight, with some good buildings, but nothing at present appears to announce that it was once the capital of Lombardy. It is the see of a bishop, immediately dependent on the Pope; and, besides the cathedral, contains eighteen parish-churches, and thirty-eight convents. The university was founded by Charlemagne, and re-established by Charles IV. Pavia was founded by the Gauls, who were driven out by the Romans, and they in their turn by the Goths, about the middle of the fifth century. In the year 476 or 477, the town being completely ruined, Odoacer granted the inhabitants an exemption for five years, with permission to rebuild the town, which till then had borne the name of *Ticinum*; when rebuilt it was called *Papia*, or *Pavia*; and in the year 568, being taken by the Lombards, it became the capital of their kingdom, which ended with Didier, who was made pri-

soner by Charlemagne in the year 774; after that it suffered several calamities between the inhabitants and the Milanese. It afterwards became the prey of several tyrants, before it fell under the dominion of the dukes of Milan. In the year 1525, Francis I. king of France, while he was besieging this town, was taken prisoner by the Imperialists. In the year 1527, the French, under the command of Lautreck, returned and sacked this unfortunate city, so that it has never recovered itself. In the year 1733, it was taken by the allies, and with its territory followed the fortune of Milan.

The French republicans took the city of Pavia, without firing a shot, on the 14th May, 1796: here they found 200 pieces of artillery, 8000 muskets, 2000 barrels of powder, a million of cartridges, and immense stores of all kinds, belonging to the Austrians. After the treaty of Campo Formio, 1797, it became the capital of the department of the Tessino, in the Cisalpine Republic; and of course has, since that time, followed the changes which the finest parts of Italy have incessantly undergone, till its fate was settled, for the present, by the general Treaty of Vienna, June 1815. Lady Morgan speaks of its present state as follows:

"At the distance of four Italian miles from the Certosa, at the extremity of a noble avenue of trees, and in a plain, called for its fertility *il Giardino Milanese*, the Milanese Garden, rises the imperial city of Pavia. At the entrance of this *Citta di Cento Torre* (City of an Hundred Towers) stands the ancient castle of the Visconti, magnificent in ruin. One among its well-preserved stone-belted windows was pointed out to us as belonging to Petrarch's chamber. It was covered with wild plants, which hung in flaunting festoons for many feet down. While we gazed on it, a soldier's wife (for all that is habitable in this venerable fabric is an Austrian barrack) hung a shirt to dry over the foliage. The windows of the gallery, where Petrarch undertook to arrange those precious MSS. which the clever despot had collected, were covered with leather belts, and other articles of the military toilet, from which the sun was drawing exhalations of pipe-clay. Opposite to this exquisite specimen of the domestic architecture of the middle ages, stands a modern building of nearly equal extent and importance. This edifice was raised by the French, for the purposes of a foundry for cannon and for an arsenal. Here immense machines were erected, and most ingenious water-works constructed. Here were schools for the artillery officers and engineers. The number of hands employed in the fabrication of fire-arms and cannon, diffused industry and subsistence among the poorer part of the population. This building now lies waste; and the workmen, of course, are thrown upon mendicity, or other sources of existence. From the main street of Pavia, others of greater antiquity branch off at right angles, where all is sad, desolate, and silent; some terminate in *piazze*, or squares, opening before vast and cumbrous palaces, with windows half-faded, doors hanging from their hinges, balconies mouldering over beautiful but falling porticos, and the gables shooting up every where between the pavement. In one of these by-streets is shown the site of the imperial palace, when Pavia was a royal capital. This was a palace of Theodoric, often cited in the story of various barbarous invasions. It was standing in all its Gothic grandeur in the eleventh century, when a popular insurrection against the tyranny of the emperor Henry II. levelled it to the ground."

The Medical School at Pavia, under the direction of the celebrated Scarpa, is an admirable institution. The medical professors are ten in number; the professorships are thirteen. They are as follow: the institutes of surgery; clinical medicine; botany; clinical surgery, by Scarpa; human anatomy, by Fattori; operative surgery, by Scarpa; pathology and legal medicine; chemistry, by Brugnatelli; materia medica; physiology and comparative anatomy; pharmaceutical chemistry, by Marabelli; midwifery. In addition to these are professors in the following

lowing departments: agriculture; experimental philosophy, by Volta and Configliachi; natural history; general physics. An extensive library belongs to the school, and a splendid museum of anatomy and the various branches of natural history. These are contained in a building much like the medical school in Paris, but twice as large. The hospital is an excellent one, and under remarkably good management. The industry and superior advantages of the head of the institution, M. Scarpa, have contributed greatly to the benefit and improvement of the school. Scarpa was the pupil of Morgagni, and colleague with Fontana. At the early age of eighteen he was professor of anatomy at Modena. After this he was a pupil of William Hunter in London, and then came to settle in Pavia. He has recently finished an improved gorget for the operation for the stone, one advantage of which is that it enters the bladder with very little force on the part of the operator. For the general state of medicine and surgery in Italy, at the present moment, see the article *PATHOLOGY*, p. 53 of this volume.

PAVIA is seventeen miles south of Milan, and seventy-two west of Mantua. Lat. 45. 10. N. lon. 9. 9. E.

PA'VIA, *f.* in botany, so called by Boerhaave in honour of Peter Pavius, who was professor of physic at Leyden, and to whom the care of the Botanic Garden there was confided in May 1592. The botanical professorship being conferred upon Clusius two months afterwards, Bontius and Pavius were associated with him in this charge for several years. In 1609 the whole devolved upon Pavius, and he continued to enrich and improve the garden till his death in 1617. He does not appear to have published any thing, not even a catalogue of the garden. The present plant is now referred by botanists to another genus, see *ÆSCULUS*, in which it bears the specific name of *Pavia*, and is well known in our gardens as the scarlet horse-chestnut.

PAVID, *adj.* [*pavidus*, Lat.] Timorous; fearful. *Cole.*

PAVIDITY, *f.* Timorous. *Cole.*

PAVI'E, a town of France, in the department of the Gers: three miles south of Auch.

PAVIGNA'NO, a town of Italy: ten miles east-north-east of Brescia.

PAVIL'ION, *f.* [*pavillon*, Fr.] A tent; a temporary or movable house.—Flowers being under the trees, the trees were to them a *pavilion*, and the flowers to the trees a mosaical floor. *Sidney*.—It was usual for the enemy, when there was a king in the field, to demand in what part of the camp he resided, that they might avoid firing upon the royal *pavilion*. *Addison*.

He, only he, heav'n's blew *pavilion* spreads,
And on the ocean's dancing billows treads. *Sandys*.

To PAVIL'ION, *v. a.* To furnish with tents:

Jacob in Mahanaim saw
The field *pavilion'd* with his guardians bright. *Milton*.
To be sheltered by a tent:

With his batt'ning flocks the careful swain
Abides *pavilion'd* on the grassy plain. *Pope*.

PAUILLAC', a town of France, in the department of the Gironde: ten miles south-east of Lesparre, and twenty-four north of Bourdeaux.

PAVILLON' (Nicholas), a pious and celebrated French prelate, was a son of an advocate of the parliament of Paris, in which city he was born in the year 1597. Being destined to the church, he was placed under the direction of the famous Vincent de Paul, founder of the Congregation of the Priests of the Missions, who, finding him well qualified for the purposes of the society, employed him in the work of preaching and instruction in different parts of the kingdom. He also appointed him director of the order of the Daughters of Charity, and of the *conferences* for the instruction of young ecclesiastics. So high was the reputation which he acquired by his virtues, his zeal, and particularly by his pulpit-

talents, that cardinal Richelieu was induced to recommend him to king Louis XIII. who nominated him bishop of Alet in Lower Languedoc. This diocese needed the indefatigable zeal and exertion of such a person as our prelate, to reclaim it from the state of ignorance and vice into which it had been sunk, owing to the licentiousness introduced during the civil wars, as well as the neglect and dissipation of the ecclesiastics. To this work he applied with steady and unceasing ardour, and had the satisfaction of being witness to a wonderful reformation, both among the clergy and the people of the diocese in general. During the reign of Louis XIV. he fell under the royal displeasure, by uniting with those of his episcopal brethren who defended the writings of Jansenius. He died in disgrace in 1677, when upwards of eighty years of age. He was the author of "A Ritual for the Use of the Diocese of Alet," with instructions and rubrics in French, 1667, quarto. This work was complained against before the inquisition at Rome, and, after a severe examination, was placed among proscribed books in the *Index*, and condemned by a decree of pope Clement IX. That decree, however was not received in France, where the Ritual had an extensive circulation; and the bishop of Alet; in defiance of the papal prohibition, continued the use of it in his diocese. He also published an esteemed collection of "Ordinances, and Synodal Statutes," from the year 1640 to 1647, which were printed in 1655, 12mo. *Moreri*.

PAVILLON' (Stephen), a man of letters, nephew to the preceding, was born at Paris in 1632. He was educated partly under his uncle, with whom he acquired a great knowledge of divinity and ecclesiastical history. His proper profession, however, was that of the law, and he obtained the post of advocate-general at Metz; but a delicate constitution, and a love of study and retirement, caused him to resign that office, and devote himself to a life of leisure. The amenity of his manners, and the charms of his conversation, procured him many distinguished friends; and, during the fits of the gout to which he was a martyr, his easy chair was surrounded by persons of rank and eminence. His indolence or his philosophy caused him to refuse the office of preceptor to a young prince, though it would have made his fortune. Louis XIV. gave him a pension of two thousand livres, and madame de Pontchartrain, on sending him the brevet, told him that it was only till something better offered. Pavillon, who was then very ill, sent for answer, that if the lady meant to be his benefactor, she must make haste. He died in 1705, at the age of seventy-three. He was a member both of the French Academy and of that of Inscriptions, without having solicited a seat in either. His literary reputation was chiefly founded on his poems, which for the most part were of the light kind, and were characterized by ease, delicacy, and gaiety. He also wrote letters on the manner of Voiture, with a mixture of verse and prose. The most complete edition of his works was printed at Paris in two small volumes, 12mo. 1747. *Moreri*.

PAVILLY', a town of France, in the department of the Lower Seine: nine miles east-north-east of Caudebec, and nine north-west of Rouen.

PAVING, *f.* Pavement of stone, brick, or tile. See PAVEMENT.

PAVISA'DO, *f.* [Spanish.] A kind of defence to cover the towers in a galley. See PAVAIS.

PAUKATUCK', a river of Rhode Island, which runs into the sea in lat. 41. 15. N. lon. 71. 50. W. In the latter part of its course it divides Rhode Island from Connecticut.

PAUL (St.) the great apostle of the Gentiles, was of pure Hebrew descent, of the tribe of Benjamin, and born at Tarsus, the metropolis of Cilicia, about three years after the birth of Christ, according to the most probable computations of the learned. In his early life he was known by the Hebrew name of *Saul*; but, after the commencement

innocent of his preaching in Gentile countries, he was generally called *Paul*, either, as some think, out of compliment to Sergius Paulus, proconsul of Cyprus, whom he converted to Christianity, or because it was more familiar to the Greeks and Romans. He inherited from his ancestors the privileges of a Roman citizen; and it is probable that he was initiated in the knowledge which he afterwards discovered of the learning, religion, manners, and customs, of the Greeks, in his native place, which was at that time distinguished by eminent seminaries of education. From Tarsus, his father, who was a Pharisee, sent him to Jerusalem, where he was placed under the tuition of Gamaliel, a celebrated rabbi of that sect, in whose school he made a great proficiency in the study of the law, and of the traditions pretended to be handed down from Moses and the prophets. In compliance, likewise, with the Jewish custom of teaching the youth, even of the highest birth, some mechanical employment, that they might be enabled, in cases of necessity, to maintain themselves without being obliged to depend upon the liberality of others, he was instructed in the art of "a maker of mechanical instruments;" for that such is the true meaning of the word which has been commonly rendered *tent-maker*, is satisfactorily shown by Michaelis. He possessed excellent natural abilities, quickness of apprehension, strong passions, and firm resolution. He appears also, from his early years, to have been remarkable for an unblemished life; faithful to the dictates of his conscience, according to the knowledge which he had acquired; and zealous for the interests of truth and virtue. It is true that, in the exercise of his zeal, he was led by the prejudices of his education, and the example of his brethren of the sect of the Pharisees, to unwarrantable lengths in opposing Christianity on its first appearance in the world. Believing Jesus to be an impostor, he became the bitter enemy of all who made a profession of his faith, and even thought himself bound in duty to persecute and put them to death. Hence he was led to be present at the cruel murder of the protomartyr Stephen, and to show his approbation of it by taking care of the upper garments of the false witnesses who took the lead in stoning him to death. Hence he became an active instrument of the malice of the Jewish rulers against the believers in Christ, after Stephen's death; and, having received a commission from the chief priests, "made havock of the church," entering into the houses where the disciples met for the worship of God, and dragging men and women to prison that they might be punished. In consequence of the severity with which he thus harassed them, many of the believing brethren fled from Jerusalem, and were dispersed throughout Judea and Samaria, while others took shelter in foreign cities.

So far was Paul carried by his false zeal against the followers of Jesus of Nazareth, that, not contented with persecuting them in Judea, he obtained letters from the high priest to the synagogues at Damascus, with which, accompanied by assistants equally bigotted with himself, he set out for that city, with the design of bringing prisoners to Jerusalem such of the Jewish inhabitants as were proselytes to the new faith. When they arrived near to Damascus, a miraculous occurrence took place, which defeated their intention, and converted Paul into a preacher of that very faith which he had been so zealous to destroy. At mid-day, a supernatural light suddenly shone around them, inexpressibly more resplendent than the brightness of the sun, which filled Paul and his companions with such surprize and terror, that they all fell prostrate on the earth. While they were in this posture, Paul heard a voice, calling him by name, and mildly reproaching him with the enmity which he discovered to his cause. Upon Paul's humbly asking who it was that thus addressed him? he received for answer, "I am Jesus, whom thou persecutest." At the same time Paul was ordered to stand up on his feet, that he might have ocular demonstration of the actual presence of him whom the

chief priests had crucified at Jerusalem, and of his having really risen from the dead, as his disciples affirmed. This direction Paul obeyed, and distinctly saw Jesus standing before him; but was so unable to bear the dazzling splendour of his appearance, that he fell to the earth a second time. Fully convinced that the high pretensions claimed for Jesus were supported by divine power and authority, Paul now yielded himself up implicitly to his will, declaring his readiness to do whatsoever he should command him. He was then informed that Jesus had selected him for one of his apostles, and commissioned him to preach to the Gentiles in his name, and to turn them from darkness to light; and then directed him to go into the city of Damascus, where he should be instructed what he was to do. Such was the effect of the supernatural brightness which accompanied this appearance of Jesus, that it had struck Paul blind, so that he was obliged to be led by his companions to the house of a person with whom they appear to have been acquainted; and in this condition he remained three days, which he spent in continual fasting, as a proper expression of his bitter grief for having persecuted the disciples of Jesus, and in offering up fervent prayers to God for the pardon of that sin. During this time, among other visions and revelations for his information respecting what he was to do, he saw a man named Ananias coming in, and by putting his hand on him restoring his sight. On the third day of his fasting, this Ananias, who was highly esteemed by all the Jews at Damascus for his piety and virtues, and had become a disciple of Christ, being directed by a vision, came to the house where Paul was, whose sight was restored in the manner which had been shown to him; after which he immediately submitted to the rite of baptism, in token of his faith, repentance, and pardon. This ceremony was followed by his reception of the same extraordinary and miraculous powers which distinguished the other apostles, and was a necessary qualification for the great employment to which he was appointed.

The conversion of St. Paul, according to the most probable evidence which has been collected by the learned, took place in the year of Christ 36, or the beginning of 37, when he was in the thirty-fourth year of his age. After this event he continued only a short time with the disciples at Damascus, and then went into Arabia. In this country he was instructed by immediate revelation in the duties of his office, and the doctrines of the gospel; which, since the ascension of Christ, was the only proper method of training an apostle. He also received, in the same mode of communication, a complete knowledge of whatever took place during the ministry of Christ on earth; of his sayings, miracles, sufferings, crucifixion, resurrection, and ascension; of the design both of the law and the gospel, and of the confirmation which the latter derives from the writings of Moses and the prophets; by which means he was qualified to preach the gospel, to testify the resurrection of Jesus, and to prove him to be the Christ, without receiving either instruction or gifts through the medium of the other apostles. After continuing in Arabia more than two years, Paul returned to Damascus, where he preached in the synagogues, proving that Jesus was the Christ, or promised Messiah, with such eloquence, force, and cogency of argument, that the Jews in that place were confounded and silenced. Provoked at their defeat, they formed a design against his life; and prevailed upon the governor to guard the city so strictly, in order to prevent his escape, that the disciples were obliged to let him down by the wall, through a window, in a basket. Having by this means eluded the vigilance of his enemies, Paul set out for Jerusalem, whence he had been absent more than three years, preaching that Jesus was the Christ in the different towns through which he passed; as he had done at Damascus. When he came to Jerusalem, he endeavoured to unite himself with the disciples; but, as it was a time of persecution, they were afraid of him, not having received

any intelligence about what had passed at Damascus, and in the way thither, and being suspicious that he assumed the character of a believer for the purpose of betraying them. However, he met with Barnabas, who, when he heard of what had befallen him, was satisfied of the reality of his conversion, and introduced him to James and Peter. After this he was willingly received by the other disciples, whom he also convinced of his sincerity, by the boldness with which he defended the cause of Christ, particularly against the Jewish proselytes from the Grecian provinces, whose zeal for the institutions of Moses had brought them to Jerusalem. These persons, as is not uncommonly the case with new converts to any cause, were so warmly attached to the system which they had recently adopted, that they were filled with the utmost rage against Paul for preaching Jesus; and, being also inflamed by the rulers, who could not forgive him for going over to the persecuted party, they formed a plan for putting him to death. Intimation of their design having been conveyed to the brethren, they prevented it from being carried into execution by conducting him in safety to Cæsarea, whence they advised that he should go to Tarsus, thinking that he might preach the gospel to the Jews in his native city with more success and less hazard, than in Judea. Accordingly Paul came to Tarsus, where he appears to have continued three or four years. Though the sacred history does not give any particulars of his proceedings during that period, yet we cannot doubt but that he was busied in the work of the ministry, preaching in the name of Christ to native Jews and proselytes to the Jewish religion. It is probable also, that, though Tarsus was his home, yet, as it was situated upon the sea-coast, he visited from thence many other places, for the purpose of preaching the gospel; and that in his travels by land, or short voyages to neighbouring countries, he met with some of those disasters and shipwrecks to which there is a reference in the recital of his sufferings which he made to the Corinthians.

In the mean time, the persecution of the churches in Judea having ceased, Peter visited the disciples in different parts of that country: and, in obedience to the divine command communicated in a vision, went to the house of the centurion Cornelius at Cæsarea, where he preached to Gentiles; and gave such an account of the reasons for that proceeding to the apostles and brethren at Jerusalem upon his return, as led them to acquiesce in it, and to glorify God for "granting unto the Gentiles also repentance unto life." During the time of persecution, some Jews of Cyprus and Cyrene who were driven from Jerusalem, travelled to Phenice, and Cyprus, and Antioch, in which places they preached the gospel to Jews, and the proselytes to Judaism. Some time after their arrival at Antioch, hearing of Peter's having delivered the truths of the kingdom of God to the Gentiles at Cæsarea, they also extended their ministry to the Gentile inhabitants of the city where they resided, some few of whom might possibly be devout men like Cornelius, but the greatest part of them must have been heathen idolators. So abundant was the success which attended their labours, that when information of it was brought to the church at Jerusalem, they sent Barnabas to confirm the new converts; and so great was the speedy increase of their numbers under his ministry, that, finding the work too heavy for himself alone, and wishing to have the assistance of an able fellow-labourer, he went to Tarsus, whence he brought Paul to Antioch, in the year 43. Here they continued their joint labours for a whole year, and made such considerable additions to the number of believers, that they attracted the particular notice of the heathens, and were for the first time distinguished by the denomination of *Christians*.

While Paul continued at Antioch, he appears to have had those visions and revelations mentioned by him to the Corinthians, in which he speaks of himself as having been caught up into Paradise, where he heard and

saw things of which he was not permitted to speak; but which were made known to him in this extraordinary manner, to encourage him in the arduous and dangerous undertaking of preaching the gospel to the Gentiles. During the same time, a prophet called Agabus having predicted that the whole land of Judea was about to be visited by a great famine; the new converts at Antioch made liberal contributions for their relief in proportion to their respective abilities, and sent them to the elders of the church at Jerusalem by the hands of Paul and Barnabas. It appears to have been during this visit to that city, which was in the year 44, that Paul, while praying in the temple, was thrown into a trance or extacy, in which he had a vision of Christ, who commanded him to hasten his departure, that he might proceed on that mission into Gentile regions, for which he was particularly designated when called to the office of an apostle. In obedience to this command, Paul and Barnabas left Jerusalem and returned to Antioch, accompanied by John, whose surname was Mark, whom they took with them as their assistant in the ministry. From Antioch, after being solemnly recommended to the divine blessing by prayer and the imposition of the brethren's hands, according to the custom of those countries, they proceeded to Cilicia; and from thence they sailed to Cyprus, where they preached with great success both in the Jewish synagogues, and before the idolatrous Gentiles, and converted the proconsul, Sergius Paulus, by the excellence of their doctrine, and the miraculous punishment of Barjesus, or Elymas, the pretended magician, for his insidious opposition to it. Departing from Cyprus, they landed at Perga, in Pamphilia, where John Mark deserted them, as we have related in vol. xiv. p. 371. and from thence they travelled to Antioch, the capital of Pisidia, Iconium in Lycaonia, Lystra, Derbe, and other cities and districts in Asia Minor, in which they made multitudes of proselytes, and wrought many miracles in support of their doctrine. The account of this progress, which lasted two or three years, though given, upon the whole, with great conciseness in the history of the Acts of the Apostles, contains, nevertheless, two remarkable speeches of St. Paul, and sufficiently circumstantial relations of the principal incidents which befel them.

After their return from this journey, it is said of our apostles, that "they abode long time with the disciples in Antioch." While they continued in this city, a circumstance occurred which gave rise to a considerable discussion among the primitive believers, and occasioned a memorable decree of the apostles and elders respecting the observances of the Mosaic ritual. Some mistaken proselytes, who came to Antioch from Judea, zealously taught the brethren, in public and private, that unless they were circumcised, according to the manner prescribed in the law of Moses, and observed the whole system of his precepts, they could not possibly be saved by the Gospel, which was intended to make all that are converted to it Jews: and that they could not otherwise be true and genuine Christians. This doctrine, which could not but be disagreeable to the converts from among the Gentiles, was strenuously opposed by Paul and Barnabas, who maintained, that Christians converted from other nations were as free from the Mosaic law, as if it had never been given at all. In order to obtain satisfaction on a point which affected the liberties and consciences of a vast number of believers, the church at Antioch resolved, that Paul and Barnabas, accompanied by Titus, who was a Gentile convert, and some others of their number, should go up to Jerusalem, and be governed by the decision of the apostles and elders in that city on this grand question. Accordingly, they repaired thither, where, on an appointed day, an assembly or council was held, which, after much debate, occasioned by some believers of the sect of the Pharisees who were still zealous for the observance of the ceremonial law, determined that the Gentiles ought not to be subjected to the burthens

of the Mosaic institution, and that by the Gospel they were called to a perfect law of liberty. That their decision might have the more weight with the Christians at Antioch, they deputed Judas and Silas to accompany Paul and Barnabas on their return to that place, that they might attest by word of mouth what was the unanimous judgment of the assembly. This council was held in the year of Christ 49 or 50.

Not long after their return to Antioch, Paul made a proposal to Barnabas, that they should visit the brethren in every city where they had made converts to the cause of Christ, and examine what was the state of religion amongst them. On this occasion Barnabas determined to take with them John Mark; to which measure Paul would not consent, on account of his former desertion of them. To such a length was the difference carried between the two apostles on this head, that they separated from each other, and Paul chose Silas for the companion of his travels. Having departed from Antioch, they went through Syria and Cilicia, confirming the churches and making new converts; and afterwards they went into Lycaonia, where Paul found Timothy at Lystra, and took him for one of his assistants in preaching the gospel. From this country they passed into Phrygia and Galatia, where they confirmed and founded many churches; and then came to Troas, a noted sea-port, where travellers from the upper coasts of Asia commonly embarked to pass into Europe. At this place they were joined by Luke; and Paul had a vision, in which he was directed to proceed to Macedonia, and to commence proselyting the Greek nations of Europe to the Christian faith. In obedience to the heavenly admonition, he took shipping with his three assistants, and landed at Neapolis on the Thracian shore, whence they proceeded to Philippi, the chief city of that part of Macedonia, and a Roman colony. Here they continued some time, preaching the gospel with great success both to Jews and Gentiles, and laying the foundations of a numerous church, to which Paul afterwards directed one of his Epistles. Among other proofs by which that apostle established his claim to a divine commission, was the restoration to her right mind of an insane female slave, who, from the incoherent rhapsodies which she uttered, was supposed to possess a spirit of inspiration, and brought much profit to her masters from the credulous multitude, who believed her capable of predicting good or ill fortune and of resolving difficult questions. Exasperated that by this cure their hopes of future gain were at an end, these men seized Paul and Silas, dragged them before the prætors of the city, and accused them of introducing a new religion, in opposition to the laws. This accusation excited the cry of the assembled populace against them; and the magistrates were so regardless of justice, that, without any trial, they commanded that they should be stripped, and severely beaten with rods; after which they were put into the stocks, in the most secure room of the common prison. This injurious treatment the apostle and his fellow-prisoner sustained with fortitude and joy; for in the middle of the night they were distinctly heard praying and singing praises to God. While they were thus engaged, on a sudden a miraculous earthquake took place, which burst open all the doors of the prison, and loosened the fetters from off all the prisoners. This shock awakened the jailor, who, upon finding the prison-doors open, drew his sword, and would have killed himself, supposing that the prisoners had all made their escape, and that he should be accused of connivance and treachery; but Paul prevented the desperate deed, by calling out to him with a loud voice not to do himself any harm, since all the prisoners remained quiet in their rooms. Upon this the jailor called for a light, and came trembling and fell down before Paul and Silas, whom he immediately brought out from their place of confinement, earnestly enquiring how he might secure that salvation which was the subject of their preaching. So powerfully convincing was the discourse which

they then held concerning the character and doctrine of Christ, that the jailor and all his family professed themselves believers, and were baptized that very night. On the next day the prætors, who had most probably been terrified by the earthquake, and had doubtless heard of the miraculous opening of the prison-doors, sent their lictors with an order for setting Paul and Silas at liberty. But Paul thought it now proper that he and his fellow-sufferer should announce their civil rights as Roman citizens, and take the opportunity of animadverting on the illegal proceedings of which they were the victims. They therefore refused to be dismissed privately like criminals who had received mercy, but insisted on the magistrates conducting them respectfully out of the prison, as the least reparation for the arbitrary violation of their privileges. No sooner were the prætors informed that Paul and Silas were Roman citizens, than they became alarmed for the consequences of their own illegal conduct, well knowing that they had exposed themselves to very high penalties, should the injured parties carry on a process against them. With these impressions they repaired to the prison; and, after entreating the sufferers not to resent the wrongs which they had received, publicly released them in an honourable manner, requesting at the same time that they would depart peaceably from the city, to prevent any popular tumults, and that they might not be exposed to the disappointed rage of their accusers. Having, therefore, comforted and taken his leave of the brethren, with whom Luke remained behind, Paul departed from Philippi, accompanied by Silas and Timothy.

The next place where Paul founded a Christian church, was at Thessalonica, a large commercial city in Macedonia, where there was a Jewish synagogue. Here Paul reasoned three sabbath-days with the people of his own nation, proving from their scriptures the claims of Jesus to the character of the Messiah; and, though the number of converts from amongst them was but small, the apostle had much better success with the proselytes to Judaism, and even with the idolatrous Gentiles, great numbers of whom were convinced, both by his preaching and by the miracles which he wrought. This success excited the envy and indignation of the unbelieving Jews, who instigated a riotous and profligate mob to collect together, which threw the whole city into confusion. With these instruments they attacked the house of Jason, with whom Paul and his companions lodged, hoping to make them the victims of popular fury; and, when they could not find them, they seized Jason, and some others of the brethren, and dragged them before the rulers of the city, accusing them of receiving and giving shelter to men who created disturbances wherever they came, and who promoted rebellion against Cæsar, by preaching up obedience to "another king, one Jesus." But the magistrates, after examining into the formidable charge, finding that it rested on a misconception or designed perversion of the apostles' language, contented themselves with taking security of Jason and the others for their good behaviour, and then dismissed them.

The brethren, however, fearing some new tumult might arise, sent away Paul and Silas by night to Berea, a populous city in the neighbourhood, where they met with great success in gaining proselytes, both from among the Jews and Gentiles, till some unbelieving Jews from Thessalonica found means to excite the popular clamour, particularly against Paul, whom it was thought proper to conduct privately to Athens, where he waited for his brethren. His arrival at this city appears to have been either towards the close of the year 51, or at the commencement of 52. Athens, though now past the zenith of its political splendour, was the greatest seat of learning and politeness in all the Roman empire, where almost all the Roman youth of family and fortune were sent to study philosophy, polite literature, and the liberal arts, under the ablest professors of the age. It was at the same

same time equally distinguished for the multitude of its temples and altars, and for the attachment of the people to the superstitious rites and ceremonies of polytheistic worship, which had been handed down to them from their ancestors. The abject idolatry in which they were sunk, notwithstanding their advantages for acquiring knowledge, induced Paul, not only to preach to the Jews and their proselytes in the synagogues, and to dispute with them on the distinguishing tenets of Christianity, but to seize every opportunity of discoursing on them with those Athenians whom he met with in the public edifices in the great forum or market-place. Here he had for opponents some of the Epicureans and Stoics, which were the most distinguished sects of philosophers at that time, who brought him to the Areopagus, where the illustrious court sat which took cognizance of all matters relating to religion, that he might give those judges a particular account of the doctrine which he advanced. In the seventeenth chapter of the Acts of the Apostles, we have an interesting account of the address and eloquence which Paul displayed on this occasion, so as to avoid giving offence to his audience, while he enforced the great principles of natural and revealed religion, and showed the absurdity of the commonly-received idolatry. But, when he spoke of the resurrection of the dead, some made a jest of the doctrine, while others promised to hear him again on that subject; and, having thus spoken, they put an end to the apostle's discourse and to the assembly. Finding but little prospect of success with men whose minds were barred by prejudice and the pride of worldly wisdom against the reception of the simple truths of the Gospel, the apostle soon took his leave of Athens, and proceeded to visit other parts of Greece.

In the year 52, Paul came to the populous and wealthy city of Corinth, where he chiefly resided during a year and six months, and made numerous converts from the Jews and Gentiles in that place and the neighbouring country of Achaia. Provoked to rage at his success, the unbelieving Jews concerted a plot against Paul, on whom they made a violent assault, and carried him before the tribunal of Gallio, the proconsul of Achaia, tumultuously accusing him of persuading the people to follow a mode of worship which was not sanctioned by the laws; but Gallio, wisely and equitably regarding the alleged charge to be no offence against the peace and good order of society, and not to call for his interference as a civil magistrate, ordered the accusers of Paul to be driven away from his tribunal. He was also so fully convinced of the bigoted malignity which had prompted the Jews to this proceeding, that he overlooked the irregular conduct of the Greeks, who violently beat Sosthenes the ruler of the synagogue, even under the eye of the magistrate, by way of punishment for the confusion of which he had been an active promoter. After some further stay in Corinth, Paul embarked for Syria at the port of Cenchrea, accompanied by Aquila and his wife Priscilla, converts to the Christian faith, having shaved his head, according to the custom of the Jews, in consequence of a vow into which he had entered to express his gratitude to God for his deliverance from the dangers to which he had been exposed. As the vessel in which they sailed had occasion to touch at Ephesus, Paul would not neglect the opportunity which offered of preaching Christ, but entered the Jewish synagogue, and argued so powerfully in favour of his pretensions, that he made no little impression on his auditors, who expressed a desire that he would continue some time with them; with which his vow would not permit him for the present to comply. Resuming his voyage, therefore, he sailed to Cæsarea, whence he went to Jerusalem, where he completed his vow, and kept the feast of Pentecost. When the feast was over, and he had enjoyed a short friendly intercourse with the church in that city, he went to Antioch; and, after spending some time there, commenced a progress through all Galatia and Phrygia, visiting and confirming the churches which

he had before established in those countries. In this journey Paul had several assistants, and, among others, Timothy, Titus, and Sosthenes, his former enemy at Corinth, who had become a convert to the Gospel. With these companions he came to Ephesus towards the close of the year 53; and to that city, including most probably the contiguous districts, he confined his personal labours till the year 56.

The first persons to whom Paul preached Christianity at Ephesus, were his countrymen the Jews, in whose synagogue "he spake boldly for the space of three months;" reasoning in defence of the truth of the gospel-dispensation. And, when he found that the greater number of them were hardened by their prejudices against conviction, he withdrew with the disciples whom he had made to the school of one Tyrannus, who was probably an orator or philosopher, where he preached and maintained the Christian doctrine against all opponents; by which means it was widely disseminated among the Jews and Greeks, who flocked to that city from the neighbouring province of Asia. At the same time Paul confirmed this doctrine by the numerous extraordinary miracles which he wrought, and the supernatural gifts which he communicated to some of the believers, who had been prepared for the reception of Christianity by the preaching of John the Baptist. But this success which attended his labours excited against Paul the enmity of the bigoted worshippers of Diana, whose temple at Ephesus was, on account of its magnificence, reckoned one of the wonders of the world; and it particularly alarmed the jealousy of one Demetrius and his fellow-craftsmen, who procured great profit by making silver shrines, or small models of the temple and image of the goddess, which were sold to the crowds who came from distant parts to worship her. These men perceiving that, if the doctrine of Paul prevailed, their trade would soon be at an end, collected together their workmen, and, by an inflammatory address to their superstition and avarice, roused them to the highest pitch of fury against Paul and his associates, and led them to unite in the common cry of *Great is Diana of the Ephesians!* With this cry they ran about the streets, giving the alarm to the populace, till the whole city was thrown into confusion; and having seized upon Gaius and Aristarchus, two of Paul's companions, they dragged them to the theatre, probably with the design of throwing them to the wild beasts which were usually kept there. In this critical situation of his friends, Paul would have ventured to go into the theatre, that he might endeavour to bring the multitude into a better temper, had he not been dissuaded by other friends, among whom were some of the principal people in the province. At length, after the uproar and confusion of the assembled crowd had lasted about two hours, the town-clerk, or proconsul's secretary, to whom the direction of affairs in the city was committed, by his authority obtained silence; when, after securing their attention by an address in which he availed himself of their prejudices, he reproved them for the irregularity of their proceedings, by which they had rendered themselves amenable to the higher powers. He added, that if Demetrius and his fellow-craftsmen had just cause of complaint against the men in custody, or any other persons, the way to obtain redress and the punishment of the offending party, was by an appeal to the courts of law and magistracy, which were always open for the administration of justice. Having thus spoken, he dismissed the assembly, and set the prisoners at liberty.

Some time after this riot, Paul took his leave of the church at Ephesus, and travelled into Macedonia; whence he went to visit the churches which he had planted in Achaia, Corinth, the Peloponnesus, and other countries. Of these journeys, which employed the apostle during two years, we have no regularly-digested account; but it is probable that in that interval he went into Illyricum, and also to Crete, where it is certain that he personally laboured

laboured in propagating the Gospel. Having received very large contributions from the Greek churches, for the relief of the poor-Christians in Judea, at Paul's particular request deputies were chosen to accompany him to Jerusalem, that they might be witnesses of their being applied to the objects intended. With these deputies, and accompanied by Luke, Paul came from Corinth to Philippi, where they embarked for Troas. Here Paul staid some days, in order to confirm in the faith the numerous Christian converts in that city and neighbourhood; and in this interval he miraculously restored to life a young man who was accidentally killed by falling from the third story of the house where the apostle was preaching. In the twentieth and twenty-first chapters of the Acts, we are presented with the particulars of Paul's progress from Troas to Jerusalem, which it is not necessary to detail; a record of his very important and pathetic discourse upon his taking final leave of the elders of Ephesus at Miletus; and an account of his courageous resolution in persisting to proceed on his journey, notwithstanding repeated predictions of the troubles in which he would be involved by his unbelieving countryman.

Paul arrived at Jerusalem in the year 58, in time to observe the feast of Pentecost. On the next day after his arrival, he had a meeting with the apostle James, and the elders of the church, to whom he introduced the companions of his journey, in whose presence, no doubt, he delivered up the charitable contributions which he had brought with him for the relief of the poor Christians in Judea. He then gave them a particular account of his great success in planting the Gospel among the Gentiles; which was received by them with the highest satisfaction. As, however, a false report had been propagated at Jerusalem and in Judea concerning Paul, that he taught the Jews in Gentile countries to forbear circumcising their children, and entirely to renounce the law of Moses, the apostle James and the elders advised him on the present occasion, when there was such a confluence of the Jews from all parts at the feast, to satisfy them that it was without foundation, by assisting four of the brethren who were under a vow, while discharging the same in conformity to the Jewish ritual. To this advice Paul readily assented; and on the next day, after purifying himself with these Nazarites, he entered with them into the temple, to signify to the priests their resolution to accomplish the days of purification, as the law required, till an offering should be offered for each of them. Before the days of purification were completed, some Jews, who had violently opposed Paul while he was propagating the Gospel in the province of Asia, perceiving him and his companions in the temple, raised a loud outcry against the apostle, accusing him of teaching every-where principles subversive of the law of Moses, and even of polluting the temple by bringing uncircumcised Greeks into it. These charges having highly enraged the assembled multitude, they laid hold on Paul, and dragged him tumultuously out of the temple, with the design of beating or stoning him to death. In the mean time intelligence of the tumult had been brought to Lyfias, the commander of the Roman garrison in the adjoining castle of Antonia, who, knowing well the importance of checking such commotions at their first appearance, came to the place with a band of soldiers, and, having rescued Paul from the fury of the crowd, commanded that he should be kept in chains at the castle, till he had made enquiry into his character and behaviour. He was pleased, however, at Paul's request, to permit him to speak to the people from the stairs leading to the castle, before he was placed in confinement. Of this indulgence Paul availed himself to refute the accusations of his enemies, and to lay before them a short account of his life and conversion. This he did in the Hebrew tongue, which procured him silence and attention, till he mentioned the commission which he had received from Christ to preach to the Gentiles; when the Jews broke out into a fresh transport of rage against him,

and united in the loud cry, "Away with such a fellow from the earth, for it is not fit that he should live."

When Lyfias perceived that Paul's speech, which was to him unintelligible, had rather exasperated than appeased the multitude, he gave orders that he should be brought into the castle, and put to the question by scourging, that he might know the real cause of their hatred to him. This cruel treatment, however, the apostle escaped, by declaring himself a Roman citizen, and claiming the privileges of his birthright. On the following day Lyfias released Paul from his fetters, and brought him before the Jewish council, that he might learn with certainty what the crimes were of which he was accused. In this council, which consisted of members belonging to both the sects of Pharisees and Sadducees, the apostle, after boldly insisting on the unimpeachable innocence of his life, avowed himself to be a Pharisee, the son of a Pharisee, and maintained that the persecution which he suffered was partly to be attributed to his zeal in propagating the doctrine of the resurrection of the dead. Upon this, a warm contest arose in the council between the parties of the Pharisees and Sadducees: the former, with whom the doctrine of the resurrection was a fundamental tenet, being disposed to come to a resolution that all further proceedings against the prisoner should be relinquished; while the Sadducees, who denied that doctrine, strenuously opposed such a measure. At length they became so violent in their dissension and clamour, that Lyfias, fearing lest Paul should be torn to pieces amidst the tumult, sent soldiers to take him by force from the midst of them, and to bring him back into the castle.

During the succeeding night Christ appeared to Paul in a vision, encouraging him with his applause for the fortitude and fidelity which he had displayed in his service, and informing him, that as he had maintained his cause at Jerusalem, he was also destined to support it at Rome. On the following day, more than forty of Paul's enemies entered into a plot to assassinate him; but Lyfias, having been made acquainted with their design, disappointed their malice by sending him away in the night, under the safeguard of a strong body of troops, to be conducted to Cæsarea, the residence of Felix the governor of Judea, to whose tribunal he referred the apostle's accusers. So intent were the enemies of Paul on his ruin, that five days after his arrival at Cæsarea, Ananias the high-priest came to that place, accompanied by some of the elders who were members of the sanhedrim, and an orator, or professed pleader, named Tertullus, in order to prosecute the prisoner. Accordingly, at a fixed time they appeared before the governor; when Tertullus, after an adulatory encomium on the administration of Felix, (which it was very far from meriting,) accused Paul of sedition, of being a sectary, and of profaning the temple; and to these charges the Jewish dignitaries gave their assent. So ably, however, did Paul acquit himself in his defence, that he proved the accusations of sedition and profaning the Temple to be wholly unsupported by evidence. As to the charge of his being a sectary, he acknowledged that, after the way which they called *heresy*, he worshipped the God of his fathers; but maintained that by so doing he was not guilty of any crime, since he believed all things that were written in the Law and the Prophets. Upon this, Felix deferred giving his judgment upon the matter till he should have an opportunity of learning further particulars from Lyfias; but so fully convinced was he of Paul's innocence, that he ordered the centurion who had the care of him to allow him every indulgence which was consistent with his situation as a prisoner, and to admit his friends to visit him without restriction.

Some time after this, Paul was sent for to give a particular account of his principles as a Christian before Felix, and his wife Drusilla who was a Jewess; on which occasion he took the opportunity of expatiating with so much energy on the subjects of justice, temperance, and the judgment to come, that Felix, who was notorious for his oppression

oppression and licentiousness, was unable to conceal the emotions which agitated his breast. He therefore dismissed the apostle for the present; but he afterwards frequently sent for him, hoping to receive offers of money for releasing him. In this situation Paul remained two years, at the expiration of which Porcius Festus superseded Felix in the government; when the latter, in order to ingratiate himself with the Jews, that they might not pursue him to the court of Rome with complaints against his injustice and extortion, left Paul a prisoner.

Not many days after Festus had entered upon his new office, he sat in judgment on the case of Paul; and, after hearing his accusers, and his defence, asked him if he was willing to be tried before his tribunal in Jerusalem, where the requisite evidence on both sides could be most easily procured. But Paul, who knew that the Jews still retained their design of assassinating him, refused to be accessory to his own destruction by placing himself within the reach of his enemies; and therefore availed himself of his privilege as a Roman citizen, by appealing from all subordinate judges unto Cæsar; upon which Festus, after consulting with his council, declared, that since he had appealed unto Cæsar, to Cæsar he should go.

Not long after this, king Agrippa, who was a Jew, and his sister Bernice, came to Cæsarea, to compliment the new governor, who, by the mention which he made to them of Paul's extraordinary case, excited their curiosity to see and hear him. In compliance with their wishes, the apostle was brought before them in an assembly of the officers of the Roman army and the principal persons of note and eminence in Cæsarea, and had full liberty given him to enter into a defence of his own character and the tenets which he promulgated. On this occasion Paul gave a concise and impressive account of his life and conversion, and afterwards reasoned so ably in defence of the doctrine which he taught concerning Jesus of Nazareth, confirming what he said by an appeal to the predictions of the Old Testament, that Agrippa was staggered by his arguments, and frankly confessed that Paul had almost persuaded him to be a Christian. And the impression which he made upon the rest of his audience was so greatly in his favour, that they acquitted him of all crimes deserving either of death or imprisonment, and agreed that he might have been set at liberty if he had not appealed unto Cæsar.

Festus now determined to send Paul without delay to Italy; and for that purpose delivered him, together with other state-prisoners, into the custody of one Julius, a centurion of the Augustan cohort, and a man of singular humanity, who embarked with his charge on-board a ship at Cæsarea, in the end of autumn, or towards the beginning of winter, in the year 60. On this occasion Paul was not deserted by his Christian friends; for we find that at least two of them, namely Luke, and Aristarchus who had accompanied him in some of his former journeys, took shipping on-board the same vessel, determined to attend him during his voyage to Rome. The day after they departed from Cæsarea, having occasion to touch at Sidon, Julius kindly permitted Paul to go on-shore, and visit his Christian brethren in that city. From Sidon they sailed to Myra in Lycia, where the centurion embarked with them on-board a ship from Alexandria in Egypt, bound to Italy with a lading of wheat. Arriving afterwards at a port in the island of Crete, Paul advised that they should winter there, since, with the imperfect knowledge of navigation in that age, sailing was now become dangerous, owing to the length of the dark nights, and the tempestuous weather usual at that season of the year. The master of the ship, however, desirous of reaching a more commodious harbour, with the approbation of the centurion again put to sea; but they had not proceeded far before a violent storm arose, which lasted several days, and reduced the ship to such distress, that all hope of safety seemed to be lost. In these circumstances of despair Paul encouraged them by declaring that he

had seen an angel of God, who informed him that the ship would be wrecked on the coast of a certain island, but that all on-board should escape safe to land. At length, on the fourteenth night after their departure from Crete, the sailors perceived by their soundings that they were near some shore, and at break of day the ship was stranded on an island named Melita, which is generally believed to be the same with what is now called Malta, though some are of opinion that it was the island of Melita in the Adriatic sea. In this critical juncture, the soldiers who guarded the prisoners proposed that they should be put to death, lest they should seize the opportunity of swimming away and escaping out of their hands; but Julius, being desirous of saving Paul, prevented them from executing their purpose, and commanded that those who could swim should first throw themselves into the sea and make for the shore, and the remainder on planks and broken pieces of the ship. Having all escaped to land, according to the apostle's prediction, though they were 276 in number, they met with an hospitable reception from the islanders, who kindled a fire for their relief in their cold and wet condition. Now, as Paul was placing a bundle of sticks upon the fire, a viper which was concealed among them fastened upon his hand. When the islanders perceived this, they concluded he was a murderer, whom the anger of the gods would not permit to live, though he had survived the dangers of shipwreck; and, knowing how quickly the bite of those venomous creatures generally proved fatal, they expected that he would have swollen, or suddenly fallen down dead: but, when they saw that he calmly shook off the reptile into the fire without receiving the least harm, they changed their opinion concerning him, and said that he must be a deity in human form. (See MALTA, vol. xiv. p. 223.) On that part of the coast where the ship was stranded, was an estate belonging to the chief man, or governor, of the island, whose name was Publius, who kindly received the shipwrecked voyagers into his house, and hospitably provided for them during three days, till proper accommodations were prepared for them; and it must have given no little satisfaction to Paul that he had it in his power to make a return for this generous treatment, by performing a miraculous cure on the father of Publius, who was sick of a fever and bloody flux. The fame of this miracle being soon spread abroad, those who had disorders of any kind were brought to the apostle from every part of the island, who healed them all; and he, doubtless, embraced the opportunity which the resort to him of such numbers of people afforded, of inculcating on them the religion of the gospel, to the truth of which such exercises of a supernatural power bare irrefragable testimony.

After continuing three months at Melita, during which the inhabitants showed them every kind office in their power, out of gratitude for the extraordinary benefits conferred on them by Paul, Julius embarked with his charge on-board a ship of Alexandria, which had wintered in the island, and sailed to Syracuse the capital of Sicily. From this celebrated place, after touching at Rhegium in the southernmost part of Italy, they sailed to Puteoli, a port not far from Naples, where they quitted the ship, Julius intending to proceed from thence to Rome by land. At this place Paul met with some Christian brethren, who expressed a strong desire to enjoy the benefit of his instructions and advice; and the good centurion was so indulgent, that he permitted him to continue seven days amongst them. During this interval, intelligence having been brought to Rome of the apostle's arrival in Italy, several of the Christian brethren came from thence to meet him; some proceeding as far as *Appii Forum*, at the distance of fifty-one miles, and others to a place called *Tres Tabernæ*, or the Three Taverns, about thirty miles from that city. This testimony of respect and attachment to him when a prisoner, made a strong impression upon the apostle's mind, and enabled him to finish the remainder

mainder of his journey with fresh spirit and alacrity, since it afforded him ground to hope for the support and consolation of their friendship during his state of confinement.

Paul arrived at Rome, according to the most probable supposition, in the early part of the year 61; and was delivered over by Julius to Afranius Burrhus, the prætorian præfect under the emperor Nero, with such powerful representations in favour of his character and extraordinary endowments, that the apostle was not laid under the same restraint with the other state-prisoners, but was permitted to live in his own hired house, probably chained by his right wrist to the left arm of a soldier who was his keeper, according to the Roman custom in such cases. The precise time when he was brought to a hearing before the emperor, cannot be ascertained with any certainty; but their opinion seems to be the most reasonable, and they conclude that it took place soon after his arrival at Rome. On that occasion, so universal and powerful was the dread of the tyranny and cruelty of Nero, that none of the Christians at Rome would venture to attend Paul into his presence, as we learn from his complaint, "No man stood by me, but all men forsook me. Notwithstanding," added he "the Lord stood with me, and strengthened me; and I was delivered out of the mouth of the lion." The defence which he made, together with the favourable representations of his conduct which were most probably given in the dispatches of the governor Festus, and the report of Julius the centurion, had so much weight with Nero, that, though he did not set the apostle at liberty, he only remanded him to that easy confinement in which he had been placed by Burrhus, with permission to receive freely all persons with whom he chose to maintain any intercourse.

Soon after this decision, Paul requested the principal people among the unbelieving Jews at Rome to meet at his house, with whom he had a long and interesting conference, in which he laboured to convince them from the Scriptures that Jesus was the Christ. Nor was his reasoning without success, since some of them became converts to his doctrine, though the prejudices of others prevented them from receiving the Gospel. The principal accessions, however, which he gained to the Christian cause, were from among the Gentiles, many of whom were profelyed by him during the time that he continued a prisoner, and among them persons of high rank and influence in Nero's family. During the same time Paul wrote Epistles to some of the churches, and sent forth fellow-labourers into different countries, to propagate the religion of his master. At length, after he had been confined about two years, he procured his release; to which it is not unlikely that the interest of his friends at court greatly contributed.

Of St. Paul's travels and preaching, from the time of obtaining his liberty till his death, no authentic connected records have been transmitted from the apostolic age. However, from intimations which he has given of his purposes in the Epistles which he wrote from Rome during his imprisonment, we may form a probable conjecture of the different places which he visited during that period. Some are of opinion that he went from Rome into Spain: but the ablest critics, catholic and protestant, have concurred in rejecting that hypothesis. Soon after his release, he appears to have embarked in some part of Italy, for the East, accompanied by Timothy, and perhaps also by Titus; and in the course of his voyage he may have stopped for a short time at Crete, as some imagine, confirming the churches in that island, and leaving Titus to continue his labours amongst them. Our apostle now seems to have proceeded by the most direct course for Jerusalem; and Lardner's conjecture is very reasonable, when he observes, "I could almost think that Paul was desirous to go thither, to praise God in his temple for the favourable circumstances of his imprisonment at Rome, and for his deliverance from it. Paul's case at Rome very much resembled what had happened

to him at Corinth. After which, we find, he had a vow, and went from Corinth to Ephesus, and hastened to Jerusalem. In like manner, I imagine, that now Paul went again to Jerusalem as soon as he could. But he made no long stay there." After a short friendly converse with the Christians in Judea, he travelled through Syria and Cilicia, accompanied by Timothy, visiting the churches in those countries, as he did afterwards those in Asia Minor. He then left Timothy at Ephesus, and passed by Troas into Macedonia, where he staid some time at Philippi; and from thence he went to Nicopolis in Epirus, where he spent the winter. In this city he was joined by Titus from Crete, and was induced by the account which he gave him of the state of the church in that island, to accompany him thither in the following spring, taking Corinth in his way. From Crete, Paul came again to Rome; but it is not certain whether his arrival was before or after the commencement of the cruel persecution under Nero. In the summer of the year 64, a dreadful fire broke out in Rome, which continued six or seven days, and laid a considerable part of the city in ashes. This calamity was attributed to incendiaries who acted under the orders of the emperor; on which account he became in a high degree the object of popular hatred. That he might vindicate himself from the imputation of so odious a crime, this monster pretended that the Christians were the cause of the conflagration; and towards the end of the year began a most cruel persecution of them, in which prodigious numbers were destroyed. Of the tortures which were inflicted on them, Tacitus has given a horrid description, in the forty-fourth chapter of the fifteenth book of his Annals. In this state of things, Paul, who continued his zeal and activity in promoting the Christian cause, and also Peter, who was now at Rome, were apprehended as chief persons among the accused sect, and condemned to be put to death. This sentence appears to have been carried into execution in the year 65, when Paul suffered martyrdom by being beheaded, according to the testimony of all the ancient writers who mention that event, at a place called the Salvian Waters. They add also, what there is the greatest reason to believe, that he submitted to the fatal stroke with a cheerfulness worthy of the noble cause for which he was a sufferer. He was buried on the Via Ostii; and a magnificent church was built over his tomb, which, says Calmet, "is in being to this day."

St. Peter suffered martyrdom the same day with St. Paul. The latter, entitled to the privileges of a Roman citizen, was beheaded, as already noticed; but St. Peter, as an alien, was doomed to the more ignominious death by the cross. In the Greek and Latin churches, both of these festivals are kept on the same day, June 29; while in the Protestant church, St. Paul is merely commemorated by his Conversion, Jan. 25; though it is to be remarked, that all the ancient homilies join these two saints together, not only on account of their having suffered at the same time, though by different methods and at different places, but because they were co-operators in the conversion of the world, the one as apostle of the Jews, the other as the apostle of the Gentiles. Several of our parish-churches, founded before the Reformation, are dedicated to these apostles conjointly, and their several wakes and fairs are annually celebrated accordingly.

In all pictures and statues, St. Paul is known by bearing a sword, indicative of the manner of his death; and in the convent of La Lilla, near Toledo in Spain, is shown what is asserted to be the identical sword-blade with which this eminent apostle was decollated; it is thought to be composed of copper; its length is 25 inches, its greatest breadth about $3\frac{1}{2}$ inches; on one side are vestiges in Roman capitals of "Paulus—Capitè," and on the other "Mucro."

The writings attributed to St. Paul, which form a considerable part of the Canon of Scripture, consist of Epistles to particular nations, churches, or individuals, arranged in

in the New Testament, not in chronological order, but according to the supposed rank and importance of the communities or persons to whom they were addressed. Hence the Epistles which were sent to whole bodies of Christians are placed before those which were sent to individuals. These Epistles are fourteen in number; and are replete with argumentative doctrinal learning, practical instruction, and invaluable information to the students of sacred history. The first of the series, for the reasons we have assigned, is the Epistle to the Romans, as Rome was then the mistress of the world; the Epistle to the Corinthians has the next station, Corinth having been the capital of Greece; the one to the Galatians the third, because addressed to the several churches established among that people; the Epistle to the Ephesians immediately follows, Ephesus having been the capital of pro-consular Asia; that to the Philippians next, out of compliment to Rome, to which Philippi was a colony; and those to the Colossians and Thessalonians complete the number. The Epistles to Timothy stand first among those to individuals, from the circumstance of Timothy having been of high rank, and the particular friend and disciple of the apostle; and the one to Titus before that to Philemon, because Titus was a preacher, and Philemon only a private person. The Epistle to the Hebrews, although always acknowledged as apostolical, was not at first attributed to St. Paul; but, when the church was satisfied as to that fact, it was added to his inestimable writings; and, not to disturb the order in which the other Epistles had been placed, it was made of necessity the last in the series, instead of being placed before those to individuals, and in the pre-eminent station it otherwise would have been entitled to.

But a question has been agitated, whether those now extant are the only Epistles which St. Paul ever wrote? Among the learned men who have maintained the affirmative, Lardner has produced the most substantial arguments for his hypothesis; but we must confess that the replies to them by Michaelis are of no little weight in favour of the opposite side of the question. Should it be supposed that his opinion is well founded, we see no evil that could possibly arise from admitting it; since, however gratifying it might be to possess more remains of this great apostle, we have every reason to be satisfied, that whatever was of real importance, relative either to doctrine or instruction, has been transmitted to us. And we think, with that critic, that "it was no more necessary that all the epistles of the apostles should be preserved, than that all the discourses of Christ, which were certainly of not less importance, should be recorded by the evangelists, who have thought proper to deliver only a select part of them." Among the spurious pieces which were circulated under Paul's name in the early age of the church, were, The Travels of Paul and Thecla, The Acts of Paul, and Paul's Revelation; but the forgery of their authors was detected and exposed by the ancients. *Lardner's Supp. to Cred.* vol. ii. chap. 11, 12. *Michaelis's Introd. to New Test.* vol. vi. ch. 10—24. *Macknight's Life of Paul.* *Culmet's Dict. Gen. Biog.*

PAUL of SAMOSATA, so denominated from the place of his birth, was a celebrated unitarian prelate in the third century, after whom such Christians as entertained the same opinions were generally called *Paulians*, or *Paulianists*, till the council of Nice. In the year 260 he was chosen bishop of Antioch, and by his talents and character recommended himself to the favour of Zenobia, the famous consort of Odenatus; which reflects on him no little honour, if she was so excellent a princess as historians report. Having had some difference with his presbyter Malchion, the latter procured a council to be assembled at Antioch in the year 264, before which he accused Paul of dangerous heresy, and of a life and conversion unworthy of the episcopal character. That these charges were not established to the conviction of the assembly, may be concluded from their not passing a sentence of

condemnation upon Paul, but only directing that he should be admonished. For this easy judgment he was greatly indebted to the prudence and moderation of the excellent Firmilian, bishop of Cæsarea, who appears to have presided in the council, and prevented them by his influence from adopting any harsh measures. From this time we do not read of Paul's meeting with any molestation before the year 269, or 270, when a second council was assembled at Antioch, in order to take into consideration the principles and conduct of the bishop. Firmilian was summoned to this council, but died on his journey towards Antioch. To this event it was probably owing that Paul's enemies succeeded in their design against him, and procured a sentence which condemned him to be deposed from his episcopal dignity. Paul, however, refused submission to the decree of the council, and retained possession of the "house of the church," by which we are to understand either the bishop's dwelling-house, or the house in which the Christians held their assemblies; and in this step he appears to have met with support both in the protection of Zenobia and the good will of the people. But, when that princess was driven from Antioch, Paul's enemies petitioned the Pagan emperor Aurelian to expel a Christian bishop who had been favoured by his rival; with whose request he complied in the year 272 or 273. What became of Paul after this event is not known. That he was the author of some publications appears from an observation made by his adversaries, that "there was scarcely a page in his works without citations out of the Old or New Testament;" but no remains of them have descended to modern times.

His doctrine seems to have amounted to this: that the Son and the Holy Ghost exist in God in the same manner as the faculties of reason and activity do in man; that Christ was born a mere man; but that the reason or wisdom of the Father descended into him, and by him wrought miracles upon earth, and instructed the nations; and, finally, that on account of this union of the Divine Word with the man Jesus, Christ might, though improperly, be called God. It is also said, that he did not baptize in the name of the Father and the Son, &c. for which reason the council of Nice ordered those baptized by him to be re-baptized. He may be considered as the father of the modern Socinians; and his errors are severely condemned by the council of Nice, whose creed differs a little from that now used, under the same name, in the church of England. The creed agreed upon by the Nicene fathers, with a view to the errors of Paul of Samosata, concludes thus: *Τους δε λεγοντας ην ποτε ουκ ην και πριν γεννηθηναι, ουκ ην, &c. τωσους αναθεματιζει η καθολικη και αποστολικη εκκλησια.* "But those who say there was a time when he was not, and that he was not before he was born, the catholic and apostolic church anathematizes."

PAUL WARNEFRID, or, as he is often called, *Paul the Deacon*, an eminent historian of the middle ages, was born of Lombard origin, in the eighth century, at Cuidad del Friuli. He was educated in the court of Rachis, king of the Lombards, and afterwards ordained deacon of Aquileia. Desiderius, the last king of the Lombards, invited him to his court, employed him as a notary or secretary, and raised him to the posts of counsellor and chancellor. After the kingdom of Desiderius was overthrown, and the monarch made prisoner by Charlemagne in 774, the private history of Paul becomes obscure, and is very differently related by different biographers. It is generally supposed that he first retired to his native country of Friuli, and that, after the overthrow and death of Rodgauso, duke of that province in 776, he took the monastic habit. By some means his literary merit became known to Charlemagne, who took him into France, and perhaps employed him in his plans of promoting learning in his dominions. He was well acquainted with the Greek and Latin languages, and instructed in the former those clergymen who were selected to accompany the emperor's daughter, Rotrude, to Constantinople, where

she was united to the son of the empress Irene. A remaining attachment to his sovereign Desiderius subjected Paul to the suspicions of some designs in his behalf, on which account he was banished; and he would probably have undergone the loss of his hands, or of his eyes, had not Charlemagne been unwilling to disable so eloquent a writer. It is farther supposed that he escaped from his banishment, and took refuge in the court of Arigiso, prince of Benevento; and that, on the death of that prince in 787, he retired to the celebrated monastery of Monte Casino, where he ended his days, but at what time is not known, though it is thought about the year 799. He was a considerable writer: his Latin poetry may rank with the best of that period: it consists chiefly of hymns, of panegyrics of saints and eminent personages, and other short pieces. One of the most interesting is an elegy addressed to Charlemagne, in order to obtain the liberty of a brother who was brought prisoner into France after the defeat of Desiderius. Of his prose writings the most valuable is entitled "De Gestis Longobardorum," in six books, being the only history of that nation which we possess; and it contains facts that can no where else be found, and affords some curious views of rude society. Several editions of it have been published, and Muratori has inserted it in his great collection of the Italian historians. Paul likewise contributed to the Roman history entitled "Miscella," in which he was the continuator of Eutropius. He also wrote an abridged history of the first bishops of Metz, and other pieces of ecclesiastical biography, and made a collection of homilies by the order of Charlemagne. *Gen. Biog.*

PAUL of BURGOS, or of SANCTA MARIA, a learned Spanish prelate, was of Jewish descent, and born at Burgos in the year 1353. He was brought up in the religion of his forefathers; and, as his family was respectable and wealthy, he enjoyed the advantages of a liberal and learned education. After he had been some years married and settled in the world, by reading the *Summa* of Aquinas he became a convert to Christianity; and at the time of his baptism he assumed the name of *Paul of Sancta Maria*. After the death of his wife, he embraced the ecclesiastical profession, and by his merits rose to considerable employments and high dignities in the church. He was made archdeacon of Trevigno; whence he was preferred to the bishopric of Carthagen; and afterwards he was translated to that of Burgos. The fame of his merits induced Henry king of Castille to appoint him preceptor to his son John, the second monarch of that name, by whom he was entrusted with the important office of chancellor of the kingdom. He is said to have died patriarch of Aquileia in 1435, at the age of eighty-two. His principal work consists of additions to the Postills of Nicholas de Lyra on the whole Bible, which are printed with that commentary. He was also the author of, 2. *Scrutinium Scripturarum*, folio, printed at Mantua in 1474, and at Burgos in 1591. 3. *A Treatise on the Name of God*, which was printed with the notes of Drusus, at Franeker, in 1604. Dupin says, that his performances abound in Hebrew learning, and will afford much assistance to the biblical student in making himself acquainted with the true sense of the Scriptures.

Our prelate had three sons, who were baptized at the same time with himself, and acquired distinction by their rank or literary productions.—The eldest, named ALPHONSUS, succeeded his father in the bishopric of Burgos, and composed a concise history of Spain, entitled "Anacephalæosis Regum Hispaniæ," which may be seen in the *Hispania Illustrata*, in four volumes folio.—The second, named GONSALVO, was promoted to the see of Placentia in Spain.—The third, called ALVAREZ-GARCIA, published the history of John II. king of Castille, under the title of "Memoirs or Commentaries." *Dupin. Moreri.*

PAUL (Vincent de), a saint in the Roman calendar, and founder of the Congregation of the Priests of the Missions in the seventeenth century, was of humble ori-

gin, and born at Pouy, or Poy, in the diocese of Acqs, in the year 1576. He was first employed in tending sheep; but, as he soon discovered talents which deserved encouragement, his parents were enabled to send him for education to Acqs and Toulouse. Having finished his academical course of studies, he was ordained priest in the year 1600. Some time afterwards, being called to Marfeilles to receive a small property of which he was the heir, on his return by sea to Narbonne, the vessel on-board of which he had embarked fell into the hands of some Barbary corsairs, who sold him for a slave at Tunis. Here he successively served three different masters, and was successful in reclaiming the last, who was a Savoyard renegade, to the faith which he had renounced. Determined on attempting their escape to a Christian country, they ventured to sea in a small boat, and happily reached Aigues-Mortes in 1607. After his return to his native country, Peter Montorio, vice-legate of Avignon, who knew his merits, sent him on business to the court of Rome. Here he became acquainted with the minister of Henry IV. who employed him on a commission of importance to that monarch, in the year 1608. Afterwards Louis XIII. recompensed him for his services on this occasion, with the abbey of St. Leonard de Chaulme. For some time he officiated as almoner to queen Margaret de Valois, and then retired to the institution of his friend cardinal de Berulle at the Oratory. On the recommendation of M. de Berulle, he accepted of the post of tutor in the family of M. de Goudy, general of the galleys, whose lady, eminent for her piety and charity, first inspired him with that design of founding a congregation of priests for missions into the country, which he afterwards carried into execution. In the mean time, he was desirous of rendering himself useful to the miserable objects under the care of his patron; and, upon application to court, obtained the appointment of almoner-general of the galleys, in the year 1619. The extraordinary zeal and charity which he exercised in that employment, and numerous other instances of his piety and benevolence, were long the subjects of pleasing recollection to the inhabitants of Marfeilles. In the year 1620, St. Francis de Sales confided to him the direction and government of the order of the Daughters of Charity, whose office it was to administer assistance and relief to indigent persons, confined to their beds by sickness and infirmity.

After the death of madame de Goudy, he commenced the establishment of the community which he had projected, at the college of the Bons Enfants in Paris, where some priests, who approved of his design, associated themselves under him as their principal. Hence they went by turns into different parts of the kingdom, where their labours soon met with an astonishing degree of success and encouragement. Some years afterwards, the increasing number of his society induced Vincent de Paul to accept of the great house of St. Lazarus in the suburb of St. Dennis, which became the principal house of his order; and in the year 1632, pope Urban VIII. satisfied of its utility, and also of its policy as a powerful instrument for preserving the attachment of the lower classes to the catholic faith, formed it into a regular congregation, of which the founder was declared the first superior-general. So active was the superior in pursuing the objects of the institution, and so powerfully was he seconded by the zeal and encouragement of others, that he was enabled to support missions, not only in all parts of France, but also in Italy, Scotland, Barbary, Madagascar, &c. But his pious and charitable exertions were not confined to the Congregation of the Missions. To him the Hospital for Foundlings owed its origin, and an annual income of forty thousand livres, which his appeals to the humane and benevolent procured for it. He, likewise, was the means of obtaining liberal benefactions towards the support of the hospital of Bicetre, of the Salpetriere, of that for galley-slaves at Marfeilles, and various other charitable institutions. He established and endowed seminaries for

for ecclesiastics; and in times of scarcity and pestilence which laid waste Lorraine, Picardy, and Champagne, he remitted nearly four millions of livres, in money and goods, for the relief of those provinces. So high was the estimation in which he was held as a spiritual adviser, that he was engaged in regular attendance on Louis XIII. during his last sickness; and under the regency of Anne of Austria, mother of Louis XIV. his counsel was chiefly followed in the management of the ecclesiastical affairs of the kingdom. Yet, during the space of ten years in which he possessed this influence, he always made a conscience of recommending the most deserving candidates for vacant benefices, and his whole conduct was governed by exemplary prudence and humility. He died in 1660, when nearly eighty-five years of age. He was beatified by pope Benedict XIII. in 1729, and canonized by Clement XII. in 1737. *Mosheim Hist. Eccl. Sæc. xvii. par. ii.*

PAUL I. (Pope), was a native of Rome, and brother to his predecessor Stephen II. He became deacon of the Roman church; and in the year 752, Stephen sent him with rich presents to Aistulphus, king of the Lombards, in order to obtain a confirmation of the treaty of peace into which that prince had entered with his predecessor pope Zachary. In this object he succeeded without difficulty; and Aistulphus granted an extension of the term agreed upon for forty years longer, that he might divert the pope from interfering with the design which he had then formed, and soon afterwards carried into execution, of subjugating the exarchate of Ravenna. Upon the death of Stephen in 757, the Roman people were divided about the choice of a successor; some declaring for the deacon Paul, and others for the archdeacon Theophylact. At length, after a vacancy of more than a month, the nobility, clergy, and magistrates, all zealously promoting the interests of Paul, the election was carried in his favour; and this is the only instance which occurs in the whole history of the popes, of two brothers being raised successively to the papal chair.

No sooner had Paul secured his election, than he dispatched a messenger to Pepin, king of France, to acquaint him with his promotion, and to entreat his protection, and that of the French nation in general, for the temporal dominions of the church. It should be mentioned that, during the pontificate of Stephen II. Pepin had conquered from the Lombards the exarchate of Ravenna, and the Pentapolis, or marche of Ancona, which he bestowed on the Roman see by an instrument of donation, and compelled Aistulphus to confirm the grant. This donation raised the bishop of Rome to the rank of a prince, and may be properly considered as the foundation of the temporal grandeur of the popes. The strength of the papal see, however, was inadequate to maintain the possession of these new dominions, without foreign aid, should the king of the Lombards, or the emperor of the Greeks, prove hostile neighbours: for which reason Paul embraced the earliest opportunity of supplicating the powerful protection of Pepin. He had the satisfaction of receiving from that prince, in answer to the letters by his messenger, the most friendly congratulations on his exaltation to the papacy, and the strongest assurances of his resolution to maintain St. Peter and his successors in the full possession and quiet enjoyment of what he had given them, and to employ for that purpose, if necessary, the whole force of his kingdom.

As the places which were to be yielded up to the Roman see had not been all evacuated by the Lombards before the death of Aistulphus, Paul, as soon as he was ordained, made a demand of them from his successor Desiderius. This prince professed the utmost readiness to satisfy the pope; but, alleging that the affairs of his new kingdom engrossed all his attention, he requested that, till these should be settled, his holiness would excuse him for not complying with his demand. Of this delay the pope complained in a long letter to Pepin. Indeed,

much of his time, during the whole of his pontificate, was occupied in writing to Pepin, or his two sons, letters of complaint against the king of the Lombards; or against the emperor; and in endeavouring, by frequent legations, as well as by letters, to keep the French, the Greeks, and the Lombards, ever at variance. To counteract this policy, the emperor and the king of the Lombards made every effort to gain Pepin, and to persuade him to withdraw his protection from the pope; representing him to be a public incendiary, who, instead of striving to unite the Christian princes amongst themselves and against their common enemies, made it his study to create divisions among them, with no other view than that he might aggrandize himself at their expence. All their efforts, however, proved unsuccessful; as did, likewise, a solemn embassy which the emperor sent to France in the year 764, to obtain that object by proposing an alliance between the emperor and Pepin, which should be cemented by the marriage of the emperor's eldest son Leo to a daughter of Pepin. Pepin declined the proposed alliance with the emperor, because he was unwilling to disoblige the pope.

Besides the events already noticed, little more is recorded concerning the transactions of Paul's pontificate, excepting the evidence which he afforded of his piety by founding or repairing numerous churches; and of his superstition, by countenancing the ridiculous farce displayed at the translation of the body of St. Petronella, the pretended daughter of St. Peter, from the cemetery where it was discovered, to the Vatican. Paul died in 767, after he had presided over the Roman church ten years and one month. Thirty-one of his "Letters" have reached our time, and the whole of them may be seen in the "Caroline Code," so called from Charlemagne, who himself formed the collection, which was published by James Gretzer, in the year 1613. *Platina et Anastasi Vit. Pont. Cæc. Hist. Lit. vol. i.*

PAUL II. (Pope), originally known by the name of *Peter Barbo*, was descended from an ancient family, and born at Venice in the year 1417. He was educated in the mercantile line, which the Venetians very wisely did not consider to be degrading to men of noble blood. He had sent property on-board a ship, and was on the point of embarking with it, when he received intelligence that his maternal uncle had been promoted to the papacy, under the name of Eugenius IV. This news engaged him to change his design, and flattered him with the prospect of greater success in the ecclesiastical profession than in commercial pursuits. He therefore quitted business for study; and, though he made but very little progress in literature and the sciences, he was in the course of a few years preferred by his uncle to the archdeaconry of Bologna, the bishopric of Cervia in the Romagna, the office of apostolical prothonotary, and in the year 1440 to the dignity of cardinal. By his address and obliging behaviour, he recommended himself, after the death of Eugenius, to the succeeding popes, Nicholas V. Calixtus III. and Pius II. Calixtus gave him the appointment of legate in Campania. Upon the death of Pius II. in 1464, Barbo was chosen pope by a great majority. As he was a very handsome man, so he was exceeding proud of his person, and intimated his intention of taking at his coronation the name of *Formosus*, signifying Comely, or Beautiful; but from this design he was dissuaded by the cardinals, who made him sensible of the ridicule to which he would expose himself by such a display of his vanity; and he chose the name of Paul II.

One of the first public measures of Paul's government, was a declaration in favour of Ferdinand king of Naples, against the family of Anjou; and, as the party of the latter had begun to revive in the kingdom, many of the barons being dissatisfied with the arbitrary government of Ferdinand, he sent a considerable body of troops to the assistance of that prince, who was thus enabled speedily to quell the insurgents, and to restore peace to the kingdom.

kingdom. At this juncture, when a sense of his obligations to his holiness was yet fresh in the king's memory, Paul applied to him for the arrears of the tribute due from the kings of Naples to the papal see, which had never yet been paid either by himself or his father Alphonso. In answer, Ferdinand complained of the unseasonableness of such an application, when the exhausted state of his treasury, owing to the expensive war in which he had been engaged ever since he came to the crown, rendered him unable to comply with it: and he pointedly added, that he would, nevertheless, discharge the arrears, as soon as his holiness restored to him the city of Benevento, and all the other places held by the church within the limits of the kingdom of Naples, which, he maintained, belonged to that crown. Exasperated at this reply, Paul threatened the king with excommunication, and the kingdom, with a general interdict. Upon this Ferdinand, to show how little he dreaded the pontiff's menace, sent a body of troops to lay siege to Benevento; which step compelled Paul, unable to repel force by force, to send cardinal Rovarella to the king, that matters might be accommodated. With this view the cardinal had several conferences with Ferdinand, and was at last obliged to acquiesce in the king's promise to pay what was in justice due to the apostolic chamber, *whenever he conveniently could.*

The next circumstance which engages our notice in the history of Paul's administration, exhibits his temper and conduct, after he had obtained the highest object of his ambition, in a very unfavourable point of view. Among the departments of the Roman government, one was filled by persons called *abbreviators*, whose business it was to abridge the bulls and letters of the pope. This employment the pope considered to be unnecessary and useless, and not long after his election discharged the persons who filled it, though most of them were men of great learning and abilities. In this number was the historian Platina, who, having with much difficulty obtained an audience of his holiness, represented the injustice of dismissing them from offices, when not chargeable with any neglect of duty, without returning the money with which they had been purchased. This remonstrance offended the pope; but Platina went farther; for, having in vain endeavoured to obtain another audience, he wrote a letter to Paul, in which he intimated his resolution to apply for redress to the kings and princes of Christendom, exhorting them to call a General Council, which would do justice to the oppressed, and take cognizance of his holiness's conduct. This letter Paul pronounced to be high treason, commanding that Platina should be arrested and thrown into fetters. The prisoner was afterwards confined in a high tower, exposed to all the winds, without fire, though in the depth of winter. When he had suffered the miseries of this situation for four whole months, he with great difficulty obtained his release. The pope, however, did not forgive him for the boldness with which he dared to resist injustice; but, in the year 1467, gave orders for arresting him a second time, under the pretence of being engaged in a dangerous conspiracy against his person and government. Upon his being examined by Paul himself, and vindicating his own innocence, without betraying any symptom of fear or guilt, the merciless pontiff ordered him to be put to the rack, and he was accordingly tortured with the utmost barbarity, but without subduing his fortitude. Among his friends who were also arrested, were some of the most eminent literary characters in Rome. These persons met with the same inhuman treatment, which proved fatal to several of them. We shall present our readers with Mr. Roscoe's concise and elegant account of the pope's iniquitous conduct on this occasion. "During the pontificate of Paul II. letters and science experienced at Rome a cruel and unrelenting persecution, and their professors exhibited in their sufferings a degree of constancy and resolution, which in another cause might have advanced

them to the rank of martyrs. The imprisonment of the historian Platina, who, on being arbitrarily deprived of a respectable office to which he was appointed by Pius II. had dared to thunder in the ears of the pope the dreaded name of a General Council, might perhaps admit of some justification; but this was only a prelude to the devastation which Paul made amongst the men of learning, who, during his pontificate, had chosen the city of Rome as their residence. A number of these, uniting together, had formed a society for the research of antiquities, chiefly with a view to elucidate the works of the ancient authors, from medals, inscriptions, and other remains of art. As an incitement to, or as characteristic of, their studies, they had assumed classic names, and thereby gave the first instance of a practice which has since become general among the academicians of Italy. Whilst these men were employing themselves in a manner that did honour to their age and country, Paul was indulging his folly and his vanity in ridiculous and contemptible exhibitions; and happy had it been if he had confined his attention to these amusements; but, on the pretext of a conspiracy against his person, he seized upon many members of the academy, which he was pleased to consider as a dangerous and seditious assembly, accusing them of having, by the adoption of heathen names, marked their aversion to the Christian religion. Not being able to obtain any evidence of their guilt, and finding that they had resolution to suffer the last extremity rather than accuse themselves, Paul thought proper at length to acquit them of the charge; but at the same time, by a wanton abuse of power, he ordered that they should be detained in prison during a complete year from the time of their commitment, alleging that he did it to fulfil a vow which he had made when he first imprisoned them."

In the year last mentioned, Paul sent a legate into France to procure a decree from the parliament of Paris, confirming the abrogation of the Pragmatic Sanction; but in this design he failed of success, notwithstanding that he obtained a royal edict to that purpose, since the parliament steadily opposed it, and the university of Paris appealed from the legate and the edict to a General Council. During the following year he was more successful in a better cause, having brought about a reconciliation between several states of Italy, which had taken up arms as auxiliaries to the opposite factions in Florence. Soon after this event, the emperor Frederic arrived at Rome, in consequence of a vow, and was entertained with great magnificence by the pope. As a proper expedient to engage the Christian princes in a league against the Turks, it was agreed that letters should be written, in the emperor's name and his own, to the princes and states in Christendom, inviting them to send their ambassadors to Rome, in order to treat about the means of defending the faith. About the same time, Paul was instigated by his ambition to obtain possession of the city of Rimini, and prevailed upon his countrymen the Venetians to afford him their assistance. The Roman and Venetian troops were speedily opposed in the field by a formidable army, led by the duke of Urbino, and supported by the duke of Calabria. An engagement took place, which terminated in the total rout of the army of the pope, who found himself compelled to accede to such terms of peace as the conquerors thought proper to dictate. In the year 1471, Paul published a bull, by which he reduced the jubilee circle to twenty-five years, and thus accelerated the return of that most absurd and superstitious ceremony. To him, however, it was of little moment, as he died suddenly of an apoplexy, in July of the same year, after a pontificate of almost seven years, in the fifty-fourth year of his age.

The historian Platina, who could scarcely be deemed an impartial judge, charges him with avarice and simony; with selling even bishoprics to the highest bidders. With respect to the former of these charges, that there was no solid foundation for it, is quite clear from Platina's own account,

account, who speaks of him as profuse in his expences in buildings; in entertaining distinguished personages; in relieving the poor and decayed nobility; in purchasing, at any price, jewels and precious stones to adorn the papal crown, and in exhibiting public shows for the entertainment of the Roman people. Paul seems to have been more accurately characterized by another contemporary writer, Mathieu, the historian of Louis XI. who says of him that he was greedy of money, and little cared by what means he acquired it; but was too fond of pomp and show to hoard it up in his coffers. To make a more august appearance, says Platina, he loaded the papal crown with such quantities of precious stones, that one would rather have taken him for the Phrygian goddess Cybele with turrets on her head, than for the vicar of Christ, who should teach, by his example, the contempt of all worldly grandeur. That he might reconcile the cardinals to this ostentation, he granted them the exclusive privilege of wearing purple habits, with red silk hats, and silk mitres of the same fashion with those formerly worn only by the sovereign pontiffs. Of his enmity to learning, if there needed any other proof besides his persecution of the most eminent literary characters, already mentioned, it would be afforded by his exhortation to the Romans to content themselves with having their children taught to read and write. He created eleven cardinals during the time of his pontificate, and among them his two nephews, although he had, previously to his election, taken a solemn oath not to increase the number of cardinals, or introduce more than one relation to that high dignity. Two of the letters of this pontiff are in the thirteenth volume of the Collect. Concil. and several others in the fourth volume of d'Achery's *Specilegium*, and in Cherubini's *Bullarium Magnum*. This pope met with a zealous apologist in one of the most learned men of the last century, (Cardinal Luirini,) who published a work entitled "Pauli II. Vita ex Codice Anglicæ Bibliothecæ desumpta, præmissis ipsius Vindicis adversus Platinam, alioque Obtractatores," 1740. *Roscoe's Life of Lorenzo de Medici. Cave, vol. ii.*

PAUL III. (Pope), originally called *Alexander Farnese*, was of Roman descent, from an ancient and noble family, and born about the year 1467, at Carino in Tuscany. He pursued his studies under the celebrated professors whom the Medici family had invited to Florence, where he was, at a very early age, distinguished by his application to, and proficiency in, the different branches of literature. By pope Innocent VIII. he was appointed apostolical protonotary, and by Alexander VI. he was advanced to the bishopric of Monte Fiascone, and in 1493 raised to the dignity of cardinal, when he was but twenty-six years of age. He was warmly patronized likewise by Julius II. Leo X. and Clement VII. By the latter he was successively nominated to the bishoprics of Palestrina, Sabina, Porto, and Ostia. The same pope appointed him to the legation of Viterbo, and received important services from him during the time of his imprisonment. So highly did Clement estimate the character of Alexander, that, when he was sensible that his end was approaching, he recommended him to the cardinals as the most worthy of the whole college to be his successor. The death of Clement happened on the 25th of September, 1534; and on the 13th of October following, the thirty-four cardinals present in the conclave concurred unanimously in voting for the cardinal Farnese. To this unanimity two circumstances contributed: one was his having arrived to the advanced age of sixty-seven; and the other, a report of the weakness and decay of his constitution, which he is said to have countenanced with considerable art.

At his coronation the new pope assumed the name of Paul III. The first objects to which he directed his attention, were the progress of the Reformation, and the means of crushing a revolution pregnant with ruin to the authority and interests of the papal see. He was no less enraged than

his predecessor at the innovations in Germany, and no less averse to any scheme for reforming either the doctrines of the church or the abuses in the court of Rome. But, having been a witness of the universal censure which Clement had incurred by his obstinacy on these points, and knowing how much the meeting of a General Council was desired by all Christendom, he hoped to avoid all reproach by a seeming alacrity in complying with the universal wish. So early as the third day after his election, therefore, his intention was announced by the nomination of commissioners to deliberate about the time, the place, and the manner of proceeding; while he had no doubt but that from the discussion of those points circumstances might arise, which would either prevent such a council from meeting at all, or place the secret management of it in his hands. In the article LUTHER, vol. xiii. p. 795, we have given an account of the steps which were taken to convene this council, and of its indefinite prorogation; as we likewise have of the partial and inadequate reformation of abuses in the court of Rome, which Paul pretended to set on foot.

In the mean time, the pope had concluded an alliance with the emperor Charles V. and the Venetians against the Turks; and is said to have entertained such confidence of ultimate success, that he even made a partition of the Turkish empire with his allies. This object, as well as the extirpation of the Lutheran heresy, he had much at heart; but he considered peace between the emperor and the king of France, who were then at war, to be an essential preliminary to both. Nor was he without hopes that, if he should prove the instrument of promoting it, he might secure important advantages to his own family. Influenced by these considerations, he proposed an interview between the two monarchs at Nice, and offered to repair thither in person, that he might act as a mediator in composing all their differences. Such a proposal could not decently be declined by either of the contending princes; and he prevailed upon them to sign a truce for ten years, and in the mean time to send ambassadors to Rome, to discuss their pretensions at leisure. During the private conferences of the pope with the emperor at this interview, a marriage-treaty, which had been some time negotiating, was at last concluded between Octavio Farnese, the pope's grandson, and Margaret, the emperor's natural daughter, and the widow of Alexander de Medici, who had been lately murdered by one of his own family. Soon after Paul's return to Italy, he dispatched cardinal de Medici with a grand retinue to Florence, who conducted the princess to Rome, where she was received by the pope, the cardinals, and the Roman nobility; and the nuptials were celebrated with extraordinary pomp and magnificence.

In the year 1538, the pope, finding from the proceedings of king Henry VIII. of England, in dissolving the monasteries, and compelling the monks to resume the lay-habit, that all hopes of coming to an agreement with him were desperate, thundered out his bull of excommunication against that prince. By this bull Henry was pronounced deprived of his kingdom; his subjects were not only absolved from their oaths of allegiance, but commanded to take up arms against him, and drive him from the throne; the whole kingdom was laid under an interdict; all treaties of commerce or friendship with him or his subjects were declared null; his kingdom was granted to any one who should invade it; and all were allowed to seize the effects of such of his subjects as adhered to him, and enslave their persons, &c. But Henry's power was not to be shaken by such an instrument; and the insolence of the pope only stimulated the king to imitate his tyranny, by persecuting with more severity than ever all without distinction who refused to renounce the papal supremacy, and acknowledge his own.

The year 1540 was rendered memorable by the establishment of the order of the JESUITS; (see that article, and LOYOLA.) During the same year different diets were held

held in Germany, for the purpose of terminating the religious disputes, and the divisions arising from them among the members of the empire; the result of which, notwithstanding the opposition of the papal legates, were various concessions to the Protestants, equivalent to a kind of truce, which suspended all prosecutions carried on against them in the imperial chamber, and left them in the full possession of all the privileges which they had ever enjoyed. To these concessions the emperor had been induced to accede, in order to obtain their consent to liberal supplies towards carrying on the war with the Turks. These proceedings, however, gave great offence to the pope, who complained of them during a short interview which he had with the emperor at Lucca, in 1541, when he suggested various things relating to the proper method of putting an end to the disputes about religion, and to the extinguishing of those mutual animosities between that prince and the king of France, which threatened to break out again into open hostility.

In the year 1542, Paul, finding it impossible to avoid any longer calling a General Council, sent John Morone, bishop of Modena, to announce to the diet of the empire at Spire his determination of assembling such a council without delay, and to propose that Trent should be the place of its meeting. This proposal, after some discussion, met with the approbation of the catholic princes in the diet; but the Protestants unanimously expressed their dissatisfaction, protesting that they would pay no regard to a council held beyond the precincts of the empire, called by the pope's authority, and in which he assumed the right of presiding. Without taking any notice of their remonstrances, Paul immediately published the bull of intimation, nominated three cardinals to preside as his legates, and fixed the day for opening the council on the first of the following November. His legates repaired to Trent at the time appointed, where they remained several months; but as no persons appeared there, except a few prelates from the ecclesiastical state, the pope, in order to avoid the ridicule and contempt which this drew upon him from the enemies of the church, recalled them and prorogued the council. Being about this time informed, that the principles of Luther met with a favourable reception in many parts of Italy, he appointed a congregation of six cardinals, with full power to act as inquisitors of the faith at Rome.

During the summer of this year, the pope, hearing that the emperor intended passing into Flanders by the way of Italy, with great difficulty obtained an interview with him at Busetto, a small town between Parma and Placentia. His professed object in taking so long and fatiguing a journey was, that he might mediate between the emperor and the king of France. When, however, he found Charles so inveterate against Francis that he would not listen to any terms of accommodation, Paul showed that he was also powerfully influenced by a regard to his own interest, and to the aggrandizement of his family. The former motive prompted him to entreat of the emperor the restoration of Parma and Placentia to the holy see, but without success. With a view to the aggrandizement of his family, knowing the emperor's great want of money to carry on his war against France, he offered him a hundred and fifty thousand ducats if he would bestow the duchy of Milan on his grandson Octavio Farnese; which proposal the emperor rejected. Disappointed in what he had much at heart, Paul returned to Rome, mortified and foured; and his ill humour was not a little inflamed by the intelligence which he received from Germany, in the year 1544. This informed him, that the emperor had courted the Protestants, and granted them extraordinary indulgences at the diet at Spire, in order to secure, as he by that means did, their concurrence with the other members of the diet, in declaring war against France, in the name of the empire, and granting extraordinary aids in troops and money. He also learnt from it, that Charles had consented

to call a council, and to admit of public disputations in Germany, with a view to determining the doctrines in controversy between the Protestants and Catholics; and that he had even contracted a profane alliance with an excommunicated heretic and rebel against St. Peter, Henry of England. To so high a degree was Paul offended with these proceedings, that he addressed to the emperor a long letter on the occasion, written with such acrimony of language, and in a style of such high authority, as seemed to intimate a design of drawing on a quarrel with that prince. To this letter Charles made no reply, knowing that he had been governed in what he had done only by motives of temporary policy, and being desirous of concealing the schemes which he had formed for humbling the protestant party in Germany, and for restoring the catholic religion wherever it had been abolished.

In the year 1545, the pope summoned the Council of Trent to assemble anew in the month of November; but before the time fixed for the meeting, Paul took a step which the Protestants hoped would have produced a rupture between him and the emperor. Finding that he could not bring Charles to approve of his ambitious schemes for the aggrandizement of his family, he ventured to give his son Peter Louis the investiture of Parma and Placentia, though at the risk of incurring the displeasure of the emperor. This indecent grant of such a principality to a son of whose illegitimate birth he ought to have been ashamed, and whose licentious morals all good men detested, gave general offence, and the emperor peremptorily refused to confirm the deed of investiture, upon the pretext that Parma and Placentia were part of the Milanese state: but at length, the emperor and the pope being now intent upon one common object in Germany, they mutually sacrificed to it their emotions of jealousy or resentment, that they might the more effectually pursue what each deemed to be of greater importance. On the 13th of December, 1545, the General Council was opened at Trent with the accustomed solemnities, though no more than twenty-five bishops had yet arrived, who were either Italians or Spaniards; nor were they more than forty in number, when, in opposition to a motion that their attention should in the first place be directed to the reformation of abuses, it was agreed, that the forming a Confession of Faith, in which should be contained all the articles that the church required its members to believe, ought to be the first and principal business of the council; but that, at the same time, due attention should be given to what was necessary towards the reformation of manners and discipline.

In the fourth session, having begun with examining the first and chief point in controversy between the Church of Rome and the Reformers, concerning the rule which should be held as supreme and decisive in matters of faith, the council, by its infallible authority, determined, "that the books to which the designation of *Apoeryphal* has been given, are of equal authority with those which have been received by the Jews and primitive Christians into the sacred canon; that the traditions handed down from the apostolic age, and preserved in the church, are entitled to as much regard as the doctrines and precepts which the inspired authors have committed to writing; that the Latin translation of the Scriptures, made or revised by St. Jerome, and known by the name of the *Vulgate* translation, should be read in churches, and appealed to in the schools as authentic and canonical." Against all who disclaimed the truth of these tenets, anathemas were pronounced in the name and by the authority of the Holy Ghost. The decision of these points, which undermined the main foundation of the Lutheran system, was a plain warning to the Protestants what judgment they might expect, when the council should have leisure to take into consideration the particular and subordinate articles of their creed.

By the increasing apprehensions of the Protestants, Charles saw, that he would be soon obliged to declare openly

openly what part he was determined to act. At the same time he was strongly urged to commence operations against them by the pope, who promised to second him with such vigour as could not well fail of securing success. In these circumstances the emperor entered privately into negotiations with his holiness; who, when he found that Charles was bent in earnest on extirpating, by force of arms, the heresies which abounded in Germany, and of compelling all who had renounced the religion of their forefathers to return to the obedience of the holy see, assented with eagerness to every article which was proposed to him. Among other stipulations on his part, the pope engaged to deposit a large sum in the bank of Venice, towards defraying the expense of the war: to maintain, at his own charge, during the space of six months, twelve thousand foot and five hundred horse; to grant the emperor, for one year, half of the ecclesiastical revenues throughout Spain; and to authorize him, by a bull, to alienate as much of the lands belonging to religious houses in that country as would raise a considerable pecuniary supply. This war of religion broke out in the year 1546; and the papal troops, amounting fully to the number which Paul had stipulated to furnish, commanded by Octavio Farnese, the pope's grandson, assisted by able officers formed in the long wars between Charles and Francis, seasonably joined the imperial army. The transactions of this war, till the confederacy of the Protestants was broken up, and almost all the members of it had been compelled to submit to the emperor, belong to the history of GERMANY.

No sooner was information brought to Paul of the rapid success of the imperial arms, than he began to recollect the prudent and cautious maxims of the papal see, with regard to the danger of extending the imperial authority beyond bounds, which in the transport of his zeal against heresy he had entirely forgotten. He now became alarmed for the impolicy of his conduct, in having contributed towards acquiring for Charles such an immense increase of power, as would enable him, after oppressing the liberties of Germany, to give law with absolute authority to all the states of Italy. He resolved, therefore, to lose no time in correcting his error; and, without giving the emperor any warning of his intention, he ordered his grandson to return instantly to Italy with all the troops under his command, while he recalled, at the same time, the licence which he had granted for the appropriation of church-lands in Spain to Charles's use. Of Paul's treachery in thus abandoning him the emperor loudly complained, and to his complaints he added threats and expostulations; but his holiness remained inflexible, and his troops marched towards the ecclesiastical state. In a memorial which the pope published on this occasion, besides assigning various reasons to justify his conduct, he discovered manifest symptoms of alienation from the emperor, together with a deep-rooted dread of his power. It was not long before he began to consider him as an enemy, the weight of whose power he must soon feel, and against whom he could not be too early in taking precautions. He foresaw that, if the emperor acquired absolute power in Germany, he would soon become master of all the decisions of the council, should it continue to meet in Trent. For this reason he determined to remove it to some city more immediately under his own jurisdiction; and an incident occurred which gave to this measure the appearance of being necessary. One or two of the fathers, together with some of their domestics, happening to die suddenly, their disorder was pronounced to be infectious and pestilential; upon which some of the prelates withdrew from Trent panic-struck, and after a short consultation the council was translated to Bologna, in the year 1547. This step was warmly opposed by the prelates in the imperial interest, most of whom remained at Trent, by which means a schism commenced in that assembly, the fathers at Bologna and Trent respectively inveighing with acrimony against each other. The em-

peror used all his interest to procure the return of the council to the latter place; but Paul invariably refused the applications which were made to him on that head.

By this time, strong symptoms of disgust between the pope and the emperor were very discernible; and an event soon happened, which produced an irreparable breach in their connexion. Peter Louis Farnese, the pope's son, by the profligacy of his life, and by enormities of every kind, equal to those committed by the worst tyrants who have disgraced human nature, had rendered himself so odious to all classes of his subjects, that it was thought that any violence whatever might be lawfully attempted against him. In these circumstances, five noblemen of the greatest distinction in Placentia, with the privity of Gonzaga, the imperial governor of Milan, combined in a plan for assassinating him. They conducted their intrigues with such secrecy, and displayed such courage in the execution of their design, that, at mid-day, one party of them surprised the citadel of Placentia, where Farnese resided, overpowered the guards, and murdered him; while others of their body made themselves masters of the town. The exultation at the success of the conspiracy was general; and all applauded the actors in it, as the deliverers of their country. Before the next morning, a body of troops from the Milanese took possession of the city in the emperor's name, and restored the inhabitants to their ancient privileges. The ignominious death of a son whom, notwithstanding his infamous vices, Paul loved with an excess of parental tenderness, overwhelmed him with the deepest affliction; and the loss of a city of such consequence as Placentia, greatly embittered his sorrow. He accused Gonzaga, in open consistory, of having committed a murder, in order to prepare the way for an unjust usurpation; and he immediately demanded satisfaction of the emperor for both injuries, by the punishment of Gonzaga, and by the restitution of Placentia to his grandson Octavio. But Charles eluded all his demands, and determined to keep possession of the city, together with its territories.

While Paul felt the full force of the passions which his losses and the desire of vengeance excited in his mind, the Diet of Augsburg, by the emperor's command, petitioned him, in the name of the Germanic body, that he would enjoin the prelates who had retired to Bologna, to return again to Trent, and to renew their deliberations in that place. But the pope, from the satisfaction which he felt in mortifying the emperor, as well as from his own aversion to what was requested, without hesitation resolved that this petition should not be granted. He had the address, however, to throw the refusal on the fathers at Bologna, to whom he referred the petition, who declared that the council could not return to Trent, consistently with its dignity, unless the prelates who remained there first repaired to Bologna, and by joining their brethren, as well as submitting to the decrees which had been passed, disavowed their schismatical spirit.

Charles justly considered their reply as a full discovery of the pope's intentions, and proceeded to take the necessary steps to prevent Paul from having it in his power to turn against him the authority of such an assembly. With this view, he sent two Spanish lawyers to Bologna in January 1548, who protested before the papal legates, that the translation of the council to that place was founded on false pretexts, and that it was consequently an unlawful and schismatical conventicle; that all its decisions ought of course to be held null and invalid; and that, since the pope and his ecclesiastics had abandoned the care of the church, the emperor would employ the power which God had committed to him, to prevent those calamities with which it was threatened. A few days afterwards, the imperial ambassador at Rome protested to the same purport, and in equally harsh terms, at an audience which he demanded of the pope, and in the presence of all the cardinals, as well as foreign ministers.

It was not long before Charles, resolved to terminate all differences with respect to religious opinions without the intervention of any foreign jurisdiction, laid before the diet his famous system of doctrine known by the name of the *Interim*, from its being designed to continue no longer in force than until a free general council could be convoked. This system, which contained all the essential doctrines of popery, though artfully softened or disguised, was equally disapproved of both by Papists and Protestants; but no member of the diet had the courage openly to oppose it, and the emperor was determined to employ all his power in enforcing the observance of it as a decree of the empire. As soon as the proceedings of the diet and the contents of the *Interim* came to be known at Rome, the indignation of the courtiers and ecclesiastics rose to the greatest height; and they all warmly contended, that as the emperor had been so daring as to usurp the jurisdiction of the head of the church, and had attempted to overturn the foundations of ecclesiastical authority, it was necessary to proceed immediately to extremities against him, before he grew too formidable to be opposed. But Paul, though he was highly offended with the emperor, for assuming an authority to regulate the doctrine and discipline of the church, and condemned the *Interim* in the strongest terms, viewed the matter with more temper and judgment. The experience which he had dearly purchased by his quarrel with Henry VIII. taught him a lesson of caution and prudence; and his discernment also led him to foretel, that a system which all attacked, and none defended, could not be of long duration, but must sink and be forgotten when the powerful hand which now upheld it was withdrawn; and that, for this reason, there was no need of his interposing in order to hasten its fall. In the mean time, the secession of those prelates who had voted against the translation of the council to Bologna, was soon followed by the departure of others, who grew weary of continuing in a place where they were not suffered to proceed to business, till at length so few remained, that the appellation of General Council could not, with decency, be bestowed any longer upon them. Paul, therefore, had no choice left but to dissolve an assembly which had become the object of contempt to all Christendom; and he directed his legates to dismiss it by an indefinite prorogation.

As Paul advanced in years, he became more strongly attached to his family, and more jealous of his authority. Urged on by these passions, he could not forget the loss of Placentia; and in the year 1549, he made a second ineffectual effort to gratify his enmity to the emperor, by an attempt to draw the French king into an alliance against that prince. Finding himself unsuccessful in this design, he turned his thoughts towards the most likely means of preventing the future encroachments of the emperor. With this view, he determined to recal his grant of Parma and Placentia, and, after declaring them to be reannexed to the holy see, to indemnify his grandson Octavio by some other establishment in the ecclesiastical state. This device, he flattered himself, would render his possession of Parma more secure, as the emperor might be cautious of invading the patrimony of St. Peter; and he thought it would afford him a better chance of recovering Placentia, when, in urging his solicitations to that effect, he was considered not as pleading the cause of his own family, but as an advocate for the interest of the church. While he was priding himself in this device, Octavio, a high-spirited young man, having resolved not to accept of any other territory, took measures in order to prevent the execution of a plan so fatal to his ambition. In pursuance of these, he set out secretly from Rome, and, after having made an unsuccessful attempt to surprise Parma, wrote a letter to his grandfather, intimating his resolution of throwing himself into the arms of the emperor. This defection of one of Paul's own family to an enemy whom he hated, irritated him almost to madness; and there was no degree of severity to which he might

not have proceeded against a grandson whom he reproached as an unnatural apostate. He was prevented, however, from carrying his harsh resolutions into execution by his death, which took place in 1549, when he was in the eighty-second year of his age, and had held the Roman see upwards of fifteen years. Almost all the historians of the fifteenth century affirm, that his death was occasioned by a fever brought on by the violent passions which the behaviour of his grandson excited; but in Dr. Robertson, as referred to at the end of this article, the reader may meet with a more authentic account of this event, which attributes it to a defluxion on the lungs, attended with such dangerous symptoms, that his life was immediately despaired of.

The character of this pope gave rise to much debate, even in the last century, between cardinal Quirini, and Schelhorn, Thieling, and other writers. The cardinal has used his utmost efforts to defend his probity and merit, his prudence and moderation; while the two learned men above mentioned, represent him as a perfidious politician, whose predominant qualities were dissimulation and fraud; who was wholly intent upon raising his family, and ever ready to sacrifice the good of the church or state, to the grandeur and interests of his numerous illegitimate offspring. Maclaine, in a note to his translation of Mosheim, mentions some shocking instances of licentious and criminal exploits, with which Paul was reproached in a book published before his death, under the name of *Ochino*. Besides his natural son Peter-Louis, he had a natural daughter named Constantia, who was married into the Sforza family; and their children, Alexander Farneze, and Guido Ascanio Sforza, he created cardinals soon after his election, when they were scarcely arrived at the years of discretion. At different promotions, he created no fewer than seventy-one cardinals, a far greater number than had ever yet been preferred to that dignity by any pope. Onuphrius says, that he was well versed in most branches of literature, and a generous encourager of learned men. He wrote a Comment upon Cicero's Epistles to Atticus, before his promotion to the pontificate, and, after it, some "Letters," in a polite Latin style, to his particular friend cardinal Sadolet, and to Erasmus. *Robertson's Hist. of Charles V.* vol. iii. *Mosh. Hist. Eccl. sæc. xvi.*

PAUL IV. (Pope), whose former name was *John Peter Caraffa*, was the son of count Montorio, a nobleman of an illustrious family in the kingdom of Naples, and born in the year 1476. Being destined for the church, he from his early years applied to study with the greatest assiduity: he not only acquired profound skill in scholastic theology, but a considerable knowledge of the learned languages and of polite literature, the study of which had lately been revived in Italy. His mind, however, naturally gloomy and severe, was more formed to imbibe the four spirit of the former, than to receive any tincture of elegance or liberality of sentiment from the latter; so that he acquired rather the qualities and passions of a monk than the talents requisite for the conduct of the affairs of the world. When he was only eighteen years of age, pope Alexander VI. made him his chamberlain; and, in the year 1504, Julius II. created him archbishop of Theate, in the Neapolitan dominions. By the same pontiff he was sent in the capacity of his nuncio to Ferdinand king of Arragon, when that prince took possession of the kingdom of Naples; and in the year 1513, pope Leo X. sent him in the same character to Henry VIII. king of England, at whose court he continued three years. Upon his return from this mission he was appointed nuncio to Spain, where he was made privy-counsellor to king Ferdinand, and afterwards confirmed in the same post by his grandfather Charles V. But, becoming disgusted with public life, he languished to be in a situation more suited to his taste and temper. Having, therefore, obtained his recall, he relinquished the paths of ambition, refused the archbishopric of Brindisi,

difi, which was offered him by Charles V. and even resigned all his ecclesiastical preferments, in the year 1524. He then retired to Mount Pincio, where he instituted a new order of regular priests, whom he denominated Theatines, from the archbishopric which he had held; and, becoming a member of their fraternity, he conformed to all the rigorous rules to which he had subjected them, preferring the solitude of a monastic life, with the honour of being the founder of a new order, to the highest dignities and greatest grandeur which the court of Rome could offer him. In this retreat he continued many years, until pope Paul III. induced by the fame of his sanctity, called him to Rome, in order to consult with him concerning the most proper and effectual measures for suppressing heresy, and re-establishing the ancient authority of the church. Having thus enticed him from his retirement, the pope, partly by his entreaties, and partly by his authority, persuaded him to re-assume the benefices which he had resigned, and to accept of a cardinal's hat, in the year 1536.

After having been thus promoted to the purple, Caraffa retained his monastic austerity, both under the artful and interested pontificate of Paul, and the dissolute government of Julius III. He was a bitter enemy of all innovation in opinion, and had ever shown the most furious zeal against Lutheranism. He appeared on every occasion a violent advocate for the jurisdiction and discipline of the church, and was the chief instrument in establishing the formidable and odious tribunal of the Inquisition in the papal territories. Upon the death of pope Marcellus II. in 1555, the conclave soon united in the choice of cardinal Caraffa for his successor, who was then at the advanced age of seventy-nine; and this circumstance had no little weight in promoting his election, as it flattered the other competitors with the prospect of seeing, ere long, another vacancy in the papal chair. At his coronation, out of grateful respect to the memory of Paul III. he took the name of Paul IV. When the Roman courtiers were informed of his election, from the austerity of his character they anticipated a severe and violent pontificate; while the people of Rome were apprehensive of seeing the rigour of monastic manners substituted in the room of the gaiety or magnificence to which they had been so long accustomed in the papal court. However, Paul commenced his government by ordering his coronation to be conducted with greater pomp and ceremony than usual; and, when the master of his household enquired in what manner he chose to live, he haughtily replied, "as becomes a great prince." He also used great state and pomp in his first consistory, when he gave audience to the ambassadors of Mary queen of England, who came to tender her obedience to the papal see; on which occasion he gave the title of a *kingdom* to Ireland. Afterwards, at a private conference, he insisted that all the ecclesiastical possessions which had been seized by Henry VIII. should be restored to the church, and that the Peter-pence should be immediately collected for the use of the Roman see. Having thus attained to the highest dignity to which he could aspire, the principal object which he appears to have had at heart was the aggrandizing of his nephews, to whom he gave himself up with unbounded confidence and attachment. On count Montorio, the eldest, he bestowed the dukedom of Palliano, of which he had violently dispossessed Mark-Antony Colonna; on the second he conferred the government of Rome, with the county of Bagno, and the title of marquis of Montebello; and the youngest, who had hitherto served as a soldier of fortune in the armies of Spain or France, he created a cardinal, and nominated him to the important legation of Bologna.

Unhappily for the peace of Europe, the ambition of Paul's nephews was too aspiring to be satisfied with the dignities to which they had been appointed. Their aims were directed to some sovereign and independent establishments, such as had been procured by Leo and

Clement for the Medici, and by Paul III. for the family of Farnese. This design they saw no prospect whatever of accomplishing, but by dispossessing the emperor of some of his Italian dominions; and to attempt such an undertaking, both Paul and his nephews were incited by motives of resentment as well as of interest. Cardinal Caraffa, while he served in the emperor's army in Germany, had been put under arrest for challenging a Spanish officer; and afterwards he was prevented by the emperor's orders from taking possession of a priory in Naples, which the pope had conferred on him. Disgusted by this treatment, and moreover disposed to receive impressions unfavourable to the emperor, owing to the opposition which his election to the papacy had met with from the cardinals of the imperial faction, he resolved, in conformity with the advice of his nephews, to endeavour to enter into a treaty of alliance with the French king Henry II. against the emperor Charles V. According to the articles of this alliance, they were to attack the duchy of Tuscany and the kingdom of Naples with their united forces; and, in case their arms should prove successful, its ancient republican form of government was to be re-established in the former, and the investiture of the latter granted to one of the French king's sons; reserving a certain territory for the ecclesiastical state, and independent establishments for each of Paul's nephews.

The proposal of such a treaty proved very acceptable to Henry himself, who was allured by the prospect which it opened to him of acquiring those Italian dominions for which his predecessors had so often contended; and it was determined that the cardinal of Lorraine should be sent to Rome, with full powers to bring it to a conclusion. In the mean time the pope, having had leisure to reflect on the danger and uncertain issue of a war with so powerful a prince as the emperor, and probably yielding to the addresses with which the imperial ambassador had laboured to soothe him, began to lose much of his ardour for continuing the negotiation with France; when intelligence which he received from Germany rekindled all his former rage against the emperor, and made him desirous of putting the last hand to the treaty. It brought him advice of the *Recess* of the diet of Augsborg, and of the toleration which was thereby granted to the Protestants in Germany. This information excited in him most violent transports of passion. Full of high ideas with respect to the papal prerogative, and animated with the fiercest zeal against heresy, he considered the assembly's decision concerning religious matters, to be a presumptuous and unpardonable encroachment on that jurisdiction which belonged to him alone, and regarded the indulgence which had been given to the Protestants as an impious act of that power which the diet had usurped. He insisted that the *Recess* should be immediately declared illegal and void; threatening the emperor and king of the Romans, should they either refuse or delay to gratify him in this respect, with the severest effects of his vengeance. Such a tone of authority and command might have been assumed by a pontiff of the twelfth century; but in the age of Charles V. it was impotent and contemptible extravagance. In this disposition the cardinal of Lorraine found the pope, and soon obtained his signature to a treaty, which had for its object the ruin of a prince against whom he was so highly exasperated; and afterwards both parties began privately to prepare for putting it in execution.

Scarcely had the treaty between the pope and the king of France been signed two months, before Henry forgot the obligations under which it laid him, and agreed to a truce with the emperor, who was upon the point of resigning all his hereditary dominions (Spain, &c.) to his son Philip, and of retiring from the world. When the news reached Rome that this truce was actually concluded, and sworn to by Henry as well as Charles and Philip, in February 1556, it excited in the pope and his nephews the utmost astonishment and terror. They were conscious

conscious that, by their engagements with the French king, which were no longer secret, they had highly irritated the emperor and his son; and, finding that the duke of Alva had begun to assemble troops on the frontiers of the ecclesiastical state, they dreaded that they should feel the full weight of that vengeance which they merited. Under these circumstances, Paul determined to have recourse to the arts of negotiation and intrigue. He affected, as being the father of the Christian church, to approve highly of the truce, considering it to be a happy expedient for putting a stop to the effusion of Christian blood; and he exhorted the rival princes to embrace this favourable opportunity of setting on-foot a negotiation for a definitive peace, offering himself to be mediator between them. Under this pretext he nominated cardinal Rebiba his nuncio to the court of Brussels, and his nephew cardinal Caraffa to that of Paris. But the real design of Caraffa's embassy, was to solicit the French king to renounce the treaty of truce, and to renew his engagements with the holy see; and he was commanded to spare neither entreaties, nor promises, nor bribes, in order to gain that point. In pursuance of his instructions, Caraffa set out instantly for Paris, and travelled with the utmost expedition; while Rebiba was purposely detained at Rome for several weeks, and, when it became necessary for him to begin his journey, he was ordered to protract it as much as possible, that the issue of Caraffa's negotiation might be known before he could arrive at Brussels. In the mean time Caraffa arrived at Paris, where he presented a consecrated sword to the king, and by his remonstrances and promises, which were supported not only by the persuasions of the duke of Guise and his brother the cardinal of Lorraine, but by the addresses of the queen, and the more powerful arts of Diana of Poitiers, whom he had gained over to his party, he completely succeeded in the object of his mission. All the prudent remonstrances of Montmorency and the other wise advisers of the king were disregarded; the nuncio absolved Henry from his oath; and he signed a new treaty with the pope, which rekindled the flames of war both in Italy and the Low Countries. Upon this a messenger was dispatched to meet cardinal Rebiba, with information of what had passed, and instructions for him to return to Rome.

As soon as Paul was informed by his nephew that there was a fair prospect of his succeeding in this negotiation, he threw off the mask; put under arrest the Spanish envoy at his court; treated with much severity and injustice all those whom he suspected of being attached to the Spanish interest; and ordered a legal information to be presented in a consistory of cardinals against Philip, on pretence that, as his liege-lord, he had a right to deprive him of the kingdom of Naples, on account of his having failed in the payment of the annual tribute due to the pope from the possessor of it, as well as of various acts of treason against the holy see. But, while Paul was weakly displaying such proofs of his pride and resentment, the duke of Alva took the field, and entered the ecclesiastical territories. As none of the French forces which by the treaty with Henry were to be sent to the pope's assistance were yet arrived, Alva soon became master of the Campagna Romana, taking possession of the cities in the name of the sacred college and the *future* pope; and he continued to advance, till his troops, by making excursions even to the gates of Rome, filled that city with consternation. In this situation Caraffa found his uncle's affairs upon his return from France; and, knowing the importance of obtaining time for the arrival of the expected succours, he prevailed on Paul, who, from pride and obstinacy, was extremely reluctant, to apply to Alva for a cessation of arms. That commander was the more disposed to close with the overture, as he found it necessary to recruit his forces, that he might be in a condition to meet the approaching French army. A truce was accordingly concluded for ten, and afterwards for forty,

days, during which various schemes of peace were proposed, without any sincerity on the part of the pope. This he showed sufficiently on the arrival of one body of French troops, and the receipt of a considerable sum remitted by the king of France; when he became more arrogant than ever, and banished all thoughts from his mind but those of war and revenge. Hostilities were again renewed; but with so much success against the cause of the church, that Paul, proud and obstinate as he was, found it necessary to accommodate himself to the exigency of his situation. He accordingly employed the mediation of the Venetians, and of Cosmo de Medici, in order to obtain peace; and so reasonable was Philip II. of Spain in his expectations, that, though he had the pope at his feet, yet he allowed him to finish the war without any detriment to the papal see. The conqueror, owing to his superstitious attachment to the church, appeared in the abject character of a humble suppliant, and acknowledged his error; while he who had been the most arrogant hypocrite, though completely vanquished, retained his usual haughtiness, and was treated with every mark of superiority.

Paul now had leisure, and he applied that leisure to render his favourite tribunal of the Inquisition a more efficient instrument for the eradication of heresy. With this view, he directed the inquisitors to draw up a catalogue of such books as were thought proper to be condemned, as impious and heretical. This *Index Expurgatorius* was published two years afterwards; and all were prohibited, under pain of excommunication, perpetual infamy, and other arbitrary punishments, from possessing any of the books mentioned in that catalogue. The pope likewise ordered the tribunal of the Inquisition to take cognizance of several crimes which before had been under the jurisdiction of the other courts; and he deservedly incurred universal odium, by being so active and diligent in his inquiry after criminals, that he quickly filled all the prisons of the inquisition. In the year 1558, the college of the electors of the empire having been assembled at Frankfort, the prince of Orange laid before them the instrument with which he had been entrusted by Charles V. containing his resignation of the imperial crown, and the transfer of it to Ferdinand king of the Romans, which the college accepted and approved, and put Ferdinand in possession of all the ensigns of imperial dignity. When the new emperor sent his chancellor to acquaint the pope with this transaction, Paul declared all the proceedings at Frankfort illegal and invalid, as transacted without his authority, and refused to acknowledge Ferdinand as emperor so long as he lived. The same pretensions were maintained by him in the instance of queen Elizabeth of England, who announced to him by her ambassador that she had acceded to the throne: he haughtily declared that the kingdom was a fief of the holy see, and that she had no right to assume the crown without his leave. She nobly despised his claims, threw off the papal yoke, and, after the example of her father and brother, assumed, with the concurrence of parliament, the supremacy in all matters, ecclesiastical as well as temporal, within her dominions. The mortification which this event occasioned to Paul was increased by the intelligence which he received from his nuncio in Germany, that at the diet of Augsburg, in 1558, Ferdinand had confirmed the treaty of Passau, which established the peace of religion, and also the decrees of the subsequent diets. He was equally displeas'd with the peace concluded between France and Spain, since, by one of the articles, the respective sovereigns bound themselves to labour in concert for procuring the convocation of a general council, in order to promote the reformation of the church, and to devise expedients for establishing unity and concord in the religious world. Shortly after this, the pope was very desirous of convincing the world, that he had sincerely at heart a correction of abuses in the church; and, with this view, he ordered all bishops to proceed

proceed to their own dioceses, and all who had embraced a monastic life to return to their monasteries, admitting of no excuse whatever with regard to the last; and he executed his mandate with such severity, that many of the vagrant monks were imprisoned, and some of them sent to the galleys. Towards the close of life he exhibited his impartiality in the punishment of crimes, by directing his severity against his nephews, who had, in many instances, abused the trusts reposed in them. He also suppressed some new and very unpopular taxes, which he pretended had been imposed without his knowledge. It was now almost too late to act upon a new course of practice; he was unable to remedy the evils of his administration, as he died in August 1559, in the 84th year of his age, and after a pontificate of little more than four years. Such had been his arrogance, tyranny, and oppressions, and he had rendered himself so universally the object of hatred, that, when he was upon his death-bed, the Romans rose tumultuously, cursed his name and family, and then, flying to the capitol, struck off the head of a statue erected to him but three months before, which they dragged through the public streets of the city, and at last threw it into the Tiber. The populace then crowded to the prison of the Inquisition, forced open the doors, released several hundred prisoners, then set fire to the building, which was soon reduced to ashes, with all the papers and records of that court. An edict was then published for abolishing the arms of the Caraffa family, and in a single day there was not in all the city a memorial of them left. Paul was the author of a treatise *De Symbolo*; another, *De Emendanda Ecclesia ad Paulum III.* besides the rules by which his monastery was governed, entitled *Regulæ Theatinorum*. *Bowen. Robertson's Hist. of Charles V.* vol. iv. *Watson's Hist. of Phil. II.*

PAUL V. (Pope), formerly called *Camillo Borghese*, was descended from a family of some distinction at Sienna, and born at Rome in the year 1552. He principally attached himself to the study of the civil law, in which faculty he took the degree of doctor, and acquired high reputation for his knowledge of it. In the year 1588, he was constituted vice-legate of Bologna; and pope Gregory XIV. appointed him to fill the important office of auditor of the chamber. By pope Clement VIII. he was promoted to the college of cardinals, and sent nuncio into Spain; and, after his return from that mission, the same pontiff nominated him his vicar, which is one of the four principal dignities in the Roman church. Upon the death of Leo XI. in 1605, various candidates for the vacant throne were unsuccessfully proposed by their respective friends in the conclave, and among others, cardinals Bellarmine and Baronius. At length the nomination of cardinal Borghese met with the concurrence of all parties, his vigorous age of fifty-three being the only objection against him. At his coronation he took the name of Paul V. and almost immediately afterwards discovered his spirit of nepotism, by bestowing the cardinal's hat on Scipio Caffarelli, his sister's son; and by appointing his two brothers, Francis and John Baptist, to the important offices of governor of the Vatican, and governor of St. Angelo. No one of his predecessors exceeded this pontiff in zeal for advancing the ecclesiastical authority and jurisdiction of the papal see, or showed himself more violent in endeavouring to execute his vengeance on such as encroached upon his pretended prerogatives. His zeal in defence of the pretended rights and powers of his see was particularly displayed in the rash and unsuccessful contest into which he entered with the republic of Venice, in the year 1606. The Venetians had published several laws for restraining the licentiousness of the clergy, and for other purposes necessary for the well-being of their state, which the pope ordered to be rescinded. This they refused, and justified their conduct with great spirit. When Paul found that they opposed his demands, his fury was inflamed to the highest pitch. Having suffered himself to be publicly styled

"Vice-God upon earth, the Monarch of Christendom, and the Supporter of Papal Omnipotence," he was resolved to keep up his character, by pouring down upon the republic the full weight of his vengeance. It was, however, to no purpose: the Venetians resisted, and carried their point; and, at the same time, they banished the Jesuits and Capuchins, who had thought proper openly to break the laws of the state, by obeying the pope. In this contest they employed their ablest pens, particularly that of the learned and ingenious Father Paul, (see the next article,) to demonstrate, on the one hand, the justice of their cause, and to determine, on the other, after an accurate and impartial enquiry, the true limits of the Roman pontiff's jurisdiction and authority. The arguments of these writers were so strong and urgent, that Baronius, and the other learned advocates whom the pope employed in supporting his pretensions and defending his measures, struggled in vain against their irresistible evidence.

In the mean time, the Congregation de Auxiliis, which was first assembled by pope Clement VIII. in order to terminate the controversy between the Jesuits and Dominicans on the subject of *Grace*, had held sixteen sessions under the pontificate of Paul. In these sessions, it was not so much their object to enter into the merits of the cause, as to consider about the most prudent and proper method of finishing the contest. At length, the result of their long and serious deliberations resembled the delivery of the mountain in the fable, being nothing more than a resolution that the whole controversy, instead of being *decided*, should be *suppressed*; and that each of the contending parties should have the liberty of following their respective opinions. The Dominicans assert, that Paul had expressly ordered a solemn condemnation of the doctrine of the Jesuits to be drawn up; but was prevented from finishing and publishing it by his quarrel with the Venetians. The Jesuits, on the other hand, represent this account of the Dominicans to be entirely fictitious. What the truth might be, we do not deem it of any importance to inquire.

About this time, the form of the oath of allegiance required to be taken by popish recusants in England having been submitted to the consideration of the college of cardinals, they were unanimously of opinion that no true catholic could take it with a safe conscience; upon which the pope dispatched a brief to this kingdom, prohibiting all papists from submitting to it, and exhorting them patiently to endure all manner of persecution rather than comply. During the year 1609, an ambassador arrived at Rome from the king of Congo in Africa, to request that the pope would send with him, on his return, learned missionaries to propagate Christianity in that country; but the death of the ambassador soon after his arrival, occasioned that design to be postponed to some future time. In the same year, the pope received letters from the king of Persia, which had been procured by the archbishop of Goa, and were soon afterwards followed by an ambassador from the same prince. These letters and this minister were most probably sent at the instigation of some of the king's Armenian subjects who had embraced the catholic creed, with a view to procure some arrangements for their benefit. That they were not sent to yield spiritual obedience to the Roman pontiff, as was at one time pretended, it would now be a needless talk to prove. To the Persian embassy succeeded another private one from Elias, the Nestorian patriarch at Babylon, who, having received a confession of the Roman faith from Paul towards the commencement of his pontificate, now sent an archdeacon to Rome with a new confession, drawn up in different terms from the Roman, but intended to satisfy the pope that the faith of the orientals differed only in words from that of Rome. But even such a difference could not be tolerated by papal pride; and the archdeacon was obliged to submit, not only to the doctrines, but to the words, of the Roman church.

In the year 1610, Paul was earnestly solicited to enter into a defensive alliance with the king of France and the princes of Italy: but he declined acceding to their proposals, out of an apprehension that they intended a rupture with Spain, and an invasion of the Milanese; in which case he was determined to observe the strictest neutrality. While this subject was in agitation, intelligence arrived at Rome of the assassination of Henry IV. at which the pope expressed great sorrow; and, as a testimony of his regard for that monarch, he assisted personally at his obsequies, which were celebrated with great solemnity at Rome. Hearing that some young Frenchmen in the city expressed their satisfaction at that event, and styled the assassin the deliverer of their country, he ordered them to be arrested, and condemned them to the galleys. It is fair to conclude, however, that his prosecution of them originated in other motives than an abhorrence of the action which they applauded, since, as we shall presently see, he could give his approbation to the doctrine of Suarez the jesuit, in defence of the murder of kings.

When, in the year 1614, the pope received information that a treaty was negotiating between the king of Great Britain and the queen-regent of France, for a marriage between the prince of Wales and her second daughter Christina, he ordered his nuncio at the French court to remonstrate against the proposed alliance, as prejudicial to the church. Another subject on which he directed his nuncio to remonstrate, was a decree of the parliament of Paris, condemning the treatise of Suarez, of which the pope had declared his approbation, to be burnt by the hands of the common hangman, as containing pernicious and damnable doctrine. He demanded satisfaction by the formal annulling of the decree; but all he could obtain, was only the suspension of its execution. He met with a similar mortification in an unsuccessful endeavour which he made to prevail with the states of France to order the publication of the decrees of the Council of Trent.

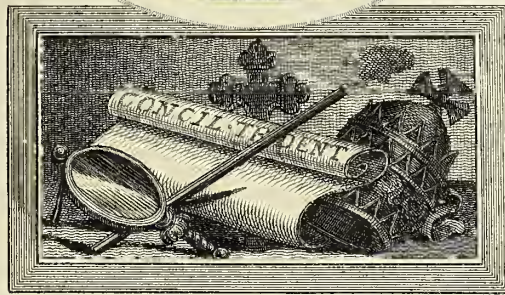
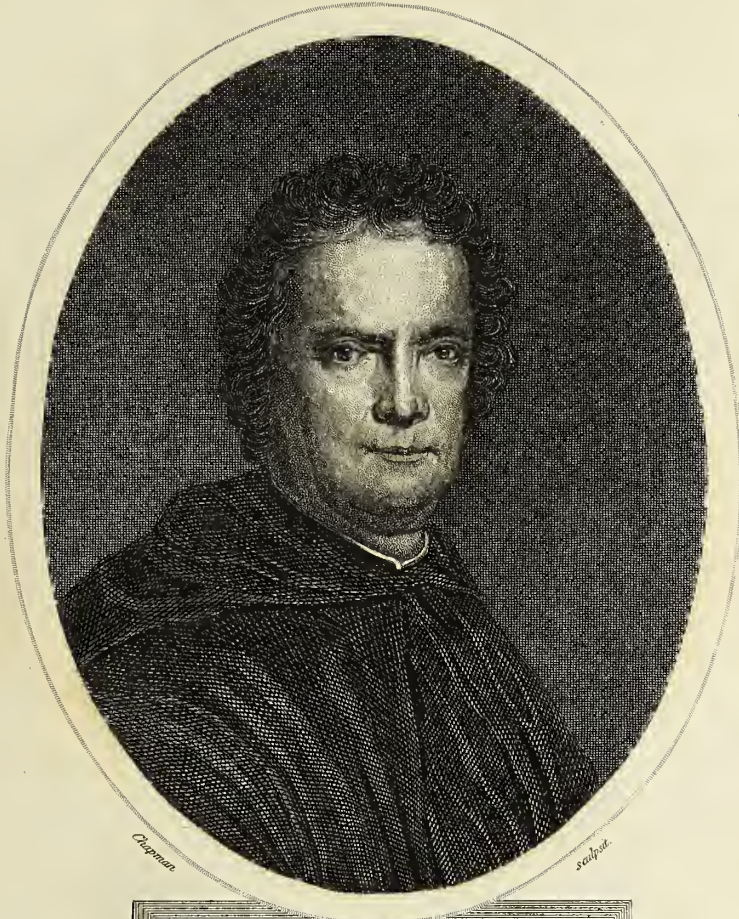
In the course of the following year, Paul's attention was chiefly engaged by the old controversy between the Franciscans and Dominicans, concerning the *immaculate conception of the Virgin Mary*, which was maintained by the former, and denied by the latter. On this very important question, both parties were transported with such animosity and furious zeal, particularly in Spain, that the kingdom was almost engaged in a religious civil war through their dissensions. The catholic king, to prevent the fatal effects of this blind contest, pressed the pope, by repeated embassies, to give an authoritative decision on the question in dispute. All that could be obtained from the pontiff, however, was a renovation of the Constitutions of Sixtus IV. and Pius V. on that subject; together with a declaration, intimating, that the opinion of the Franciscans had a high degree of probability on its side, and forbidding the Dominicans to oppose it in a public manner; but this declaration was accompanied with another, by which the Franciscans were prohibited, in their turn, from treating as erroneous the doctrine of the Dominicans.

Shortly afterwards, the pope was involved in a dispute with the court of France, which demanded the estate of the marshal d'Ancre at Rome, for the use of the French king. This demand was at first treated with contempt by the pope; but at length he found it prudent to agree to a treaty of partition, by which, though considerably more than a moiety was yielded up to Louis XIII. he was allowed to appropriate the remainder towards the building of St. Peter's church. In the year 1619, Paul published an universal jubilee, in order to implore the assistance of God for the defence of the church, which was endangered by a general insurrection of the Protestants in Bohemia, and the other countries under the Austrian dominions, who had been provoked to fly to arms by the oppression with which they were harassed. Alarmed at this powerful confederacy, the pope sent as-

sistance in money to the emperor; who, in the course of the following year, gained a decisive victory which secured to him the possession of Bohemia, and obliged the other insurgents to submit. Paul survived the news of this victory only a few months, and died at Rome in January 1621, in the sixty-ninth year of his age, after a pontificate of nearly sixteen years.

Paul V. was distinguished for talents and learning; and would have appeared to great advantage in the page of history, had he not suffered his ambition and furious zeal for the authority of the holy see to lead him into measures which he could not support, and had he not sacrificed the wealth of the state to the aggrandizement of his nephew, cardinal Borghese. As a friend to literature, he published a bull, commanding all the religious orders to maintain professors in the Hebrew, Arabic, Greek, and Latin, languages. In adorning and beautifying the city with magnificent buildings, he is said to have rivalled Sixtus V. He extended and improved the Vatican palace and library. He built two magnificent palaces for his relations, one in the city, and the other without the walls; and in both he collected the most valuable works in sculpture and painting, and the finest monuments of antiquity that he could purchase. He brought water to several parts of the city, by aqueducts and subterraneous channels, some from places at nearly forty miles distance; and he embellished the streets with a great number of fountains. He was likewise liberal in his charitable donations, and in his alms to the poor. During his pontificate, no fewer than sixty cardinals were created, many of whom are said to have been kept by him in dependent circumstances, in order to strengthen the interest of his nephew Borghese in the sacred college, and to enable him to carry the election after his own death. *Rycaut's Contin. of Platina. Bower's Hist. of the Popes. Modern Univ. Hist.* vol. xxiii.

PAUL (Father), whose name, before he entered into the monastic life, was *Peter Sarpi*, was born at Venice, August 14, 1552. He was contemporary with pope Paul V. being born in the same year. His father followed trade, but with so little success, that on his death his family were extremely ill provided for. Peter was taken under the care of a maternal uncle, who, being himself a schoolmaster, cultivated the talents of his nephew with unwearied application. He soon showed, by the turn of his mind, that he had a capacity adequate to the most difficult departments in literature; and, having, at the age of thirteen, made himself master of school-learning, he turned his studies to philosophy and the mathematics. He entered also on the study of logic under Capella of Cremona, who was of the order of the Servites; and in this order Peter Sarpi, notwithstanding the remonstrances of his friends, determined to enter himself. In 1566 he took the habit of the order, though at that time only fourteen years of age; a period of life in most persons very improper for engagements of this nature, but in him attended with such maturity of thought, and such a settled temper, that he never seemed to regret the choice he then made, and which he confirmed by a solemn public profession in 1572. At a general chapter of the Servites, held at Mantua, *Paul*, for he had now assumed that name, being but twenty years of age, distinguished himself so much in a public disputation by his genius and learning, that William duke of Mantua, a great patron of letters, solicited the consent of his superiors to retain him at his court; and not only made him public professor of divinity in the cathedral, and reader of divinity and the canon law in that city, but honoured him with many proofs of his esteem. The bustle of a court did not accord with his temper and disposition; he quitted it two years afterwards, and retired to his beloved privacy. He was at this period but twenty-two years of age; and was intimately acquainted not only with the Latin, Greek, Hebrew, and Chaldee, languages, but with philosophy, the



FATHER PAUL.

Engraved for the Encyclopaedia Londinensis April 1823.

the mathematics, canon and civil law, and all parts of natural philosophy and chemistry that were then pursued by men of science. He now took priest's orders; and was distinguished by the illustrious cardinal Borromeo with his confidence, and employed by him on many occasions, which excited the enmity of his contemporaries, who, jealous of his celebrity, and having nothing to urge against his conduct, charged him with denying that the Trinity could be proved from the first chapter of Genesis: the Inquisition, however, before whom the accusation was brought, thought the charge too ridiculous to be attended to for a moment. After this he passed successively through the dignities of his order, of which he was chosen provincial for the province of Venice at the age of twenty-six years; and he discharged this post with such honour, that in 1579 he was appointed, with two others, to draw up new regulations and statutes for his order. He performed this business with much success; and, when his office of provincial was expired, he retired for three years to the study of natural and experimental philosophy and anatomy, in which he made many important discoveries. Aquapendente, the famous anatomist, says that he was indebted to father Paul for his knowledge of the principles of vision; and there are pretty good proofs that he was not unacquainted with the circulation of the blood. He was now chosen procurator-general of his order, and during his residence at Rome was greatly esteemed by pope Sixtus V. and contracted an intimacy with cardinal Bellarmine and other eminent persons.

His enemies were still on the alert, and accused him of having written a letter in ciphers, which they explained, and said the true meaning was, that "he hated the court of Rome, in which preferment was not to be obtained but by dishonest and corrupt means." This accusation was passed over, but not forgotten; and it made such impression on that court, that he was afterwards denied a bishopric by Clement VIII. He now retired from public life, and spent much of his time in studies devoted to practical piety. The most active scene of his life began about the year 1615, when pope Paul V. exasperated by some decrees of the senate of Venice, that appeared to him to interfere with the rights of the church, laid the whole state under an interdict. (See the preceding article.) This quarrel with the pope soon called into the field a host of writers, on both sides of the question. Among others Father Paul, who had been appointed theologian and one of the counsellors of the republic, finding that not only many of the people, but even some of the senators, were filled with consternation by the papal interdict, thought it his duty to dissipate their groundless terror, by drawing a comparison between the pontifical authority and the rights of sovereigns in their own states. With this view he drew up a treatise, entitled, "Consolation of Mind to tranquillize the Consciences of good Men, and to prevent their entertaining any dread of the Interdict published by Paul V." As this work was designed for the sole use of government, it was not published by the author, but locked up in the archives of the republic; whence a copy having some years afterwards been clandestinely obtained, it was published at the Hague in 1725, in the Italian and French languages. In the same year an English version of it appeared at London, under the title of "The Rights of Sovereigns and Subjects, argued from the civil, canon, and common, Law, under the several Heads of Excommunications, Interdicts, Persecution, Councils, Appeals, Infallibility, describing the Boundaries of that Power which is claimed throughout Christendom by the Crown and the Mitre; and of the Privileges which appertain to Subjects, both Clergy and Laity, according to the Laws of God and Man."

But on this occasion Father Paul did not confine himself to the composition of the work above mentioned, which was for the use of the senate. As a means of contributing towards the public tranquillity, he thought it

also necessary to encourage and enlighten the general mass of citizens; and for this purpose he published a translation of "A Treatise on Excommunication," by Gerson, both in Latin and Italian, with an anonymous letter prefixed to it, in which he exhorted the priests regularly to perform their functions, without any apprehension that by so doing they should violate their duty. No sooner had this work made its appearance than it was condemned by the Inquisition; whose judgment cardinal Bellarmine undertook to support, in a strain of reasoning adapted to make impression only on timid and superstitious minds, prejudiced in favour of the paramount authority of the popes. The fallacy of this reasoning our author ably detected in "An Apology for Gerson," which fully justified that writer's doctrine, and the proceedings of the Venetians in the present contest. To the succeeding champions for the papal see, among whom were Baronius and Bzovius, Father Paul made an answerable reply, in a piece, entitled, "Considerations on the Censures of Paul V." in which the author's argumentative talents, erudition, and moderation, are eminently displayed. Father Paul had also a share in some other treatises in this memorable controversy; particularly in "A Treatise on the Interdict," published in the names of seven divines of the republic.

At length the court of Rome, perceiving that its cause was daily losing ground, while the credit of the writings which opposed its claims was proportionably increasing, thought it advisable to diminish their circulation and influence, by preferring the charge of heresy against their authors. Accordingly, after the Inquisition had condemned the Considerations on the Censures of Paul V. as containing rash, calumnious, scandalous, seditious, schismatical, erroneous, and heretical, propositions, Father Paul was cited by a decree, Oct. 30, 1606, under penalty of excommunication, to appear in person at Rome, and justify himself from the excesses and heresies of which he was accused. Despising, however, the thunders of the Vatican, he refused to submit to the citation, the invalidity of which he proclaimed in a manifesto addressed to the inquisitors; and he offered to maintain the cause which he had avowed, as well as to defend himself against the articles laid to his charge, in opposition to the advocates for the papal claims, in any place where he could be assured of personal safety. This noble intrepidity, while it rendered him the object of the most bitter hatred at Rome, deservedly secured to him the increasing respect and esteem of the republic whose cause he so ably defended, and was highly applauded in most foreign countries, Catholic as well as Protestant. The pope, finding that his menaces had not the effect of bringing the republic to submission, was desirous of an accommodation, lest, in imitation of the Protestant states, it should break off all connexion with his see; but he was not willing to make the first advances, for fear of appearing to condemn his own conduct and to disavow his pretensions. The republic was likewise desirous of peace; but would take no steps to secure it, which might seem to sacrifice its honour or its rights. In these circumstances different foreign princes offered their mediation; and Henry IV. of France, by employing Cardinal Joyeuse in negotiations with both parties, brought about a reconciliation between them, in the year 1607.

Had the division between the pope and senate continued much longer, it is not improbable but that the Venetians, by the advice and boldness of Father Paul, would have been encouraged to separate themselves from the Romish communion. Such a result was expected, and might have taken place, according to Welwood, had the negotiations of James I. of England with the republic been wisely conducted. This author informs us, in his Memoirs, p. 34, &c. that "there appeared at that time a wonderful disposition in that state to work a reformation in the church, and throw off the papal yoke. In

In order to advance it, king James dispatched sir Henry Wotton his ambassador to Venice; and, hearing that Spain had declared for the pope, he declared for the Venetians; and acquainted Justiniani, their ambassador in England, that he would not only assist them with all the forces of his kingdom, but engage all his allies in their defence. At Wotton's arrival, the breach between the pope and the republic was brought very near a crisis; so that a total separation was expected not only from the court, but the church of Rome; which was set on by the learned Padre Paolo, and the seven divines of the state, with much zeal, and conducted with much prudence. The ambassador at his audience offered all possible assistance in his master's name, and accused the pope and papacy of being the chief authors of all the mischiefs in Christendom. This was received with great deference and respect to king James: and when the pope's nuncio objected, that king James was not a Catholic, and so was not to be relied upon, the doge took him up briskly, and told him, "that the king of England believed in Jesus Christ, but he did not know in whom some others believed." King James had sent with Wotton his "Premonition to all Christian Princes and States," translated into Latin, to be presented to the senate; which Padre Paolo and the other divines pressed might be done at the first audience, telling him they were confident it would have a very good effect. The ambassador could not be prevailed with, alleging that he had positive orders to wait till St. James's day, which was not far off. This conceit of presenting king James's book upon St. James's day spoiled all; for, before that day came, the difference was made up, and that happy opportunity lost."

But, notwithstanding this reconciliation, in which Father Paul was comprehended, the court of Rome did not forget who were employed by the senate in defending the authority and rights of the republic, and lost no opportunity of wreaking its vengeance upon them, under various pretexts. Above all, it could not forgive our author's attacks on the pope's authority; and some of its fanatical adherents were persuaded, that it would be a highly meritorious action to make away with a man who had been accused and condemned for heresy and a revolt against the church. Father Paul received intimations from various quarters, that designs were formed either on his liberty or his life, and was strongly urged to be upon his guard against them. Trusting, however, to the accommodation which had taken place, and the rectitude of his own conduct, he lived in a state of security which gave his enemies favourable opportunities of carrying their plans into execution. Returning to his monastery on the evening of the 5th of October, 1607, he was attacked by five assassins armed with stilettoes, who wounded him in fifteen places, and left him for dead upon the spot. Very providentially, not one of these wounds proved mortal, though three of them were exceedingly dangerous: two of them through his neck; and the third made by the stiletto's entering his right ear and coming out between the nose and right cheek, after being driven in with such force, that the assassin was obliged to leave his weapon in the wound. As his escape seemed almost miraculous, it was thought proper to preserve the bloody instrument which was left in the cheek as a public monument; and it was therefore hung up at the foot of a crucifix in the church of the Servites, with this inscription, *Deo Filio Liberatori*.

This design against Father Paul's life was not the only one attempted by his enemies. One plot was laid by some monks of his own order, to murder him at night in his apartment, to which they had procured false keys; but it was accidentally discovered, and the reality of it confirmed by the seizure of letters. Various other schemes were also laid for cutting him off; and he was even cautioned to be upon the watch against them by cardinal Bellarmine himself, whose esteem for so great a man was not diminished by their dispute on the subject of the

interdict, and who condemned the criminal intrigues against his person. These intrigues engaged the senate to take all imaginable precautions for his safety, and to prohibit all unknown persons from having any admission to him for the future; and he himself was now aware of the necessity of living more privately in his monastery. In this retirement, the first composition on which he employed his pen, was his "Account of the Quarrel between Paul V. and the Republic of Venice," published in 1608, and containing a relation of all the circumstances connected with that memorable affair, drawn up with equal ability and impartiality. His attention was directed in the next place, to the arrangement and completion of his celebrated "History of the Council of Trent," for which he had long before collected ample materials. It was first published at London, in 1619, in folio, under the feigned name of Pietro Soave Polano which is an anagram of Paolo Sarpi, Venetian, and dedicated to James I. by Anthony de Dominis, archbishop of Spalatro, then a resident in England. It was afterwards published in the original Italian, the French, and other languages; and, in 1736, Father Courayer published at London a new French translation of it in 2 vols. folio, illustrated with valuable critical, historical, and theological, notes. Before the appearance of this history, the public in general possessed no knowledge of the proceedings of that famous council, which for many successive years had engaged the attention of all the courts in Europe, excepting what could be collected from its decrees. But Father Paul's work is rendered highly interesting, by laying open to view the secret intrigues, the main springs which directed all its movements. Such a publication could not but create the most unfavourable impressions of the policy of the papal court; and on this account it produced more bitter enmity against the author at Rome, than even his masterly defences of the rights of the republic of Venice. Father Paul also, in the retirement of his monastery, wrote "A Treatise on Ecclesiastical Benefices," pointing out the means by which the church had acquired its immense revenues, and the abuses which had taken place in the disposal of them; "A Treatise on the Inquisition," containing a brief history of the establishment of that tribunal, and of the manner in which it had been introduced into Venice in the year 1289, together with a comparative view of its reception in that republic and other countries; "De Jure Asyloforum;" a treatise "On the Manner of conducting the Government of a Republic, so as to insure its Duration;" and a continuation of the Archbishop of Zara's History of the Ufcocchi, from the year 1602 to 1616. The articles already enumerated, together with a volume of Letters, are all the productions of Father Paul's pen which have been given to the public. The first collection of them was published at Venice, 1677, in 6 vols. 12mo.

Father Paul's constitution, which, as we have seen, was always tender and delicate, became worn out at length by his incessant labours; and in the winter of 1622, his growing weakness, occasioned by the attack of a violent flux accompanied with fever, convinced him that his end was approaching. To this event he looked forward with firmness and tranquillity, arising from a consciousness of the innocence of his life, and the purity of his intentions; and he spent his last days, with the exception of those hours which he could not refuse to the service of his country, in meditation and prayer, and pious discourse with his friends. On the evening of Jan. 14, 1623, being told by his physician that he would not survive the night, he discovered the most placid submission to the will of God, and wished his friends to withdraw, that they might not have the pain of witnessing his last struggle; but they would not quit his dying-bed, and heard him, as his powers of speech were failing, pronounce the words, *Esto perpetua*, which they interpreted to be a prayer for the preservation of the republic. He had reached the 72d year of his age. When the news

of his death arrived at Rome, the corrupt and servile courtiers expressed great joy, and the pope himself could not refrain from speaking of it as an event in which the hand of God was visible: "as if," says Father Fulgentio, "it had been a miracle for a man to die at the age of 71." Many of the exalted members of the Romish hierarchy, however, spoke of his memory with the greatest respect; and also expressed their regret that his merits had not been duly estimated by the sovereign pontiffs, who, they said, should have secured such an extraordinary man in the interests of the church, by promoting him to its dignities and honours. At Venice his loss was deeply lamented by all ranks, who justly regarded him as the brightest ornament of their country, for knowledge, wisdom, and virtue. His funeral obsequies were celebrated with all possible public magnificence, and attended by a vast concourse of the nobles, and the other classes in the republic. To express their grateful sense of the services which he had rendered to his country, the senate erected a monument to him, on which an appropriate epitaph was inscribed, drawn up by John Anthony Venerio, a noble Venetian. *Vita de P. Paolo, by Fulgentius. Courayer's Vie abrégée de Fra. Paolo. Gen. Biog.*

PAUL (St.), a province in the territory or kingdom of Brasil, in South America, situated to the west of Rio Janeiro: the principal productions are grain and cotton. The population is computed at 11,100 whites, 32,170 Indians, and 9000 blacks or mulattoes. More recently we have heard the whole population estimated at 300,000 souls.

PAUL (St.), a town of Brasil, in the captainship of St. Vincent. It is a kind of independent republic, composed of the banditti of several nations, who pay a tribute of gold to the king of Portugal. These thieves are called *Paulists*. Their town of St. Paul stands on a hill about 150 paces in height, whence issue two rivulets, one to the south the other to the west, which afterwards join, and fall into the Harcambu, that passes at a distance of a league to the north, a river full of fish, and capable of receiving large barks, but liable to inundation in the rainy season. On the north of this river the mountains extend east and west for more than forty leagues, while on the south-west the chain seems to wind towards the mountains of Chiquitos in the Spanish possessions; the Parana passing with stupendous rapids of twelve leagues, the general breadth of the chain being from twelve to twenty. In the vicinity of St. Paul, the mountains present mines of gold of the purity of twenty-two carats, which is found in irregular masses, and in dust. The climate is benign, owing to the fresh air from the mountains, but the winter is cold and frosty. United by equal want of religion and morals, the first inhabitants of this town formed a republic, like that of robbers in a cavern. Malefactors of all nations and colours, Portuguese, Spaniards, Negroes, Indians, and all possible mixtures of mankind, formed about 100 families, which gradually rose to 1000. The Paulists declared themselves a free people; and they seem to have merited the title in the worst sense of it, as they were completely free from all laws, morals, sentiments, and virtues: but they consented to pay the Portuguese a fifth part of the gold which they drew from the mines or scours (*lavaderos*). All strangers who did not bring certificates of having been *regular thieves*, were refused admittance into this hopeful colony; and there was a marked aversion from any multiplication of professions, as they rejected any robber who was at the same time a spy. The first trial of a new citizen, was to make an excursion, and bring in two Indians prisoners, to be employed in the mines, or in digging the grounds. Virtuous actions were punished with death; and no citizen was permitted to retire from the society. Supplied with fire-arms from unknown quarters, they often descended the large rivers, carrying terror and destruction into the Spanish possessions in Paraguay; and an army would have been necessary ever to reduce them

to the Portuguese domination. Where they suspected that force would not avail, they assumed the black gowns of the Jesuits, and preached with great fervour to the Indians, on the advantages of religion and civilization, and the heinous offences of robbery and murder, especially warning them against those devils the Paulists, who were accustomed to breakfast on nuns and little children. When they had catechised a sufficient number, they persuaded them to follow their teachers to a convenient spot, where they would find abundance of all the necessaries of life. The poor Indians, accustomed to the same procedure on the part of the Jesuits, allowed themselves to be conducted by these wolves in wool, who, when they had led them to the trap, seized and carried them off captives. This new mode of preaching began to disgust the savages; and the Jesuits found it difficult to avoid the total loss of their character, by the artifices of these new brethren, as the Indians could not possibly distinguish between a Jesuit and a Paulist. To the sword of the faith they were found to join that of the flesh, and to arm all their converts, not with patience but with fusils. The Paulists at length began to lose their advantages, both as preachers and as pirates; and, the bonds of their society having begun to be broken by the introduction of some virtues, the city was yielded to the Portuguese monarchy, which is still contented to receive a fifth part of the mines. Population, 20,000 souls. Lat. 23. 25. S. lon. 45. 52. W. *Pinkerton's Geography*, vol. iii.

It was during the prince-regent's visit to this city, in August, 1822, that the first decisive indication of a separation from the mother-country, and the total independence of the Brazilians upon Portugal, took place. Before the prince quitted St. Paul's to return to Rio, the governor and people insisted upon his declaring the independence of Brazil, to which he acceded, and was solemnly sworn in its support. After the ceremony, he took the constitutional cockade from his hat, and affixed a green badge to his left arm, with the motto on a yellow stripe, "Independence or Death." The prince returned to Rio on the 14th of September; on the 15th (Sunday), he appeared at the opera with this badge; and on Monday morning there was not a constitutional cockade to be seen in the city. The military and others under government received orders to take off the Portuguese cockades, and to adopt the green badge. It appears that the Paulists were so indignant at the last intelligence from Lisbon, that the constitutional cockade was thrown away as soon as the measure of placing the provincial government of St. Paul's under a criminal process was ascertained to be in contemplation. It is probable, that before this article meets the public eye, the prince will have been crowned King of Brasil. Of course, we shall have an opportunity of resuming the subject under the article PORTUGAL.

PAUL'S (St.), an island in the Southern Indian Sea, to the north of the island of Amsterdam. It rises abruptly from the sea, a conspicuous cone-shaped mountain, apparently solid when viewed from the western side; but, on coming round to the eastern, presenting an immense cavity, scooped out of the highest part of the island, and the sides toward the sea broken down to the water's edge, thus affording a complete view of the interior. It is evidently the crater of an extinct volcano; but whether shot up from the bed of the ocean, or the neighbouring level land by which it may have been encircled being submerged, or how long it has ceased to act, must remain uncertain. It is so different from any thing like the coral-islands of the Pacific or Indian oceans, and so high withal, that nothing of this kind can be supposed; while its distance from any of the continents leaves no probability of having ever belonged to either. The shores are steep and rocky: a furious surf continually washes the base; and off the crater, at the distance of a mile and a half, there is anchorage in fine weather, when the wind blows from the westward. The breadth of the entrance is about forty yards. When over the bar, and within the

basin, the water becomes as smooth as a pond, forming a strong contrast to the continual turbulence of the sea without. This basin occupies a considerable portion of the bottom of the crater; and since its first discovery, has much increased in size, being now more than a mile in circumference. Its depth in the deepest place is thirty fathoms, varying to seven or eight close to the shore. The latter, around it, is in general level to some little distance, where the ascent to the summit becomes more perpendicular. Near the water the grass is short; farther off it is long, coarse, and in such dense tufts, as to render it difficult to penetrate through them.

To the Dutch navigator Flaming we owe the discovery of this island in 1697, when he found the basin, now so spacious, scarcely a pistol-shot long, and the rocks forming the bar so much higher than at present, that the boat could with much difficulty be dragged over them. Should the same changes go on equally rapid in decomposing the rock, the basin may in thirty years more be accessible to the smaller sailing-vessels. The island is about four miles long and three broad, the surface presenting nothing but a brown coarse grass intermixed with abundance of stones, and near the basin some reeds, but neither tree nor shrub. To gain the surface, there being no other landing-place, it is necessary to enter the basin, and ascend, by a very difficult and fatiguing path, the side of the crater. The height of the latter, reckoning the depth of water, is estimated at more than ninety feet; the circumference at the bottom a mile and a half; at the summit or mouth about two miles. The summit of the crater is the highest part of the island, which shelves towards the north.

Around the basin are several hot-springs, (another proof, if any were wanting, of the volcanic nature of the island,) said to be within twenty or twenty-five degrees of the boiling point. And as the basin abounds with fine fish, easily caught, it has been represented that they might be thrown from the cold water to the hot, for boiling, without being disengaged from the hook; though this is an exaggeration. Fish are equally plentiful in the sea without the basin; so numerous and voracious, indeed, as to be caught with little trouble: they are principally of a species resembling the bream and perch, averaging three or four pounds weight each, and excellent eating. Vessels that touch here, wishing to add to their sea-store, should cure them immediately; exposure to rain, previous to salting, is found by experience to render them of little value. Whales frequent the vicinity of this island at certain periods; but its chief visitors are seals, who twenty years ago were to be seen on the rocks, and basking in the grass, in many thousands. Instances have occurred of three thousand having been killed in a few days; the principal instrument for this purpose is a good cudgel, which by a smart blow over the snout accomplishes the object. At present their numbers are much diminished, by the great demand for the skin in commerce; and having become of late years a fashionable article of dress. Numbers likewise are carried to America.

The stratum of earth is thin, and little, therefore, can be accomplished here by cultivation; but at the bottom of the crater, around the basin, there is little doubt that gardens might be formed, were any of the temporary sojourners industrious enough to make the attempt; and in close them from the depredations of the seals. Sea-birds are particularly numerous, as the petrel, penguin, common gull, and albatross. Fresh water is small in quantity, and difficult to be procured. This place is fifty miles north from Amsterdam Island. Lat. 38. 42. S. lon. 77. 53. E. *Monthly Mag.* Nov. 1822.

PAUL (St.), a town of New Mexico, situated at the confluence of the two main head branches of the Rio Bravo.—Also, the most southerly of the Pearl islands, in the gulf of Panama. In a safe channel on the north side there is a place for careening of ships.—Also, an island

in the gulf of St. Lawrence: nine miles north-east from the north cape of the island of Cape Breton.—Also, a river of Guinea, which runs into the Atlantic five miles north of Cape Mesurada.

PAUL (St.), a town of France, in the department of the Tarn, and chief place of a canton, in the district of Lavaur. The place contains 906, and the canton 6070, inhabitants.—A town of France, and principal place of a district, in the department of the Var: seven miles west of Nice. Lat. 43. 41. N. lon. 7. 11. E.—Also, a town of France, in the department of the Upper Vienne: nine miles south-east of Limoges.—Also, a town of France, in the department of the Leman lake, on the lake of Geneva: ten miles east of Thonon.—Also, a town of France, in the department of the Gard: ten miles north-east of Uzes.

PAUL'S (St.), a bay on the north-west coast of Newfoundland. Lat. 49. 50. N. lon. 57. 35. W.—A bay on the west coast of Newfoundland: ten miles north-east of Bonne Bay.—A bay on the north-west shore of the river St. Lawrence, about six leagues below Cape Torment, where a chain of mountains, 400 leagues in length, terminates from the westward.

PAUL'S BET'ONY. See VERONICA.

PAUL DE FENOUILLE T, a town of France, in the department of the east Pyrenees, and chief place of a canton, in the district of Perpignan: twenty-eight miles west-north-west of Perpignan.

PAUL DE OMAGU'AS, a town of Brazil, in the government of Para, on the river Amazons. Lat. 3. 35. S.

PAUL'S POINT, a cape on the east coast of Barbadoes: one mile south of Cuckold's Point.

PAUL TROIS CHATEAU'X, a town of France, in the department of the Drome, before the revolution the see of a bishop: twelve miles south of Montelimart.

PAULA, a saint in the Roman calendar, was a descendant, on the maternal side, from the noble families of the Scipios, and Paulus Æmilius, and born at Rome about the year 348. Becoming a widow, she renounced the world, and accompanied St. Jerome to Palestine, where she was made superior of a monastery at Bethlehem. She studied the Hebrew language, that she might better understand the Scriptures; and, after spending several years in the superstitious practice of excessive mortifications and austerities, which, Jerome says, he frequently attempted to moderate, died in 404, about the age of fifty-six. Further particulars concerning her may be found in Hieron. Epist. lxxxvi. and under our article JEROME, vol. x. p. 775.

PAULA, a town of Naples, in Calabria Citra, situated at a small distance from the sea: twelve miles north-west of Cosenza.

PAULA, a fort of Russia, in the government of Caucasus: twenty miles west of Ekaterinograd.

PAULA (St.), a small island of Russia, in the Frozen ocean. Lat. 76. 54. N. lon. 103. 14. E.

PAULAR (El), a town of Spain, in Old Castile: eleven miles east-south-east of Segovia.

PAULARA'H, a town of Hindoostan, in Berar: twenty-five miles north-west Chanda.

PAULASTY'A, in Hindoo mythology, is one of "ten lords of created beings," frequently alluded to in their sacred books under the name of Brahmadikas, or children of Brahma. Their names are enumerated under the article MUNI of this work, where also some particulars will be found respecting them.—Paulasty, or Pulastry, is also a name of Ravana, the ten-headed tyrant of Lanka, or Ceylon, against whom the wars detailed in the Ramayana were waged. See RAVANA.

PAULEYS, a town of South Carolina: eight miles south of Kingston.

PAULHAC, a town of France, in the department of the Cantal: ten miles west of St. Flour.

PAULHAN, a town of France, in the department of the Herault: nine miles north of Pezenas.

PAULHIAC,

PAULHIAC', a town of France, in the department of the Lot and Garonne: six miles south-south-east of Villereal, and three north-east of Montflanquin.

PAULI (Gregory), a learned Polish divine of the protestant persuasion, was appointed minister of the church of Wola near Cracow, in the year 1555. Afterwards he became pastor and senior minister of the church of Cracow. He was one of the earliest opponents of the doctrine of the Trinity in Poland, though he did not advance further than the Arian hypothesis. For the freedom with which he avowed and defended his opinions in the pulpit, he was expelled from Cracow; when he retired to Racow, where he died at a great age about the year 1591. He was the author of "An Explanation of difficult Passages in the Sacred Scriptures;" different treatises against the lawfulness of a Christian's undertaking offices of civil magistracy, or bearing arms; the first impression of "The Catechism of Racow," which was afterwards altered by Lælius Socinus and Peter Statonius; and various pieces in the Trinitarian controversy, which are enumerated in *Sandii Biblioth. Antitrinitar.*

PAULIAGUET', a town of France, in the department of the Upper Loire: nine miles south-east of Brioude, and eighteen north-west of Le Puy.

PAULIAN (Father), an ex-Jesuit, was born at Nîmes in France, of a protestant family; and died there, in the year 1800, having never been ill in the course of his life. His works are: 1. Dictionnaire de Physique, which went through seven editions in nine years, and which was long the only one used in the public schools of France: it is a compilation not destitute of merit, though inferior to that of Brisson. 2. Traité de Paix entre Descartes et Newton, 3 vol. 3. Commentaire sur De la Caille et l'Hospital. 4. Le véritable Système de la Nature opposé au faux Système de la Nature. 5. La Physique mise à la Portée de tout le Monde: two volumes only of this work were printed. 6. Dictionnaire Philosopho-Theologique. This work, destined for the defence of the Christian religion, brought upon the author the hatred and sarcasms of Voltaire. Father Paulian was a man of a mild disposition: during the revolution he always behaved with great circumspection in the exercise of the priesthood, to which he devoted himself. He was a member of the academies of Nîmes and Lyons. He has left some unpublished works; among which are, 7. Memoire sur le Poids des Montagnes. 8. On Monstres. *Phil. Mag.* vol. ix.

PAULIANISTS. See PAUL of Samosata.

PAULICIANS, a branch of the ancient Manichees, so called from their founder, one Paulus, an Armenian; though others are of opinion, that they were thus called from another Paul, also an Armenian by birth, who lived under the reign of Justinian II. In the seventh century a zealot called Constantine revived this drooping sect, which had suffered much from the violence of its adversaries, and was ready to expire under the severity of the imperial edicts, and that zeal with which they were carried into execution. The Paulicians, however, by their number, and the countenance of the emperor Nicephorus, became formidable to all the East. But the cruel rage of persecution, which had for some years been suspended, broke forth with redoubled violence under the reigns of Michael Curopalates and Leo the Armenian, who inflicted capital punishment on such of the Paulicians as refused to return into the bosom of the church. The empress Theodora, tutors of the emperor Michael, in 845, would oblige them either to be converted or to quit the empire: upon which several of them were put to death, and more retired among the Saracens; but they were neither all exterminated nor banished.

Upon this they entered into a league with the Saracens; and, choosing for their chief an officer of the greatest resolution and valour, whose name was Carbeus, they declared against the Greeks a war which was carried on for fifty years with the greatest vehemence and fury. During these commotions, some Paulicians, towards the

conclusion of this century, spread abroad their doctrines among the Bulgarians; many of them, either from a principle of zeal for the propagation of their opinions, or from a natural desire of flying from the persecution which they suffered under the Grecian yoke, retired about the close of the eleventh century, from Bulgaria and Thrace, and formed settlements in other countries. Their first migration was into Italy; whence, in process of time, they sent colonies into almost all the other provinces of Europe, and formed gradually a considerable number of religious assemblies, who adhered to their doctrine, and who were afterwards persecuted with the utmost vehemence by the Roman pontiffs. In Italy they were called *Patarini*, from a certain place called Pataria, being a part of the city of Milan, where they held their assemblies; and *Gathari* or *Gazari*, from Gazaria, or Little Tartary. In France they were called *Albigenses*, though their faith differed widely from that of the Albigenses whom Protestant writers generally vindicate. See ALBIGENSES.

The first religious assembly the Paulicians had formed in Europe, is said to have been discovered at Orleans in 1017, under the reign of Robert, when many of them were condemned to be burnt alive. The ancient Paulicians, according to Photius, expressed the utmost abhorrence of Manes and his doctrine. The Greek writers comprise their errors under the six following particulars: 1. They denied that this inferior and visible world is the production of the Supreme Being; and they distinguished the Creator of the world and of human bodies from the most high God who dwells in the heavens; and hence some have been led to conceive that they were a branch of the Gnostics rather than the Manichæans. 2. They treated contemptuously the Virgin Mary; or, according to the usual manner of speaking among the Greeks, they refused to adore and worship her. 3. They refused to celebrate the institution of the Lord's Supper. 4. They loaded the cross of Christ with contempt and reproach; by which we are only to understand, that they refused to follow the absurd and superstitious practice of the Greeks, who paid to the pretended wood of the cross a certain sort of religious homage. 5. They rejected, after the example of the greatest part of the Gnostics, the books of the Old Testament; and looked upon the writers of that sacred history as inspired by the Creator of this world, and not by the supreme God. 6. They excluded presbyters and elders from all part in the administration of the church. *Mosheim*, vol. ii.

PAULIEN (St.), a town of France, in the department of the Upper Loire, and chief place of a canton, in the district of Le Puy. The place contains 2292, and the canton 5712, inhabitants.

PAULIN, a town of France, in the department of the Tarn: twelve miles east of Alby.

PAULINGSTOWN, or PAWLING, a township of North America, in Dutchess-county, New York, lying on the western boundary of Connecticut; containing 4269 inhabitants, of whom 34 are slaves.

PAULINSKILL, a river of New Jersey, which runs into the Delaware in lat. 40. 54. N. lon. 75. 9. E.

PAULINUS (Pontius Meropius), or PAULINUS NOLANUS, a celebrated prelate and ecclesiastical writer, was descended from a Roman patrician family, and born at Burdegala in Gaul, now Bourdeaux, in the year 353. He was a pupil of the famous Decius Ausonius, under whom he made a considerable progress in literature, and cultivated the study of rhetoric and poetry with success. Ausonius being afterwards called to Rome, that he might be preceptor to the son of the emperor Gratian, Paulinus quitted his native place, and followed him to that city, where he acquired much reputation as a pleader in the forum. So respectable was the character which he established, that he was raised to the consular dignity while very young; and he acquitted himself in his senatorial capacity, in a manner that gave universal satisfaction

tion to the Roman citizens. Having married a Spanish lady, named Therasia, with whom he obtained a very large fortune, he took his leave of public affairs, and indulged his inclination for seeing foreign countries, visiting almost all the western provinces of the Roman empire. In the course of his travels he formed an intimacy with St. Martin of Tours, St. Ambrose of Milan, and other eminent ecclesiastical characters; his conversation with whom appears to have produced such strong religious impressions upon his mind, that he determined to be baptized. His wife, likewise, who, it seems, had before submitted to the same rite, contributed not a little to confirm that resolution. Accordingly, he received the sacrament of baptism from Delphinus, bishop of Bourdeaux, in the year 391. Afterwards, he went into Spain, and took up his residence at Barcelona; where he and his wife, having lost their only child, and being without any prospect of other issue, spent their time in devout contemplation and ascetic exercises, applying the greatest part of their property to benevolent and charitable uses.

To divert Paulinus from this change of life, and to recall him again to the pursuit of secular concerns, Aufonius and his other friends had recourse in vain both to persuasion and raillery. At Barcelona so high was the veneration which all classes of people entertained for him, that, in the year 393, he was in a manner compelled by their urgent intreaties to be ordained presbyter; but not before he had obtained their promise that he should be at liberty to remove, as he had intended, into Italy. During the following year he arrived at Rome, where he was treated with the utmost respect by all ranks; till, perceiving that pope Siricius and the clergy were growing jealous of him, he withdrew to a country-house in the vicinity of Nola in Campania. Having passed about fifteen years in this place, together with his wife, in that manner of living which they adopted in Spain, Paulinus was chosen and ordained bishop of Nola, in the year 409, as some think; or, as Pagi argues with great appearance of probability, in 403. The early part of his episcopate was disturbed by the incursions of the Goths, who conquered and plundered the city of Nola; but he spent the remainder of his life in tranquillity, a bright example of piety, benevolence, and charity, and the object not only of veneration but of delight to persons of all ranks and parties. He died in 431, in the seventy-eighth year of his age. His genuine works consist of Letters and Poems, which are partly instructive, but chiefly lively and entertaining. They are correct, perspicuous, and elegant; but the high praise which Aufonius has bestowed upon the poems, is greater than they merit. The first edition of all the pieces attributed to our author was published at Paris in 1516, 8vo. and they were afterwards inserted in the second volume of the *Orthodoxographia*, as well as the sixth volume of the *Bibl. Patr.* The best separate edition of them, is that published at Paris, in 1684, in two volumes quarto; the first of which contains the genuine pieces, and the second such as are doubtful. *Cave's Hist. Lit.* vol. i. *Pagi Crit. in Anal. Baronii An.* 403.

PAULINUS, a bishop who flourished in the early part of the 7th century. He was the apostle of Yorkshire, having been the first archbishop of York: this dignity seems to have been conferred on him about the year 626. He built a church at Almonbury, and dedicated it to St. Alban, where he preached to and converted the Brigantines. Camden mentions a cross at Dewsborough, which had been erected to him, with this inscription, *Paulinus hic predicavit et celebravit.* York was so small about this time, that there was not so much as a church in it in which king Edwin could be baptized. Constantius is said to have made it a bishopric. Pope Honorius made it a metropolitan see. We are told that Paulinus baptized in the river Swale, in one day, 10,000 men, besides women and children, on the first conversion of the Saxons to Christianity, besides many at Halystone. At

Walstone, in Northumberland, he baptized Segbert king of the East Saxons. Bede says, "Paulinus, coming with the king and queen to the royal manor called *Ad Gebriu* (now Yevevin), staid there thirty-six days with them, employed in the duties of catechizing and baptizing. In all this time he did nothing from morning to night but instruct the people, who flocked to him from all the villages and places, in the doctrine of Christ and salvation; and, after they were instructed, baptizing them in the neighbouring river Glen." According to the same Bede, "he preached the word in the province of Lindissi; and first converted the governor of the city of Lindocollina, (Lincoln,) whose name was Blecca, with all his family. In this city he built a stone church of exquisite workmanship, whose roof being ruined by long neglect or the violence of the enemy, only the walls are now standing." He is also said to have founded a collegiate church of prebends near Southwell, in Nottinghamshire, dedicated to the Virgin Mary.

PAULINUS, patriarch of Aquileia in the eighth century, and who is honoured by the Catholics with the title of saint, on account of his zealous defences of the orthodox doctrine of the Trinity, was born in some part of the Austrian dominions. He distinguished himself by his laborious application, and zeal for the advancement of learning and science. His proficiency, considering the age in which he lived, was very considerable, and entitles him to a high rank among his Latin contemporaries. By his erudition he recommended himself to the patronage of the emperor Charlemagne, who bestowed on him various substantial marks of his favour, and, towards the close of the year 776, promoted him to the patriarchate of Aquileia. In the year 793, he published a little treatise in defence of the Trinity, against Elipand archbishop of Toledo, entitled, "*Sacro-Syllabus*," which is inserted in the seventh volume of the *Collect. Concil.* During the following year, he distinguished himself by his opposition to the opinions of Elipand, and of Felix bishop of Urgela, at the council of Frankfort; and, having convened a synod at Aquileia, procured the condemnation of them as heretical, in 795. Two years afterwards, on the application of the famous Alcuinus to Charlemagne, Paulinus received the commands of the emperor to enter more fully into the defence of the orthodox doctrine against the bishop of Urgela; in consequence of which he produced, in 798, his "*Lib. III. adversus Felicem Orgelitanum*," which were first published by Duchesne, together with the author's smaller treatise, at the end of Alcuini Opera, printed at Paris in 1617. It is proper to observe in this place, that the "*Lib. VII. adversus Felicem*," which were formerly attributed to Paulinus, have been restored by the learned world to Alcuinus, as their real author. Similar justice has likewise been rendered to Paulinus himself, by the Parisian editors of the last edition of St. Augustine's Works: who, upon the credit of ancient MSS. have assigned to the patriarch of Aquileia the treatise "*De Salutaribus Documentis*," which used to pass under the name of the African bishop. Besides the articles already mentioned, fragments of "*A Letter to Heistulphus*," from our author, severely reproving that lord for putting his wife to death, on the charge of adultery preferred against her by a single witness, and also an entire "*Letter to the Emperor Charlemagne*," are inserted in the seventh volume of the *Collect. Concil.* In the first volume of Baluze's *Miscellan.* some other fragments of pieces by him may likewise be found. A complete edition of all his works, with learned notes and illustrations, was published at Venice in 1737, by John Francis Madriis, a priest of the congregation of the Oratory. Paulinus died in the year 804. *Gen. Biog.*

PAULINZELLE, a town of Germany, in the county of Schwartzburg Rudolstadt: eight miles west of Rudolstadt, and twenty north of Coburg.

PAULLI (Simon), a medical and botanical writer,
was

was born in 1603 at Rostock. He lost in his childhood his father, who had been physician to the queen of Denmark, but received a royal pension to enable him to pursue his studies. He travelled into the Low Countries, England, France, and Germany; and took the degree of M. D. at Wittemberg in 1630. After practising some years at Rostock, he removed to Copenhagen, where he occupied the chairs of anatomy, surgery, and botany, in the medical college. In 1648 he was nominated court-physician; and he rose, in 1656, to the post of first physician of king Frederic III. He held the same office under Christiern V. and died in 1680, at the age of seventy-seven. His services had been rewarded, in 1666, with the prelature of Arhusen, which remained in his family. This physician published various professional works, of which those relative to botany and the materia medica are best known. His "Quadrupartitum de simplicium Medicamentorum Facultatibus," first printed at Rostock in 1640, and several times reprinted with augmentations, is an agreeably-written account of what the ancients have recorded concerning the powers of vegetable simples, together with the results of his own experience. It is arranged according to the four seasons of the year; and has little of botanical or physical science, but is chiefly devoted to practice. To the last edition, the characters of plants from Tournefort are added. His "Libellum de Usu et Abusu Tabaci et Herbæ Theæ," 1661, is chiefly a severe censure on the use of tobacco and tea. In 1648, he published "Flora Danica," 4to. with figures, chiefly from Lobel and other authors. It contains the descriptions, synonyms, and medical virtues, of native Danish plants, arranged according to the seasons. His "Viridaria Regia varia et academica," 1653, is a catalogue of plants in the botanical gardens of Copenhagen, Paris, Warsaw, Oxford, Padua, Leyden, and Groningen. Paulli was likewise a studious cultivator of anatomy, and the first who dissected human bodies in the theatre at Copenhagen. He published several orations relative to this science, and gave the description of a method of preparing skeletons.

James Henry, son of the preceding, was brought up to physic, and for some time filled the anatomical chair at Copenhagen. He was afterwards made professor of history and royal historiographer; and at length was employed in affairs of state, and ennobled by Christiern V. on which occasion he took the name of *Rosenchild*. He published some anatomical works. *Halleri Bibl. Anat. et Botan.*

PAULLINI (Christian-Francis), a physician and naturalist, was born in 1643 at Eisenach in Thuringia. He studied at various universities, was crowned poet at Hamburg, made M. A. at Wittemberg, and took the degree of M. D. at Leyden. He travelled into several of the northern countries, and practised in his profession at Hamburg, Altona, and in Holstein. He received the title of Count Palatine for his services, and was appointed by the prince-bishop of Munster to the offices of his first physician and historiographer. In 1689, he returned to his native place, where he died in 1712. He was a member of the academies of the Naturæ Curiosorum and Ricovrati. This physician made himself known by several monographs, or separate dissertations, on subjects in the animal and vegetable kingdoms; such as his "Cynographia curiosa; Bufo brevitur descriptus; Tractatus de Anguilla; Talpa descripta; Lagographia curiosa; Lycographia; Onographia; De Lumbrico terrestri; Sacra Herba, seu Salvia Descripta; De Jalappa; Nucis Moschatæ Descriptio." In these, as well as in some papers communicated to the Acad. Naturæ Curios. there is more matter of curiosity than exact observation, and a tendency is displayed to fabulous and wonderful narration. The same may be said of his "Observationes Physico-Medicæ," which, however, contain some things worthy of observation. He wrote likewise, "Theatrum Illustr. Virorum Corbeizæ Saxonica," and some other works. *Halleri Bibl. Med. et Anat.*

Vol. XIX. No. 1313.

PAULLINIA, *f.* [named by Linnæus in honour of Simon Paulli.] In botany, a genus of the class octandria, order trigynia, natural order of trihilatæ, (sapindi, *Juss.*) Generic characters—Calyx: perianthium five-leaved; leaflets ovate, concave, spreading, permanent; the two outer opposite, one of the inner larger. Corolla: petals four, obovate, oblong, twice as large as the calyx, clawed; two more distant. Nectaries two; one four-petalled inserted into the claws of the corolla; the other four glands at the base of the petals. Stamina: filaments eight, simple, short, united at the base. Antheræ small. Pistillum: germen turbinate, three-sided, blunt; styles three, filiform, short; stigmas simple, spreading. Pericarpium: capsule large, three-sided, three-celled, three-valved. Seeds solitary, obovate. *Essential Character*—Calyx five-leaved; petals four; nectary four-leaved, unequal; capsules three, compressed, membranaceous, connate.

These are climbing shrubs, throwing out long shoots annually like the vine. Leaves ternate (1 to 4), biternate (5 to 10), triternate (11, 12), unequally pinnate (13 to 16), or superdecompound (17). Peduncles solitary, axillary, having two tendrils in the middle, and beyond many-flowered in racemes. The chief of what we know on this genus is derived from Jacquin and Plumier. There are seventeen species.

1. Paullinia Asiatica, Asiatic paullinia, or toddalia: leaves ternate, petioles and stem prickly. Stem round, covered with prickles. Leaves alternate, on a long stout petiole, on which also is sometimes a prickle; leaflets oval-lanceolate, entire, smooth, bright-green above, paler and almost ash-coloured underneath. Peduncles very long and stout, prickly. Fruit commonly trilocular, but sometimes quadricoccal and even pentacoccal, saffron-coloured with black spots, of an acrid taste with some sweetness. Seed kidney-form, grey or ash-coloured. Flowers white, smelling strongly.

Although the consumption of cinchona bark at the present period is very small in proportion to what it was half a century since, yet, as MM. Humboldt, Bonpland, and other travellers, assert that it appears probable that the forests of Peru and the Andes will, before a century is past, be exhausted of that valuable remedy, every substance apparently resembling it in its properties merits attentive consideration. Many physicians think that the bark of the willow, oak, horse-chestnut, &c. in our country, is no mean substitute; but it is probable that it is to warmer climates we must look for the most efficacious remedies of this class. Dr. Virey, in a Memoir in the Journal de Pharmacie, states, that M. Bosc has received from M. Hubert, a botanist of the Isle of Bourbon, some specimens of the bark of this species, and that it is generally employed in the East-Indies, the islands of Madagascar, France, Bourbon, &c. as a febrifuge in place of cinchona, with the most satisfactory results. We are not, however, of opinion, that more general experiment will report so favourably of the powers of this plant; for the *quinine* and *cinchonine*, the two principles in which the efficacy of bark resides, do not form any portion of this plant. The bark is indeed rolled somewhat like the cinchona, covered with an epidermis of a brown or greyish colour, interspersed with yellowish spots. The epidermis is about a line in thickness, granular in its tissue, and of a bright yellowish-brown colour: its taste is slightly bitter and aromatic. The interior bark, which constitutes the *liber*, is thin; of a reddish-brown colour; of a singularly bitter and poignant taste, somewhat resembling pepper in warmth, with a mixture of sweetness: its fracture does not present a resinous appearance. This shrub is very common in Asia and some of the African islands: it is described by Rheede, in his Hortus Malabaricus (tom. v.) under the name of *kaka-toddali*. Schreber makes it the genus CRANTZIA; which has been changed into that of SCOPOLIA by Smith and Willdenow, under the name of *Scopolia aculeata*; and arranged

with the *Adelia* by Lamarck. Jussieu preserved the name of *Toddalia*, by which it is known on the coast of Malabar.

2. *Paullinia feriana*; (*Seriana scanda triphylla et racemosa*, *Plum. Gen.* 34. *IC.* 113.) Leaves ternate, petioles naked, leaflets ovate-oblong.

3. *Paullinia nodosa*: leaves ternate, petioles naked, middle leaflet obovate.

4. *Paullinia cururu*, (*Cururu scandens triphylla*, *Plum. Gen.* 34. *IC.* 111.) Leaves ternate, petioles margined. Natives of South America.

5. *Paullinia Mexicana*, (*Seriana scandens enneaphylla et racemosa*, *Plum. Gen.* 34. *IC.* 113.) Leaves biternate, all the petioles margined, stem prickly. Native of Mexico.

6. *Paullinia Carthagenensis*: leaves biternate, all the petioles margined, stem unarmed. This has the leaves more cut than the other species; and they are very thin, whereas in the rest they are more or less coriaceous and thick. It is entirely void of prickles. Found by Plumier; and afterwards by Jacquin about Carthagen in New Spain, in coppices.

7. *Paullinia Caribæa*: leaves biternate, all the petioles margined, branches prickly. The branches and common petioles are armed with numerous recurved prickles. Native of the Caribees.

8. *Paullinia Curaffavica*, or shining-leaved paullinia: leaves biternate, all the petioles margined, branches unarmed. Jacquin remarks that in Plumier's figure the petioles appear to be naked; they are all, however, except the common one, margined, or winged at the edge, but so slightly, that it can hardly be expressed in a figure. Native of Curaçoa.

According to Swartz, this is the *Paulinia*, or *fouple-jack*, of Browne, which he says is very common in the woods of Jamaica, with its slender woody flexile stalk, raising itself frequently to a very considerable height among the bushes: it is so tough and yielding, that it is commonly cut into junks, barked, and used for riding and walking sticks. See *Paullinia polyphylla*. It was cultivated by Mr. Miller in 1739.

9. *Paullinia Barbadenfis*: leaves biternate, middle petiole margined, the rest naked. This differs from the preceding principally in the form of the leaves, and in the slighter and less frequent incision of them. Native of the West Indies. Introduced in 1786, by Mr. Alexander Anderson.

10. *Paullinia divaricata*: leaves biternate, leaflets ovate acute, mostly entire; petioles naked, panicles divaricating, wings of the capsules ovate. Native of Jamaica.

11. *Paullinia polyphylla*, parsley-leaved paullinia, or *fupple jack*; (*Seriana frutescens polyphylla et racemosa*, *Plum. Gen.* 34. *IC.* 112.) Leaves triternate, petioles naked. Native of the West Indies. Cultivated in 1739 by Mr. Miller, but not mentioned in the Dictionary. According to the Kew Catalogue, this is the *fupple-jack*; and if Browne, by *foliis ternato-ternatis*, means triternate leaves, his *Paulinia* is this species; but his synonyms are confused.

12. *Paullinia triternata*: leaves triternate, petioles margined. This climbs trees to the height of twenty feet. Branches round, smooth, grooved, long, flexible. Leaves shining, alternate, numerous: racemes axillary, four inches long, having about fifty flowers in them, naked for about two inches, and then divided into three parts, and putting out two tendrils, two inches long, smooth and flat; calyx and corolla white; leaves of the first nectary white with yellow tips, at first sight resembling *stamens*. Native of St. Domingo, in woods.

13. *Paullinia Japonica*: leaves quinque-pinnate, petioletted margined, stem herbaceous unarmed. Stem herbaceous, angular, climbing, smooth, scarcely the thickness of a straw. Native of Japan.

14. *Paullinia vespertilio*: leaves pinnate, leaflets ovate acuminate gashed, petioles naked, capsules pedicelled, with horizontal lanceolate wings. Native of the West Indies.

15. *Paullinia pinnata*, or winged-leaved paullinia: leaves pinnate, petioles margined, leaves shining. Native of Brasil, Jamaica, and Domingo, in dry sandy places. The insertion of the seeds is the same in *Cururu* as in *Seriana*; but there is a remarkable difference between them in the situation of the partitions.

16. *Paullinia tomentosa*, or downy-leaved paullinia: leaves pinnate, petioles margined, leaflets tomentose.

17. *Paullinia diversifolia*, or different-leaved paullinia: leaves superdecompound, petioles margined, the lowest pinnate, the rest ternate. Natives of South America.

Propagation and Culture. Procure the seeds from the countries where they naturally grow. As soon as they arrive, sow them in small pots filled with light earth, and plunge them into a moderate tan-bed. If the seeds arrive in autumn, plunge the pots in the bark-bed in the stove, and probably the plants may come up the following spring; but, if they arrive in spring, plunge the pots in a moderate hot-bed under a frame, where they may be continued all the summer; in autumn remove them into the stove for the winter, watering them now and then sparingly. The following spring plunge the pots into a new hot-bed under a frame, which will bring up the plants in about six weeks, if the seeds are good. When the plants are fit to remove, plant each in a small pot filled with light earth, and plunge them into a hot-bed of tanner's bark, observing to shade them till they have taken new root; after which they should have free air admitted to them daily, in proportion to the warmth of the season. In the autumn they must be removed into the bark-stove, where they must constantly remain. As they require much room, and their flowers have little beauty, they are seldom propagated in Europe.

PAULMIER DE GRENTMESNIL, (Jacques le), a man of letters, son of a learned physician, Julien le Paulmier, was born in the district of Auge in 1587. He was brought up in the protestant religion, which was that of his parents, and passed some years in the house of Dumoulin at Paris, where he attended the lectures of Casaubon and other learned men. At sixteen he was sent to Sedan, where he perfected himself in classical studies, and went through a course of philosophy. He afterwards studied the law at Orleans, and employed several subsequent years in travelling, and adding to the copious store of his literary acquisitions. At the age of thirty-three he entered into the army, and served with reputation in Holland against the Spaniards under the princes Maurice and Henry of Nassau. After the peace he passed some time upon the paternal estate in Normandy, and then again served in Lorraine at the head of a company of cavalry given him by the duke of Longueville. Returning with honour, he finally settled at Caen, where, at an advanced age, he married an English lady of fortune. He devoted himself to literature, and to the society of the men of erudition with which Caen at that time abounded, among whom it is sufficient to mention Huet and Bochart. He was the first planner of the academy there established, and supported it against the efforts of malice and ignorance. With irreproachable manners, he preserved the high spirit of a military man; and Huet relates, that when he was almost in a state of decrepitude, being insulted by a rude and insolent young man, he sent him a challenge, and obliged him to deliver his sword and beg his life. He was greatly afflicted with the stone, for which he twice underwent the operation of lithotomy. After many severe sufferings, which he bore with great resignation, he died in 1670, at the age of eighty-three. M. de Grentemesnil was a man of extraordinary quickness of parts, and composed with great facility poems in the Greek, Latin, French, Italian, and Spanish, languages; but his most valuable performances were of the critical class. At the persuasion of Huet, he published a collection of observations made in the perusal of various authors, under the title of "Exercitationes in optimos Auctores Græcos," 1668, 4to. The great labour of his latter

latter years was a "Description of ancient Greece," in Latin, published after his death at Leyden in 1678, 4to. A dissertation which he wrote in 1629, concerning the comparative merits of Lucan and Virgil, was printed at Leyden in 1704, in the *Dissertationes selectæ et criticæ de Poetis* of J. Berkel. *Huetius de Rebus, &c.*

PAU'LMOW, a town of Bengal: five miles north-west of Curruckdeah.

PAU'LMY, a town of France, in the department of the Indre and Loire: twelve miles south-west of Loches.

PAU'LO, a town of South-America, in New Grenada: twenty-five miles east-north-east of Tunja.

PAU'LO (Marco). See POLO.

PAVLOGRAD, a town of Russia, in the government of Ekaterinoflav: thirty-two miles east of Ekaterinoflav. Lat. 47. 10. N. lon. 35. 54. E.

PAV'LOSK, a fortress of Russia, in the province of Tauris, to defend the Straits of Taman, between the Black Sea and the sea of Azof: six miles south of Kerch.

PAV'LOV, a town of Russia, on the north coast of the Tchudkoe Lake: twenty miles south of Narva.

PAV'LOVA, a town of Russia, in the government of Irtsuk, on the Lena: sixteen miles north of Olenga.

PAV'LOVSK, a town of Russia, in the government of Voronez, on the Don: sixty-eight miles south-fourth-east of Voronez. Lat. 50. 24. N. lon. 40. 14. E.

PAV'LOVSKAI'A, a town of Russia, in the government of Ekaterinoflav, on the Dnieper: thirty-two miles east of Ekaterinoflav.

PAULSBURGH, a township of Coos, in New Hampshire, having fourteen inhabitants.

PAU'LUN, a town of Hindooftan, in the circar of Kitchwara: six miles south-east of Raajegur.

PAU'LUS ÆGINE'TA. See ÆGINE'TA, vol. i.

PAU'LUS ÆMIL'IUS, the name of two celebrated Roman generals, father and son. See the article ROME.

PAU'LUS (Cyrus Florus), called *Paul the Silentary*, because he was at the head of the royal flentiaries, officers whose business it was to prevent noises in the palace, flourished in the sixth century under the emperor Justinian. He is said to have been of an illustrious family, and possessed of hereditary opulence, but to have been still more distinguished for learning and eloquence. He was the author of poems in the Greek language, among which was one giving the history and description of the church of St. Sophia in Constantinople in more than a thousand hexameter lines. This has come down to our times, and was published in the collection of Byzantine historians, with a translation and notes by Ducange. He also composed a poem on the Pythian Thermæ, and some epigrams in the Anthology. See Gibbon, vol. vii. in which is a fine description of St. Sophia, taken partly from the work of Paulus.

PAU'LUS HOOK', a fortified post of United America, in the state of Jersey, on the North River, which is here above 2000 yards across, opposite New York. In 1780, this river was so much frozen, that carriages with heavy burdens passed over.

To PAUM, *v. a.* [from *palm*, the hand; a very ancient corruption, Wicliffe and Chaucer both using *paum*, or *pawm*, for the palm of the hand.] To impose by fraud. See To PALM.—A rogue that locked up his drink, turned away our wives, cheated us of our fortunes, *paumed* his crufts upon us for mutton, and at last kicked us out of doors. *Swift's Tale of a Tub*, ed. 1704.

PAU'NACH. See BAUNACH, vol. ii.

PAUNCE, *f.* A pansy:

The pretie *paunce*,
And the chevifaunce,
Shall match with the fayre flower delice. *Spenser.*

The shining meads
Do boast the *paunce*, the lily, and the rose;
And every flower doth laugh as Zephyr blows. *B. Jonson.*

PAUNCH, *f.* [*panse*, Fr. *pança*, Span. *pantez*, Lat.] The belly; the region of the guts.—Demades, the orator, was talkative, and would eat hard; Antipater would say of him, that he was like a sacrifice, that nothing was left of it but the tongue and the *paunch*. *Bacon.*

Pleading Matho, borne abroad for air,
With his fat *paunch* fills his new-fashion'd chair. *Dryden.*

To PAUNCH, *v. a.* To pierce or rip the belly; to exenterate; to take out the paunch; to eviscerate.—Batter his scull, or *paunch* him with a stake. *Shakespeare.*

Chiron attack'd Talthibius with such might,
One pass had *paunch'd* the huge hydropick knight. *Garth.*

PAUNCHWAY, *f.* A small boat used in Bengal, being merely an attendant on the *budgerow*, or barge.

The boats, or barges, chiefly in use at Bengal, are—the bur for commerce, and the budgerow and moorpunkay for pleasure. As the two former were not noticed in their proper place, we shall speak of them here.

The *bur* is used for inland navigation on the Ganges, and very lightly built of thin deals, without either keel or side-timbers. The edges of the planks are fastened together with staples, and the seams are stopped up with moss, and payed with greafe. Its largest breadth is about one-third of the whole length from the stern, where it runs up with a bend: it is very sharp forwards, and not very high above the water. Although they are of different sizes, they are all of the same shape and construction; and some of them can load fifty thousand pounds weight of merchandise, and more. They are provided with a single mast, which has a large square sail; and, as they take in a great quantity of water from the sides and bottoms, the crew are compelled to employ some persons continually in baling. They are used for the carriage of cotton, and other bulky materials, the weight of which cannot bear any proportion to their size. In common with all the other boats of the country, their bottoms are nearly flat; and indeed, it would be impracticable on the Ganges to employ vessels formed for drawing any considerable quantity of water, as the navigation is rendered extremely dangerous from the continual shifting of the sands.

Budgerow is the denomination given to travelling-boats, or pleasure-barges, used by the Europeans, as well as by the principal natives, in Bengal. On the outside, they are constructed like the burs; but, within, they are much better adapted for convenience. The space from the middle to the stern is occupied by one or two apartments, having windows on the sides, and from six to seven feet high; and some of them fourteen feet wide: the sternmost of them is the bed-room. These budgerows are of various sizes; from twenty-five to sixty feet in length, and longer. They are rowed by a number of men, from six to twenty, with oars, which are long poles, at the end of which a little oval board is nailed, in lieu of a leaf, and which do not strike the water cross-ways, but obliquely backwards. They are steered by a large paddle or oar, extending ten feet from the stern; and forwards stands a mast, upon which is hoisted a square sail, when they go before the wind; and they have likewise a top-mast with a square top-sail for fine weather. When they have a side-wind, they drive down athwart the stream, not having a keel or timber enough under water, as they are flat-bottomed, and draw scarcely a foot and a half of water. The English gentlemen in Bengal have much improved the budgerows by introducing a broad flat floor, square sterns, and broad bows. They are thus rendered much safer, sail near, and keep their wind; and there is no danger attending their taking the ground. Besides, they are adapted for carrying more sail. The motion acquired by the oars of a large budgerow hardly exceeds eight miles a-day, at ordinary times.

The *paunchway* moves more expeditiously than the budgerow; but it is nearly of the same construction, with

with this difference, that the greatest breadth is somewhat further aft and the stern lower. Its use is to convey the company either on-shore or on-board, as it often happens that the budgerow cannot come close to the place where the party wishes to land, or to embark.

The *moorpunkay* has already been described under that word, vol. xv.

PAUNDU'RA, a town of Hindoostan, in Oude: twelve miles south-west of Gazypour.

PAUNGAR'TENBERG, a town of Austria: six miles south-west of Grein.

PAUNRAN', a town of Hindoostan, in Bengal: thirty miles south-west of Nagore.

PAUNRAN', a town of Hindoostan, in Mohurbunge: twenty miles north of Harriopour.

PAUNTON, or GREAT PAUNTON, a village in the county of Lincoln, anciently a Roman town, called *Ad Pontem*; it having formerly had a bridge over the river. Its church is one of the finest old structures in the county. Paunton is about four miles south of Grantham.

PAUNTON (Little), lies to the north of Great Paunton, on the same river.

PA'VO, *f.* [called in Greek, *πᾶς*, or *πᾶν*, perhaps from *πῆμα*, to stretch, on account of the amplitude of its tail: in the Æolian dialect it was pronounced *πᾶων*; and hence the Latin *pavo*, and its names in the modern languages: in Italian, *pavone*; in Spanish *pavon*; in French, *pavon*; in German, *pfauf*; in Polish, *paw*; and in Swedish, *pao-fogel*. But a modern "Etymological Gleaner" derives both the Latin and English name merely from the clang *pea-hoo* which the peacocks repeat in rainy weather.] The PEACOCK; a genus of birds of the order gallinæ. Generic characters—Head crested; bill convex, strong; nostrils broad; quills of the rump elongated, broad, expandible, and spangled with eyes. There are four species.

1. *Pavo cristatus*, the common peacock; head crested, spur single.

Dignity of appearance, nobleness of demeanour, elegance of form, sweetness and delicacy of proportions, whatever marks distinction and commands respect, nature seems to have bestowed on the peacock. A light waving tuft, painted with the richest colours, adorns its head, and raises without oppressing it. Its matchless plumage seems to combine all that delights the eye in the delicate tints of the finest flowers; all that dazzles in the sparkling lustre of the gems; and all that astonishes in the grand display of the rainbow. But not only has nature united, in the plumage of the peacock, to form a masterpiece of magnificence, all the colours of heaven and earth; she has selected, mingled, shaded, melted them with her inimitable hand, and formed an unrivalled picture; in so much that the feathers derive from their mixture and their contrast new brilliancy, and effects of light so sublime, that our art can neither imitate nor describe them, but in a very faint and imperfect manner. Such appears the plumage of the peacock, even when at ease and alone in a fine vernal day. But if a female is presented suddenly to his view; if the fires of love, joined to the secret influence of the season, rouse him from his tranquillity, and inspire him with ardour and new desires; his beauties open and expand, his eyes become animated and expressive, his tuft flutters on his head, and expresses the warmth that stirs within; the long feathers of the tail, rising, display their dazzling richness; the head and neck, bending nobly backwards, trace their shadow gracefully on that shining ground, where the sun-beams play in a thousand ways, continually extinguished and renewed, and seem to lend new lustre, more delicious and more enchanting; new colours, more variegated and more harmonious; each movement of the bird produces new shades, numberless clusters of waving fugitive reflections, which ever vary and ever please. It is then that the peacock seems to spread out all his beauties, only to delight his female, who, though denied the rich attire, is capti-

vated with its display; the liveliness which the ardour of the season mingles with his gestures, adds new grace to his movements, which are naturally noble and dignified, and which, at this time, are accompanied with a strong hollow murmur, expressive of desire. But this brilliant plumage, which surpasses the glow of the richest flowers, like them also is subject to decay; and, each year, the peacock sheds his honours. Then, as if ashamed at the loss of his attire, he avoids being seen in this humiliating condition, and conceals himself in the darkest retreats, till a new spring restores his wonted ornaments, and again introduces him to receive the homage paid to beauty; for he loses his feathers with the first fall of the leaves, and recovers them again when the buds burst forth. It is pretended that the peacock is sensible to admiration, and that a soothing and attentive gaze is the most certain means to engage him to display his decorations; but that a look of indifference chills his vivacity, and makes him close his treasures.

Astonished at the unparalleled beauty of this bird, the ancients could not help indulging their lively and creative fancy, in accounting for the magnificence of his plumage. They made him the favourite of imperial Juno, sister and wife to Jupiter, and not less than the hundred eyes of Argus were pulled out to ornament his tail; indeed there is scarcely any thing in nature that can vie with the transcendent lustre of the peacock's feathers. The changing glory of his neck eclipses the deep azure of ultramarine, and, at the least evolution, it assumes the green tint of the emerald and the purple hue of the amethyst. His head, which is small and finely shaped, offers several curious stripes of white and black round the eyes, and is surmounted by an elegant *panache*; or tuft of feathers, each of which is composed of a slender stem and a small flower at the top. The female does not share these great honours with the cock, and is generally of a light brown; her crest is very small, and she has no spur. It has been said that both are ashamed of the hoarseness of their voice and ill-shapedness of their feet; and indeed they may, for here we ought again to acknowledge the great system of equity and compensation which pervades the whole of nature. The loud screamings of the peacock are worse than the harsh croakings of the raven, and a prognostic for bad weather; and his feet, more clumsy than those of the turkey, make a sad contrast with the elegance of his plumage. The spreading of the tail, the swelling of the throat, neck, and breast, and the puffing noise which they emit, at certain times, are proofs that the turkey and the peacock stand nearly allied in the family-chain of animated beings.

Though the peacock has been long naturalized in Europe, it is not a native of this quarter of the globe, but seems to have been originally produced in the mildest parts of the Asiatic and African continents. The East Indies, Buffon says, must be considered as the true native country of the peacock, whence it passed into the western parts of Asia. Ælian informs us, that Greece received this beautiful bird from the Barbarians; who, Buffon thinks, were the people of India, since Alexander, who traversed Asia, first met with the peacock in that country; and besides, in no region of the globe is the tribe so numerous or so large as in that oriental clime. Mandelso and Thevenot saw them in profusion in the province of Guzerat: Tavernier, in every part of India, but particularly in the territories of Baroche, Cambaya, and Broudra; Francis Pyard, in the vicinity of Calicut; the Dutch, on the Malabar coast; Lintscot, in the island of Ceylon; the author of the Second Voyage to Siam, in the forests on the frontiers of that kingdom, on the side of Cambogia, and near the banks of the river Meinam; Gentil, at Iva; Gemelli Careri, in the Calamian islands, lying between the Philippines and Borneo. Indeed this beautiful bird must owe its birth to the luxurious climate where nature lavishly pours her riches; where gold, and pearls, and gems, and precious stones, and all the beauty



Common Peacock.

Engraved for the Encyclopædia Indico-Botánica 1823.

J. Pass. sc.

and brilliancy of colours, are scattered with profusion. This opinion is countenanced by Holy Writ: peacocks are enumerated among the valuable and rare commodities that were every three years imported by Solomon's fleet; which being fitted out in the Red Sea, and not being able to venture at a distance from the shore, must obviously have drawn its riches either from India, or the eastern coast of Africa.

From Asia, it is most probable, they were transported into Greece, where at first they were so rare as to be exhibited in Athens for thirty years, at the monthly festivals, as an object of curiosity, which drew crowds of spectators from the neighbouring towns. We cannot fix the date of this event; but it was after the return of Alexander from India, who first stopped at the island of Samos. Here the conqueror was so delighted with the rich plumage of the peacocks, that he enacted severe penalties against killing them. But it is very probable that soon after this time, and even before the close of his reign, they were become common; for we learn from the poet Aristophanes, who was contemporary with that hero and survived him, that a single pair brought into Greece had multiplied so rapidly, that they were as numerous as quails; and besides, Aristotle, who outlived his pupil only two years, speaks in several parts of his work of peacocks as well-known birds. That the isle of Samos was the first station of Alexander on his return from India, is probable from its proximity to Asia; and is besides proved by the express testimony of Menodotus. Some indeed have given a forced interpretation of this passage, and resting on the authority of some very ancient medals of Samos, in which Juno is represented with a peacock at her feet, have pretended that Samos was the primitive abode of that bird, from whence it has been dispersed to the east and the west. "There," says Athenæus, "are the peacocks sacred to Juno, they being first reared at Samos, and thence carried into other countries, as the cocks from Persis, and the meleagrids from Æolia." But the truth is, that Samos was the first part in Europe where the peacocks were bred; in the same manner as the pintadoes, which were well known to be African birds, were seen in Æolia or Ætolia, before they were introduced into the rest of Greece; and especially as the climate of Samos is particularly suited to them, and they lived there in the state of nature. These reasons are sufficient to account for the epithet of *Samiian bird*, which some authors have bestowed on the peacock; but the term can be only figurative, since Tournefort never mentions the peacock in his description of that island, but says that it is full of partridges, woodcocks, thrushes, wild pigeons, turtles, &c.

After the peacock was transplanted from Asia into Greece, it found its way into the south of Europe, and was gradually introduced into England, France, Spain, Germany, Switzerland, and as far as Sweden, where indeed they are rare, and require great attention, and even suffer an alteration in their plumage. Lastly, the Europeans, who by the extent of their commerce and navigation connect the whole inhabited world, have spread them along the American coasts, and introduced them into Mexico, Peru, and some of the Antilles, as St. Domingo and Jamaica, where they now are numerous, though there were none prior to the discovery of America. The peacock is a heavy bird, as the ancients well remarked; the shortness of its wings, and the length of its tail, check its aerial course; and, as it with difficulty subsists in a northern climate, it could never migrate into the new world.

The peacock has scarcely less ardour for the female, or contends with less obstinacy, than the common cock. The pea-hens are also of an amorous mould; and, when deprived of the males, they toy with each other, and welter in the dust; but the eggs which they lay are then void of the principle of life. *Wind-eggs* is their common name in English, because they want their outer shell, and

are flaccid, as if inflated with air. Perhaps this was also the reason of the ancient epithet *zephyrian*.

These birds, according to Aristotle, attain their full vigour in three years. Columella is of the same opinion; and Pliny repeats the words of Aristotle with some slight alterations. Varro fixes the period at two years; and people who are well acquainted with these birds say, that in our climate the female begins to lay at the end of the year, though the eggs are then certainly addled. But almost all agree that the age of three years is the term when the peacock has acquired his full growth, and is fit to perform the office of the male: and that the power of procreating is announced by a new and splendid production: this is the long and beautiful feathers of the tail, which they display, as they strut and expand their fan.

The female lays her eggs soon after fecundation; she does not exclude one every day, but only once in three or four days; and according to Aristotle she has but one hatch in the year, which consists in the first of eight eggs, and in the following years of twelve. But this must be understood of those pea-hens that both lay their eggs and rear their young; for, if the eggs be removed as fast as they are laid, and placed under a common hen, they will, according to Columella, have three hatches in the course of the year; the first of five eggs, the second of four, and the third of two or three. It would seem that in this country they are not so prolific, since they lay scarcely more than four or five eggs in the year. On the other hand, they appear to be far more prolific in India, where, according to Peter Martyr, they lay from twenty to thirty. The temperature of a climate has great influence on whatever relates to generation, and this is the key to those apparent contradictions which are found between the ancients and our own observations. In a warm country, the males are more ardent, fight with each other, require more females, and these lay a greater number of eggs; but in a cold country the latter are not so prolific, and the former are calm and indifferent.

If the pea-hen be suffered to follow the bent of instinct, she will lay her eggs in a secret retired spot; the eggs are white, and speckled like those of the turkey-hen, and nearly of the same size. During the whole time of incubation, she anxiously shuns the male, and is particularly careful to conceal her track, when she returns from the nest: for in this species, as in the gallinaceous tribe, and many others, the male, burning with lust, and faithless to the intentions of nature, is more earnest in the pursuit of pleasure, than solicitous about the multiplication of the race. If he discovers his mate sitting on her eggs, he breaks them; probably to remove an obstacle to the gratification of his passions. The pea-hen sits from twenty-seven to thirty days, more or less, according to the temperature of the climate, and the warmth of the season. During that time, a sufficient supply of food ought to be set within her reach, that she may not be obliged to stray in search of subsistence, and allow her eggs to cool; and care must be taken not to tease or disturb her in her nest; for, if she perceives that they are discovered, she will be filled with disquietude, abandon her eggs, and begin to make a second hatch, which is not likely to succeed, because of the lateness of the season. It is said that the pea-hen never hatches all her eggs at once; but, as soon as a few chickens emerge, she leaves the nest to lead them about. In this case, the eggs that are left should be set under another hen, or placed in a stove for incubation. After the young are hatched, they ought to be left under the mother for twenty-four hours, and then removed to the coop; Frisch advises them not to be restored to their dam till some days after.

Their first food may be barley-meal, wheat steeped in water, or bread boiled, and allowed to cool. Afterwards they may have fresh curd, from which the whey is well pressed, mixed with chopped leeks, and even grasshoppers, of which they are very fond. When they are six

months

months old, they will eat wheat, barley, the dregs of cyder and perry, and crop the tender grafs. It is observed, that on the first days after hatching, the mother never leads her young to the ordinary nest, or even sits with them twice in the same place; and as they are delicate, and cannot mount on the trees, they are exposed to many accidents. At this time therefore we ought to watch them closely, and discover where the mother resorts, and put the brood in a coop, or in the field in a patch inclosed with hurdles. Till they grow stout, the young peacocks trail their wings, and make no use of them. In their early essays to fly, the mother takes them every evening one after another on her back, and carries them to the branch on which they are to pass the night. In the morning, she descends before them from the tree, and encourages them by her example to trust themselves to their slender pinions. A pea-hen, or even a common hen, can breed twenty-five young peacocks, according to Columella; but only fifteen, according to Palladius: and this last number is even too great for cold countries, where they must be warmed from time to time, and sheltered under the mother's wing.

When the brood are a month old, or a little more, the crest begins to shoot, and then they are subject to sickness, like young turkeys in similar circumstances. At this time the parent cock adopts them as his offspring; for, before the growth of the crest, he drives them away as supposititious. The crest consists of twenty-four small feathers, of which the shaft is not furnished with webs, but beset with little slender detached threads; the top is formed by a bunch of ordinary feathers united together, and painted with the richest colours. The crest is not an inverted cone, as might be supposed: its base, which is uppermost, forms a very extensive ellipse, whose greater axis is in the direction of the head; all the feathers that compose it have a particular and perceptible motion, by which they approach each other, or recede, at will, and also a general motion, by which the whole crest is sometimes erected, sometimes reclined. The tail-feathers, or rather those long coverts that are inserted in the back near the rump, are on a great scale what those of the crest are on a small one. The shaft is equally furnished, from its origin to its extremity, with parted filaments of a varying colour, and it ends in a flat vane, decorated with what is called the *eye*, or the *mirror*. This is a brilliant spot, enamelled with the most enchanting colours; yellow gilded with many shades, green running into blue and bright violet, according to the different positions; and the whole receives additional lustre from the colours of the centre, which is a fine velvet black. The two feathers in the middle are each four feet and a half long, and extend beyond the rest, the others gradually diminishing as they approach the sides. The crest is permanent; but the tail is cast every year, either entirely or in part, about the end of July, and shoots again in the spring; during which interval the bird is dispirited and seeks retirement, as before noticed. This beautiful train, or, more correctly speaking, *false tail*, may be expanded quite to a perpendicular upwards, at the will of the bird. The *true tail* is hid beneath this group of brilliant feathers, and consists of eighteen grey-brown feathers, one foot and a half long, marked on the sides with rufous grey: the scapulars and smaller wing-coverts are reddish cream-colour, variegated with black; the middle coverts deep blue, glossed with green gold. The predominant colour of the head, throat, neck, and breast, is blue, with different reflections of violet, yellow, and lucid green; and by means of these waving shades, nature can spread a greater variety of colouring on the same space. On each side of the head, there is a protuberance formed by small feathers, which cover the perforation of the external ear. The common peacock is represented on the annexed Plate.

The female is less than the male. The train is very short, much more so than the tail; scarcely longer than

its coverts, and the feathers not furnished with eyes; the crest on the head the same; the sides of the head have a greater portion of white; the throat and neck green; the rest of the body and wings cinereous brown; the breast fringed with white; the bill the same; irides lead-colour; the legs, in both male and female, are stout, clumsy, and of a dirty grey colour; that of the male is furnished with a spur near an inch long; but the spur is wanting in the females; though in some a rudiment of one is seen. In some male birds the whole of the wing-coverts and scapulars are of a fine deep blue green, very glossy; but the outer edge of the wing and quills are of the usual colour.

Though peacocks cannot fly much, they are fond of climbing. They generally pass the night on the roofs of houses, where they do a great deal of mischief, and on the loftiest trees. From these elevated stations, they often scream; and their cry is universally allowed to be disagreeable. It is said that the female has only one note, which she seldom utters except in the spring, while the male has three. Theophrastus says, that their cry, if often reiterated, forebodes rain; others, that they foretell it when they scramble higher than ordinary; while others allege, that these cries forebode the death of a neighbour. The term of the life of a peacock is generally allowed to be twenty-five years; but Willoughby imagines, on the authority of Ælian, that the peacock lives a complete century.

As in India the peacocks live in a state of nature, it is usual in that country to hunt them. They can hardly be approached in the day-time, though they are scattered over the fields in numerous flocks; because, as soon as they descry a sportsman, they fly away and conceal themselves in the thickets, where they cannot be pursued. The night therefore is the only proper time for the chase, which, in the vicinity of Cambaya, is conducted in the following manner: The sportsmen get close to the tree where the peacocks are perched, and present a kind of banner, which supports two burning candles; and is painted with the figures of peacocks. The peacock dazzled by the glare, or engaged in noticing the painted birds, stretches out his neck repeatedly, and again draws it back; and, when the head is observed to be entangled in a running knot or noose, placed for the purpose, the hunters immediately draw the cord and secure the bird.

We have seen that the Greeks much admired the peacock, but this was only for the beauty of their plumage. The Romans, who carried every luxury to excess, actually feasted on peacock's flesh. The orator Hortensius was the first who ordered it to be served up at his table; and, his example being followed, this bird came to be sold at a very high price in Rome. The emperors refined on the luxury of their subjects; and Vitellius and Heliogabalus gloried in filling enormous chargers with the brains of peacocks, the tongues of the phoenix, and the livers of the scarus, forming insipid dishes, whose whole merit consisted in their destructive expence. In modern times, that is, in the 16th century, the peacock was still considered a princely dish, and the whole bird used to be served on the table with the feathers of the neck and tail preserved; but few people could now relish such food, as it is much coarser than the flesh of the turkey. We are told, however, that Leo X. who was very curious in his food, used to have sausages made of peacocks; and we are told, moreover, that the peacock is valuable as food in the warmer climates, because it keeps sweet longer than any other fowl. The Italians have given this laconic description of the peacock: "He has the plumage of an angel, the voice of a devil, and the stomach of a thief." Let us observe that this bird may be a true moral emblem of those who, with most alluring outward qualities, do not possess the much more valuable ones of the heart and mind; for the peacock is both cruel and stupid. We have seen instances of the pea-hen
tossing





The Chinese Peacock, and China rose-tree.

See Vol. II. p. 633.

Engraved for the Encyclopædia Londinensis 1823.

roffing up her chicks with unnatural barbarity, till they were dead; and, out of the number which she hatches, she seldom rears more than one or two.

Peacocks' feathers were formerly used to make a sort of fans; and they were formed into crowns, like those of laurel, for the Troubadour poets. Gefner saw a web whose woof was silk and gold thread, and the warp peacocks' feathers. Such no doubt was the robe woven with these feathers which pope Paul III. sent to king Pepin. The Indians use them in many of their ornamental dresses; and in China they are given by the emperor to such of his courtiers and chiefs of his army, as merit applause; who then wear them in their hats, as distinguished marks of their master's favour. The princesses of China also wear them in their caps. According to Aldrovandus, peacocks' eggs are reckoned by the moderns as improper food; whereas the ancients put them in the first class, and even before those of the goose and common hen. This contradiction he explains by saying, that they are pleasant to the taste, but pernicious to the health. It remains to be inquired whether the temperature of the climate affects their quality. There are two other varieties.

6. *P. varius*, the variegated peacock: cheeks, throat, belly, and wing-coverts, white. This is no other than a mixed breed between the white variety and the common peacock; consequently they are to be seen in every proportion of colour between those two birds.

7. *P. albus*, the white peacock: body entirely white. Climate seems to have no less influence on the plumage of birds than on the fur of animals. We have seen, in some previous articles, that the hare, the ermine, and most other animals, are subject to grow white in cold countries, particularly in the winter season. There is a variety of the peacock, which seems to have received similar impressions from the same cause: and the effects are even greater, since the race is permanent; for the whiteness of hares and ermines is merely temporary, and happens only in the winter. The colour of the white peacock, on the other hand, is no longer affected by the season or climate; and the eggs hatched even in Italy produce a white brood. The one which Aldrovandus caused to be engraved was reared at Bologna; and this circumstance has made him suspect that this variety did not belong peculiarly to cold countries. Yet most naturalists agree in assigning Norway and other northern countries for its native region. It would seem that it is there wild; for in the winter it travels into Germany, where it is commonly caught in that season. They are indeed found in countries much farther south, as in England, France, and Italy; but there they are in the domestic state.

It required a long period of time, and a singular concurrence of circumstances, to reconcile a bird bred in the delicious climates of Asia and India, to the rigours of the northern tracts. If it had not been carried thither, it could have migrated to those colder climates, either by the north of Asia, or by the north of Europe. It is not long since white peacocks were esteemed as rarities, which proves their recent introduction; and, on the other hand, the Greeks were unacquainted with them, since Aristotle, having spoken in his Treatise on the Generation of Animals of the variegated colours of the peacock, and afterwards of white partridges, white ravens, and white sparrows, takes no notice of white peacocks.

2. *Pavo bicalcaratus*, the Chinese peacock; (Peacock pheasant, *Edw.* Iris peacock, *Lath.* Petit paon de Malacca, *Sonnerat.*) Brown; head subcrested; spurs two. This magnificent bird is justly considered as one of the greatest beauties in nature. In size, it is between that of the common peacock and the pheasant; but superior to both in elegance and lustre. The bill is blackish; but from the nostrils to the tip of the upper mandible red; irides yellow; the feathers on the crown of the head form

a longitudinal crest, of a dark brown colour, growing upright, with the tips a little reflected forward; between the bill and eyes the space is naked, with a few scattered hairs: sides of the head white: neck bright reddish brown, striated across with dusky brown. The rest of the plumage is unspeakably rich and ornamental: the tail is sprinkled with oval spangles, on a fine purplish ground, with reflections of blue, green, and burnished gold. The effect of these spangles, or mirrors is the more striking, as they are defined and distinguished from the ground by a double circle, the one black and the other orange. Each quill of the tail has two of these lucid mirrors clustered together in pairs, the shaft passing between them. However, as the train or false tail contains fewer quills than that of the common peacock, it is much less loaded with spangles; but to compensate for this, it has a very great number on its back and wings, where the peacock has none: those on the wings are rounder, in proportion as they approach the neck; and, as the ground-colour of the plumage is a beautiful brown, it resembles a sable richly strewed with sapphires, opals, emeralds, topazes, and other precious stones. The greater quills of the wing are not decorated with spangles; all the rest have each only one; and their colours, whether in the wings or in the tail, do not penetrate to the inner surface, which is of an uniform brown cast. We have endeavoured to give a lively representation of this bird on Plate II. but, with all its beauties, it is far inferior to the original.

The female is a third smaller than the male, and appears lively and active. As in the male, its iris is yellow; but there is no red on its bill, and its tail is much smaller. And, though in the female of this bird the colours are more like those of the male than in the other peacocks, they are more faint and dull, and have not that lustre and those luminous undulations which produce so charming an effect in the spangles of the male. It is a remarkable circumstance, that the male of this species has two spurs, set one above the other on each leg, while the female does not appear to have even the rudiments of any.

3. *Pavo Tibetanus*, the Thibet peacock: cinereous, striated with black; head subcrested; spurs two. This is about the size of the pintado; length two feet one inch and a half. Bill above one inch and a half long, and cinereous; irides yellow. The head, neck, and under parts, ash-colour, marked with blackish lines; the wing-coverts, back, and rump, grey, with small white dots; besides which, on the wing-coverts and back are large round spots of a fine blue, changing in different lights to violet and green gold; the quills and upper tail-coverts are also grey; marked with blackish lines; the quills have two round blue spots on each, like those of the coverts: on the outer webs, and on each tail feather, there are four of the same, two on each side the web; the mid-coverts are the longest, the others shorten by degrees: the legs are grey, furnished with two spurs behind, like the Chinese species: claws blackish. This inhabits the kingdom of Thibet; and the Chinese give it the name of *chin-tchien-khi*.

4. *Pavo muticus*, the Japan peacock: crest merely subulate; spurs none. This is nearly the size of the common peacock; but the bill is larger, and ash-coloured; the space round the eyes is red; irides yellow; on the top of the head is an elegant upright crest, four inches in length, and in shape not much unlike an ear of corn; the colour mixed green and blue. The top of the head and neck are greenish, marked with spots of blue, which have a streak of white down the middle of each: the back is greenish blue: the breast blue and green gold mixed; the belly, sides, and thighs, ash-colour, marked with black spots, streaked with white on the belly: wing-coverts and secondaries not unlike the back; the greater quills green, transversely barred with black lines, but growing yellowish towards the ends, where they are black; the upper tail-coverts are fewer than those of the common

common peacock, but much longer than the tail; they are of a chestnut brown, with white shafts, and have at the end of each a large spot or spangle gilded in the middle, then blue, and surrounded with green: the legs are ash-colour, and not furnished with spurs. The female is smaller; and differs in having the belly quite black, and the upper tail-coverts much shorter; the tail green, edged with blue, and white shafts. This inhabits Japan, and is only known to Europe by means of a painting, sent by the emperor of Japan as a present to the pope.

PAVO, in astronomy, a constellation of the southern hemisphere, unknown to the ancients, and not visible in our northern parts of the world; containing fourteen stars.

PAVOAS'SAN, a town of Africa, and capital of the island of St. Thomas, with a good harbour, the residence of the governor and the bishop.

PAVONE, *f.* [Italian.] A peacock:

And wings it had with fondry colours dight,
More fondry colours than the proud *pavone*
Bears in his boasted fan.

Spenser.

PAVONIA, *f.* in botany. See HIBISCUS.

PAVONINE, *adj.* Belonging to the peacock-kind.

PAVOOR, a town of Hindoostan: fifteen miles north-west of Tinevelly.

PAVOR, FEAR; a Roman goddess whose worship was introduced by Tullus Hostilius, who, in a panic, vowed a shrine to her, and one to *Pallor*, Paleness; and therefore they are found on the coins of that family.

PAUPAKEL'LY, a town of Hindoostan, in Golconda: twenty miles south of Byarem.

PAUPANASSUM, a town of Hindoostan: twenty miles west-fourth-west of Tinevelly.

PAUPANASSY, a town of Hindoostan, in the Carnatic: twelve miles north-east of Tanjore.

PAUPER, *f.* [Latin.] A poor person; one who receives alms.—*Pauper* signifies properly a poor man; according to which we have a term in our law, to sue "*in forma pauperis*;" that is, if a man or woman having cause of action, and not having ability to sue, the cause of action being certified under counsel's hand, with a petition of the party setting forth their case and poverty, the judge of the court, whether in common law or equity, will admit the party to sue *in forma pauperis*; that is, assign them an attorney or clerk, and counsel to defend their cause, and plead for them without fees. See farther under the article COSTS, vol. v. p. 258.

No court allows those partial interlopers
Of Law and Equity, two single *paupers*,
T' encounter hand to hand at bars, and trounce
Each other gratis in a suit at once. *Butler's Remains.*

PAUPERISM, *f.* The state of poverty.

PAUREY, a town of Africa, on the Slave Coast. Lat. 6. 10. N. lon. 0. 15. E.

PAURWITZ. See BAUERWITZ, vol. ii.

PAUSA, a town of Saxony, in the Vogtland: thirteen miles north-north-west of Plauen, and seventy-two west-fourth-west of Dresden. Lat. 50. 31. N. lon. 11. 58. E.

PAUSANIAS, an eminent Lacedæmonian commander, was the son of Cleombrotus, and nephew of Leonidas, who fell at Thermopylæ. He was appointed guardian of his minor cousin, Plistarchus, son of that king; in right of which office, during the absence of the other king he possessed the chief magistracy. When Mardonius, the Persian general, invaded Greece with a mighty host, Pausanias was appointed commander in chief of the allied army raised to oppose him. After some skilful manoeuvres, in which he appears, by a feigned retreat, to have thrown the Persians into disorder, Pausanias brought on a general engagement at Platæa, B. C. 479; in which Mardonius was entirely defeated with great slaughter, and killed in the field. With the assistance of the Athenians, who, during the battle, had been engaged against

some Greeks in the Persian interest, the camp of Mardonius was taken, with a vast booty. Pausanias showed a nobleness of mind in rejecting the proposal of one of the leaders, that the body of the Persian general should be fought for, in order to be treated with the same indignity that had been offered to that of Leonidas. He also gave a striking lesson to the Greeks, by ordering the Persian cooks to prepare such a banquet as their master was wont to partake of, whilst his own servants were to dress a simple Spartan meal, and then pointing out to his officers the folly of a luxurious people coming to conquer a poor and hardy one. He next proceeded to punish the traitors to the cause of Greece; and, marching to Thebes, obliged that city to deliver up the heads of the Persian party, whom he put to death.

The effect of success upon his own mind, however, was to nourish a spirit of pride and arrogance, and inspire ambitious designs. He assumed to himself all the honour of the battle of Platæa; and upon a golden tripod, which he presented to the temple of Delphi, he put an inscription, recording only his own name as author of the victory. The command of the united fleet being given him for the purpose of freeing the Grecian cities from the Persian garrisons, he behaved with great partiality to his own countrymen, and treated the other officers with haughtiness, and the common men with severity; whilst the justice of Aristides, and the affability of Cimon, gained all hearts, and restored to the Athenians the naval supremacy of Greece. Pausanias performed what was enjoined him at Cyprus and Byzantium; and, having at the latter place taken captive several noble Persians, among whom were some of the royal kindred, he sent them to Xerxes with a letter, proposing a private alliance with that king, on the condition of being made ruler of Greece under his authority. Some suspicions of this negotiation getting abroad, he was recalled to Sparta, and underwent a trial for his life; but, no sufficient evidence being brought against him, he was fined and liberated.

Returning to the army, instead of acting with more caution, he openly adopted the Persian habit and manners, and went into all the excesses of that luxury which he had decried. It would appear that his mind was somewhat disordered in consequence of the following tragical incident. Having been captivated with the charms of Cleonice, a young woman of good family at Byzantium, her parents, not daring to refuse his solicitations, obliged her to comply with his desires. In order to save her blushes, she requested that the lights might be extinguished when she should enter his chamber. It unfortunately happened that in the dark she stumbled over one of the lamps; the noise of which suddenly awakening Pausanias, he fancied an assassin was coming to murder him, and, starting up, plunged a dagger into her breast. When he discovered the fatal error, he was almost distracted, and from that time imagined that the blood of his Cleonice perpetually demanded vengeance. He left Byzantium, and repaired to Heraclea, where he found persons who pretended to evoke and pacify the spirits of the deceased. That of Cleonice was called up before him, and made to say to him, "When you come to Sparta, you will find a termination to your sufferings." He went thither, still occupied with his plot of betraying his country to the Persians. For this purpose, he carried on a correspondence with Artabazus, a satrap; and all the messengers he sent were put to death, that they might not betray him on their return. It is said that he in vain attempted to engage Themistocles, then an exile, to concur in his measures. Becoming at length impatient, he wrote a peremptory letter to Artabazus, which he committed to one Argilius, his particular favourite. The young man, alarmed by the non-appearance of any former messengers, unsealed the packet; and, finding a direction to put him to death, immediately disclosed the matter to the ephori. In order to obtain a fuller proof against Pausanias, the

the magistrates directed Argilius, as if in fear of his life, to take refuge in the temple of Neptune at Tænarus, causing at the same time a cavity to be dug near the altar, in which some of them lay concealed. Pausanias, hearing of his having taken sanctuary, repaired thither, much disturbed, and asked him the reason of his proceeding. A conversation ensued, which fully assured the ephori of his guilt, and they resolved to apprehend him. Being apprized of their intention, he fled to the temple of Minerva, called Chalciæcus, the inviolable sanctity of which threw them into some perplexity. While they were in doubt what to do, the truly Spartan mother of Pausanias brought a brick, and set it against the door of the temple; her example was followed, till he was completely immured. When he was dead with hunger, his body was brought out, and interred by his friends. In such a wretched manner did this great but vicious man terminate his days, B. C. 474.

After his death there was a festival and solemn games instituted to his honour, in which only free-born Spartans contended. There was also an oration spoken in his praise, in which his actions were celebrated, particularly the battle of Platæa, and the defeat of Marodonius.

PAUSA'NIAS, a Greek topographical writer, flourished in the second century, under Adrian and the Antonines. If he was the same orator or grammarian whom Philostratus records under that name, he was a native of Cæsarea in Cappadocia, and studied under the celebrated Herodes Atticus. His provincial pronunciation impeded his success as a speaker; but he obtained reputation by his compositions. He declaimed both at Athens and Rome, in which last capital he died at an advanced age. From the writings of Pausanias himself we derive very little information concerning his life. He seems to have travelled extensively, and, besides his extant work on Greece, he composed descriptions of Syria and Phœnicia.

The "Description of Greece" by Pausanias, though not a very well-written performance, is highly valuable to the antiquary, and contains much information no where else to be met with. It is a kind of itinerary through Greece, in ten books, in which the author notes every thing remarkable that fell under his observation, such as temples, theatres, sepulchres, statues, paintings, public monuments of all kinds, the sites and dimensions of ruined cities, and the scenes of important transactions. In some parts he gives historical details, and in those, his style, which is ordinarily common and negligent, rises to a degree of dignity. His work abounds with fabulous narrations, but such as were traditionally connected with the places described; whence he does not seem to deserve Julius Scaliger's severe epithet of "Græcolorum omnium mendacissimus." What he himself saw, there is no reason to suppose that he misrepresented. Pausanias was first published from the press of Aldus in 1516 by the care of Marcus Musurus. The best edition has been reckoned that of Joach. Kuhnii, Gr. and Lat. folio, Lips. 1696; but it is probably excelled by the modern one of J. F. Façius, Lips. 1794-97, 4 vols. 8vo. *Vof-fii Hist. Græc.*

PAU'SARY, *f.* [*paufarius*, Lat.] An officer among the Romans, who, in the solemn pomps or processions of the goddess Isis, directed the stops or pauses. In these ceremonies, there were frequent stands, at places prepared for the purpose, wherein the statues of Isis and Anubis were set down; much after the manner of resting-places in the procession of the holy sacrament in the Romish church. From an inscription quoted by Salmasius it appears that the Romans had a kind of college or corporation of *paufaries*.

PAUSARY was also a name given to an officer in the Roman galleys, who gave the signal to the rowers, and marked the times and pauses; to the end they might act in concert, and row all together. This was always done

with a musical instrument. Hyginus says, that in the ship Argo, Orpheus did the office with his lyre.

PAUSE, *f.* [*paufe*, Fr. *pausa*, low Lat. *παυα*, Gr.] A stop; a place or time of intermission.—Our discourse is not kept up in conversation, but falls into more *pauses* and intervals than in our neighbouring countries. *Addison's Spectator*.

What *pause* from woe, what hopes of comfort, bring
The names of wife or great? *Prior*.

Suspense; doubt:

Like a man to double business bound,
I stand in *pause* where I shall first begin,
And both neglect. *Shakespeare's Hamlet*.

Break; paragraph; apparent separation of the parts of a discourse.—He writes with warmth, which usually neglects method, and those partitions and *pauses* which men, educated in the schools, observe. *Locke*.

To PAUSE, *v. n.* To wait; to stop; not to proceed; to forbear for a time, used both of speech and action.—Tarry; *pause* a day or two, before you hazard. *Shakespeare*.

As one who on his journey baits at noon,
Though bent on speed, so here the archangel *paus'd*
Between a world destroy'd and world restor'd. *Milton*.

To deliberate.—Solyman *pausing* a little upon the matter, the heat of his fury being over, suffered himself to be intreated. *Knolles*.

Bear Worcester to death, and Vernon too;
Other offenders we will *pause* upon. *Shakespeare*.

To be intermitted:

What awe did the slow solemn knell inspire,
The pealing organ, and the *pausing* choir,
And the last words, that dust to dust convey'd! *Tickell*.

PAU'SER, *f.* He who pauses; he who deliberates:

The expedition of my violent love
Outruns the *pauser*, reason. *Shakespeare's Macbeth*.

PAU'SIAS, an eminent painter of antiquity, flourished about 350 B. C. He was a native of Sicyon. He was instructed in the branch of painting called encaustic by Pamphilus, and was the first who became famous in it. He was likewise the first who adorned chambers with painted ceilings. He understood the art of fore-shortening, which Pliny describes by saying that, when he wished to give an idea of the length of an ox, he did not, as was the former practice, place it transversely to the eye, but vertically, yet produced the full effect by the disposition of the lights and shades. He seems, also, to have been the first flower-painter; for, having in his youth been enamoured of Glycera, a maker of garlands, he attempted by his art to imitate the beauties of nature which she had afforded, and copied a great variety of flowers. At length he made a portrait of Glycera sitting with a garland, which was one of his most famous performances, and was known by the name of *Stephaneplocos*. He chiefly painted small pieces; one of which, representing a boy, was called *Hemeresios*, as being finished in a single day. He also executed some large works; among which was a sacrifice, in Pompey's portico, containing the figure of the ox above alluded to. He passed his life at Sicyon, which was long regarded as the proper country of painting. The debts of the state having obliged the Sicyonians to sell their pictures, those of Pausias were brought to Rome in the edileship of Scaurus, where, as we learn from a line in the Satires of Horace, they were a great object of admiration to the connoisseurs. *Plinii Hist. Nat. xxxv.*

PAUSIL'IPO, a celebrated mountain and grotto, near the city of Naples. It took its name from a villa of Vedius Pollio, erected in the time of Augustus, and called *Paufilyppam*, from the effect which its beauty was

supposed to produce in "suspending sorrow and anxiety." This mountain is said to be beautiful in the extreme, and to be justly honoured with its appellation, as no scene is better calculated to banish melancholy and exhilarate the mind. The grotto is nearly a mile in length, and is made through the mountain, twenty feet in breadth and thirty in height. On the mountain, Vedius Pollio had not only a villa, but a reservoir or pond, in which he kept a number of lampreys, to which he used to throw such of his slaves as had committed a fault. When he died, he bequeathed, among other parts of his possessions, his villa to Augustus; but this monarch, abhorring a place where so many ill-fated creatures had lost their lives for very slight faults, caused the pond to be filled up, the house to be demolished, and the finest materials in it to be brought to Rome, and with them raised Julia's portico.

Virgil's tomb is said to be above the entrance of the grotto of Pausilipo. A vaulted cell and two modern windows above present themselves to view: the poet's name is the only ornament of the place. No sarcophagus, no urn, and even no inscription, serve to feed the devotion of the classical pilgrim. The epitaph, though, not genuine, is yet ancient; it was inscribed by order of the duke of Peccolungiano, the proprietor of the place, on a marble slab placed in the side of the rock opposite to the entrance of the tomb, where it still remains. It is as follows:

Mantua me genuit, Calabri rapuere, ténet nunc
Parthenope, cecini pascua, rura, duces.

An Italian author, supposed to be Pietro de Stefano, assures us that he himself had seen, about the year 1526, the urn supposed to contain the poet's ashes, standing in the middle of the sepulchre, supported by nine little marble-pillars, with the inscription just quoted on the frieze. He adds, that Robert of Anjou, apprehensive lest such a precious relic should be carried off or destroyed during the wars then raging in the kingdom, took the urn and pillars from the tomb, and deposited them in the Castel Nuovo. This extreme precaution eventually occasioned the loss which it was meant to prevent: for, notwithstanding the most laborious search and frequent inquiries made by the orders of Alphonso of Arragon, they were never more discovered. Some, indeed, have asserted that the tomb just mentioned is not the sepulchre of Virgil: among these we may reckon Cluverius and Addison. The reader will learn with regret that Virgil's tomb, consecrated as it ought to have been to genius and meditation, is sometimes converted into the retreat of assassins, or the lurking-place of sbirri. Few places, however, are in themselves more picturesque; and, from the recollection inseparably interwoven with it, no spot is more interesting. The whole hill of Pausilipo is covered with country-seats and gardens, for summer resort, being protected from the hot south and west. In the middle of the passage is a church or chapel; but the dust raised by the horses and carriages is very offensive.

PAUSINGLY, *adv.* After a pause; by breaks.—This *pausingly* ensued, *Shakespeare's Hen. VIII.*

PAUSUS, *f.* in entomology, a genus of insects of the order coleoptera. Generic characters—Antennæ two-jointed, the upper joint very large, inflexed, hooked, pedicellate; head pointing forwards, with a convex, jugular, triangle; thorax narrow, unequal, scutellate; shells flexile, deflexed, truncate; fore-feet placed at the fore-part of the breast, thighs with minute appendages, the tarsi four-jointed.

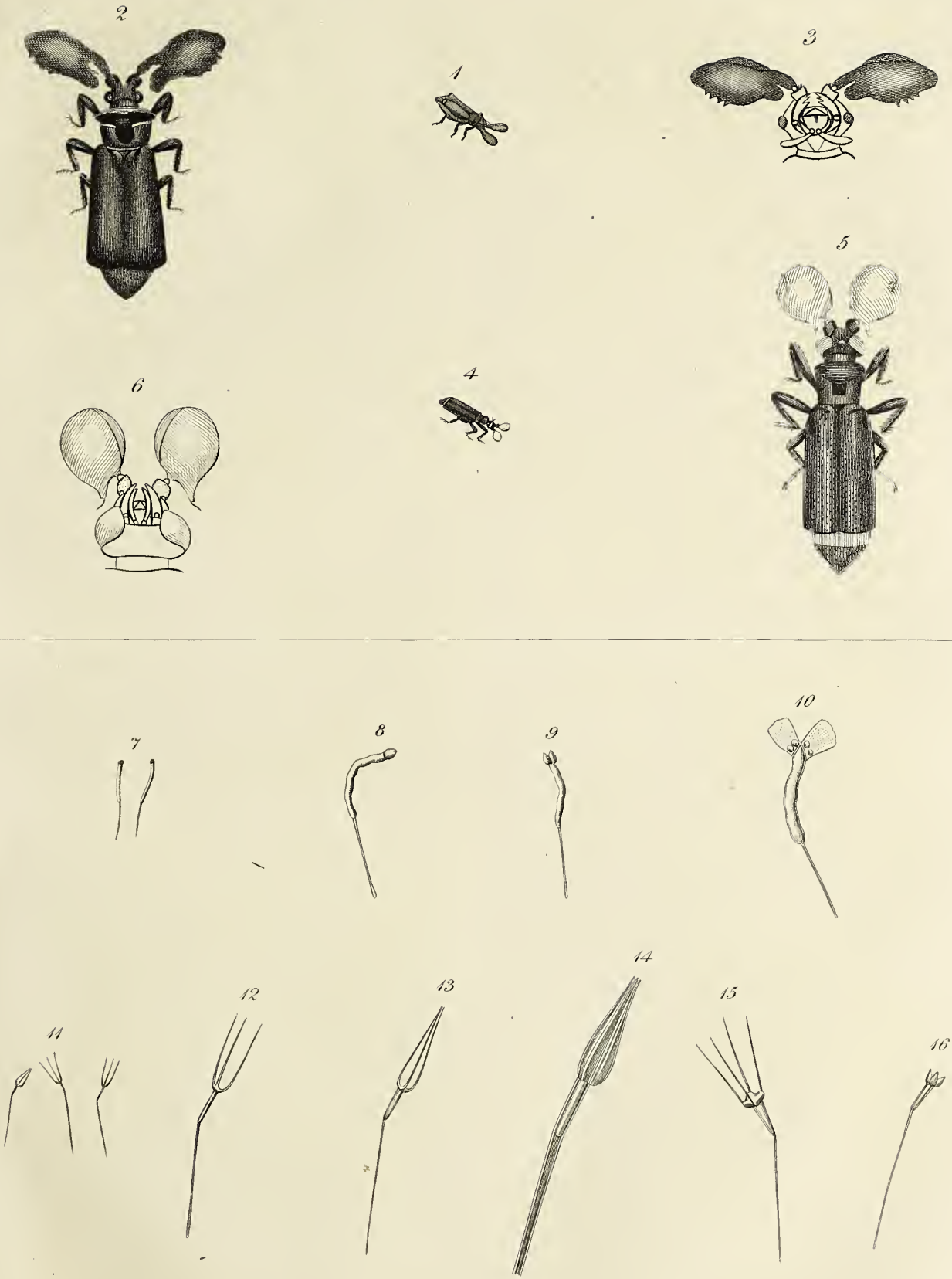
This genus does not exist in the twelfth edition of the *Systema Naturæ*, but made its first appearance in a Dissertation published at Upsal by Linnæus in the year 1775. At that period only one species was known. In the year 1796, Dr. Adam Afzelius, then residing at the British settlement at Sierra Leone, discovered a second, and has described both with elaborate exactness in a paper on this

genus published in the fourth volume of the Transactions of the Linnæan Society of London. The etymology of the name Dr. Afzelius imagines to be from the Greek *παυσις*, signifying "pause, cessation, or rest;" for Linnæus, now old and infirm, and sinking under the weight of age and labour, saw no probability of continuing any longer his career of glory; and so it in reality proved, at least with regard to insects, Pausus being the last he ever described. There are now five species.

1. Pausus microcephalus, the small-headed pausus; the head is uncommonly small, and without horns; the thorax broader than the head, and very uneven, the two parts being entirely separated by a transverse furrow; the foremost division is elevated into a sharp ridge resembling a collar, and the hindmost is depressed or cut out in the middle into a cavity, which is obtuse behind, dilated and deepened before, and encompassed on the sides with diverging and outwardly-declining lobes, being rounded at the top, and provided with shining hairs of a fulvous colour and bent inwards. The elytra are without dots, and rather longer than the abdomen; the under or real wings are footy, and without the least glossiness. The abdomen has the terminal segment very refuse, and the margin of the next before it is visibly raised. The pivots of the antennæ are black, very bright, and at first sight might be easily taken for eyes; the under joint is furnished with a wart on the inner margin of the top, covered with papillary or cartilaginous hairs; the upper joint, or *clava*, is dotted, much larger than the head, and of the shape of an oblong spheroid, being rounded in front and compressed, with the carina raised into a sharp edge, provided on the vertex with four tubercles set in a row and tipped with hairs, and elongated behind into an obtuse tube, laterally compressed, above depressed, and underneath having a knob, which, in moving, touches a bundle of hairs on the top of the under joint: the pedicel is long and crooked, its upper being broader, compressed, and keeled in front. The interior palpi are of a lanceolate-oblong shape, and furnished with very minute hinges. The mandibles have small hinges, and the inferior sheath is much larger than the superior. The hind-legs are a little shorter than the others: the joints of the tarsi are difficultly distinguished. This rare insect is a native of Banana island, and Sierra Leone in Africa. Its colour is a blackish brown. It is represented on the annexed Plate, of the natural size, at fig. 1. magnified at fig. 2. and the head magnified at fig. 3.

2. Pausus sphaerocerus, the horned pausus. Thus described by Dr. Afzelius. "I had been in Africa almost three years before I happened to meet with this remarkable little insect; and then it was quite accidentally. There was a house building for the governor, on an eminence called Thornton Hill at the south end of Free-Town in Sierra Leone; and in the beginning of the year 1795, several apartments having been got ready so as to be habitable, one of them was allotted to me, and I removed into it in the end of the month of January. I had not resided there many days, when one evening, having just lighted my candle and begun to write, I observed something dropping down from the ceiling before me upon the table; which, from its singular appearance, attracted my particular attention. It remained for a little while quite immovable, as if stunned or frightened, but began soon to crawl very slowly and steadily. I then caught it, and, from the remembrance I had of the Linnæan species, I directly took it for a non-descript of this genus. Some few days after, coming into my room from supper, with a light in my hand, and having put it upon the table, there instantly fell another down from the ceiling. The third I was favoured with by the then governor, Mr. Dawes, who informed me that it had dropped down before him on the table, just when he had entered his room, and was going to write. The other three, which I afterwards collected, were also got upon similar occasions; and from thence I thought I had some reason

PAUSUS AND PEDICELLARIA.



1, 2, 3. *Pausus microcephalus*. 4, 5, 6. *P. sphaerocerus*.
7, 8, 9, 10. *Pedicellaria triphylla*. 11 to 16. *P. fridens*.

J. Pass, sc.

to conclude that it is a nocturnal animal, that it becomes benumbed by candle-light, that it lives in wood, and prefers new-built houses, &c. After the end of February, I never saw any more. The last which I caught I put into a box, and left confined there for a day or two. One evening, going to look at it, and happening to stand between the light and the box, so that my shadow fell upon the insect, I observed to my great astonishment the globes of the antennæ, like two lanterns, spreading a dim phosphoric light. This singular phenomenon raised my curiosity; and, after having examined it several times that night, I resolved to repeat my researches the following day; but the animal, being exhausted, died before the morning, and the light disappeared. And afterwards, not being able to find any more specimens, I was prevented from ascertaining the fact by reiterated experiments at different times; which I therefore must recommend to other naturalists who may have an opportunity of visiting Sierra Leone, requesting that they would particularly inquire into this curious circumstance.

"I shall now only add some few remarks, showing in what manner this new species differs from the old one. Not being quite so broad, it looks as if it were longer, and more cylindrical; it is also of a lighter or chestnut colour, and all over very glossy. The head is larger, but its annular base part smaller, and contracted: it is furnished with a little horn in the middle, between the eyes, which is straight, conic, and tipped with a tuft of cartilaginous hairs: the clypeus is only depressed, and the jugular triangle wider: the eyes are large, and very evident; those of the male black, though in a certain light appearing greenish; but those of the female are like pearls, or as if they were covered with a crystalline membrane: the angles of the brim of the socket are small and rounded at the top, and the hinder one lower than the eye. The pivots of the antennæ are not so discernible as in the former species, being like the surrounding parts in colour: the under joint is without any hairy papilla, or wart: the upper joint or clava is of the size of the head, quite globular, and resembles an inflated bladder, being almost pellucid, and of a light flesh-colour: the keel is nothing more than a raised line, finishing on the vertex in only one chestnut-brown tubercle, covered with cartilaginous hairs: behind there is a little conical shining hook, of the same colour and with the same sort of hairs bending outwardly, being of equal length with the horn on the head, but narrower: the pedicle is short, straight, and cylindrical. The interior palpi, furnished with very visible hinges, are a little thicker towards the top, but look in some directions as if they were filiform: the mandibles have large hinges, and the superior sheath almost as long as the inferior one, and nearly cylindrical. The thorax is of the same breadth with the head, and not very uneven, the two parts being separated by a furrow only on the sides and underneath, the foremost above and on the sides resembling an annular segment, and the hinder one impressed in the middle with a mark somewhat like two small diverging wings of a blackish silvery colour. The elytra are shorter than the abdomen, and minutely punctated: the under wings are of a shining and changeable violaceous colour, and not very dark: the abdomen has the terminal segment a little convex, and in the female more so than in the male: underneath, the third and last segments are darker than the others, the legs are all of equal length; the tarsi longer than those of the *Paulus microcephalus*, and have both the joints and the claws much more distinct." Linn. Trans. iv. 243.—This species is shown of the natural size at fig. 4. magnified at fig. 5. the head magnified at fig. 6.

3. *Paulus ruber*, the red paufus: reddish; thorax jagged before. This and the next species inhabit the Cape of Good Hope.

4. *Paulus lineatus*, the lineated paufus: reddish; shells with a brown line. This is supposed to be the *Cerocoma lineata* of Fabricius.

5. *Paulus ruficollis*, the red-necked paufus: black; thorax and streak on the shells ferruginous. Supposed to be the *C. ruficollis* of Fabricius.

PAUTE', a town of South America, in the audience of Quito: twenty-three miles east of Cuença.

PAUTE', or St. YAGO, a river of Peru, which runs into the Maragnon five miles west of St. Francisco de Borja.

PAUTO, a town of New Grenada: twenty-five miles east of Tunja.

PAUTRE (Antony le), an eminent French architect, was born at Paris in 1614. He distinguished himself by his taste in the decoration of buildings, which, though somewhat heavy, was grand and majestic. Several edifices from his designs were erected in the capital and its environs, of which the most noted were the wings and cascade of St. Cloud, the church of the nunnery of Portroyal, and the hotels of Gevres and Beauvais. He was appointed architect to monseigneur, the king's brother, and finally first architect to the king. He was a member of the Academy of Architecture from its first institution; and published a work on that art, entitled, "Les Oeuvres d'Architecture d'Antoine le Pautre," of which the first edition appeared in 1652. He died in 1691.

JOHN LE PAUTRE, the elder brother of the preceding, was an eminent designer and engraver, and understood the decoration of pleasure-houses. His engraved plates amount to 1000, and served for studies to the ablest artists in France. His compositions are overcharged with sculptures and architectural ornaments, which prove that his fertility was superior to his taste. He died in 1682.

PETER LE PAUTRE, born in 1660, was son to the architect. His genius led him to sculpture, which he studied during fourteen years at Rome. On his return he was employed in several public works, of which the most celebrated is a group of Eneas bearing Anchises on his shoulders, and holding Acanius in his hand, which was placed in the garden of the Tuileries. His performances display much fire and imagination, but are sometimes incorrect. He died in 1744, at the age of eighty-four. *D'Argenville, Vies des Architectes et des Sculpteurs.*

PAUTUCK'E, a town of the state of Massachusetts: thirty-three miles south-south-west of Boston.

PAUTUCKET FALLS, a cataract on the river Merrimack.

PAUTUX'ET, a town of Rhode Island: four miles north-east of Providence.

PAUW (N. de), a German canon, distinguished himself by his philosophical writings, of which the principal were "Recherches Philosophiques sur les Americains, les Egyptiens, et les Chinois," in two vols. 1768; and "Recherches Philosophiques sur les Grecs," two vols. 1787, reprinted at Paris in seven volumes, 8vo. "In these works," says his biographer, "there are much learning and ingenuity, but joined with a bold spirit of conjecture, and a disposition to contradict all received notions." They were very popular at the time of their appearance, but have lost a great part of their original reputation. The author was in high reputation with Frederick the Great, as one of the free speculators of the time, and was, of course, obnoxious to the clergy. His private character was excellent. He died at Xanton, near Aix-la-Chapelle, in 1799. Anacharsis Cloots, famous at the commencement of the French revolution, was his nephew.

PAUXIS, a fortress of Brasil, in the government of Para, on the north side of the river Amazon. Lat. 1. 56. S. lon. 58. 10. W.

PAUZEN, a town of Bohemia, in the circle of Boleslau: ten miles east of Jung Buntzel.

PAUZK, PAUTZK, or PUTZIG, a town of Prussian Pomerelia: twenty-four miles north-west of Dantzic. Lat. 54. 30. N. lon. 18. 8. E.

PAW, *f.* [*pawen*, Welsh.] The foot of a beast of prey.

--If

—If lions had been brought up to painting, where you have one lion under the feet of a man, you should have had twenty men under the *paw* of a lion. *L'Esfrange*.

Each claims possession,
For both their *paws* are fastened on the prey. *Dryden*.
Hand. In contempt:

Be civil to the wretch imploring,
And lay your *paws* upon him without roaring. *Dryden*.

To PAW, *v. n.* To draw the fore-foot along the ground.—He [the horse] *paweth* in the valley. *Job*. xxxix. 21.

The fiery courser, when he hears from far,
The sprightly trumpets and the shouts of war,
Pricks up his ears, and, trembling with delight
Shifts place, and *paws*, and hopes the promised fight.
Dryden.

To PAW, *v. a.* To strike with a drawn stroke of the fore-foot:

His hot courser *paw'd* th' Hungarian plain,
And adverse legions stood the shock in vain. *Tickell*.

To handle roughly. To fawn; to flatter. *Ainsworth*.

PAW'AH, a town of Hindoostan, in Bahar: forty miles south-west of Bahar.

PAWA'RAH, a town of Hindoostan: forty-three miles south-west of Benares.

PAW'ED, *adj.* Having paws. Broad or large footed. *Sherwood*.

PAWEN, a small island in the bay of Gunong Tellu, on the east coast of the island of Celebes. Lat. o. 18. S. lon. 122. 2. E.

PAWING, *f.* Handling clumsily; sometimes fondly.

PAWING, or POGUM, a town of East Friesland, near the Ems: thirty-two miles south of Emden.

PAW'KY, *adj.* [from the Sax. *pæcan*, to deceive, according to Dr. Jamieson.] Arch; cunning; artful. North. *Grose*.

PAW'LET, a township of America, in Rutland-county, Vermont, containing 1938 inhabitants. It is watered by Pawlet-river, which joins Wood-creek, and the confluent stream falls into South Bay at Fiddler's Elbow.

PAW'LOCZ, a town of Russian Poland, in the palatinate of Kiev: sixty miles south-west of Kiev, sixty-two north-north-east of Braclaw.

PAWN, *f.* [*pand*, Teut. *pignus*, Lat.] Something given to pledge as a security for money borrowed or promise made.—Her oath for love, her honour's *pawn*. *Shakespeare*.—As for mortgaging and pawning, men will not take *pawns* without use; or they will look for the forfeiture. *Bacon*.—He retains much of his primitive esteem, that abroad his very word will countervail the bond or *pawn* of another. *Howell*.—Here's the very heart and soul, and life-blood, of Gomez; *pawns* in abundance, till the next bribe helps their husbands to redeem them. *Dryden's Span. Friar*.—The state of being pledged.—As the morning dew is a *pawn* of the evening fatness, so, O Lord, let this day's comfort be the earnest of to-morrow's. *Donne*.

Sweet wife, my honour is at *pawn*,
And, but my going, nothing can redeem it. *Shakespeare*.
Redeem from broking *pawn* the blemish'd crown,
Wipe off the dust that hides our sceptre's gilt. *Shakespeare*.

The party that pawns goods hath a general property in them; they cannot be forfeited by the party that hath them in pawn, for any offence of his, nor be taken in execution for his debt; neither may they otherwise be put in execution till the debt for which they are pawned is satisfied.

If the pawn is laid up, and the pawnee robbed, he is not answerable; though if the pawnee use the thing, as a jewel, watch, &c. that will not be the worse for wearing, which he may do, it is at his peril; and, if he is robbed, he is answerable to the owner, as the using occa-

sioned the loss, &c. If the pawn is of such a nature that the keeping is a charge to the pawnee, as a cow, a horse, &c. he may milk the one, and ride the other, and this shall go in recompence for his keeping.

Things which will grow the worse by using, as apparel, &c. he may not use.

PAWN, *f.* A common man at chess; [*péon*, *pion*, French; supposed to be from *peon*, which in India signifies a common soldier. *Todd*.—Rather an abbreviation of *espion*, Fr. a spy; the pawn being sent forward to ascertain the position of the adversary. Thus *pioneer* means, as nearly as possible, *espion*, *espionneur*, being sent before to spy out what obstacles may retard the progress of the main body, and to remove them.]

Here I a *pawn* admire,
That still advancing higher,
At top of all became
Another thing and name. *Cowley*.

To PAWN, *v. a.* To pledge; to give in pledge. It is now seldom used but of pledges given for money.—One part of the nation is *pawned* to the other, with hardly a possibility of being ever redeemed. *Swift*.

She who before had mortgag'd her estate,
And *pawn'd* the last remaining piece of plate. *Dryden*.

PAW'N-BROKER, *f.* One who lends money upon pledge.—The usurers or money-changers were a sort of a scandalous employment at Rome; those money-scriveners seem to have been little better than our *pawn-brokers*. *Arbutnot*.

PAWN-BROKERS are a kind of bankers, who advance money at a peculiar rate of interest, on goods impledged for security of the capital; and, in case of failure to redeem the goods within a limited time, they may be sold to indemnify the lender.

A part of the population of every flourishing country consists of necessitous people, those frequently belonging to a class whose skill contributes to its prosperity; but whose income, often slender and precarious, cannot keep pace with the times, or support the demands of an increasing family. Exposed also to sudden disappointments and losses, they are forced, from the want of pecuniary capital, to seek a temporary relief, by pledging their property for a certain sum, while they pay interest on the advance. But this advance, in general, bears a very inconsiderable proportion to the value of the property, whence its confiscation, by the increasing difficulties of the owner, or of not being claimed on account of death or removal, proves most advantageous to the holder; for, in the one case, he may become the absolute proprietor himself, and, in the other, he secures a high rate of interest originally stipulated. In this point of view, a pawn-broker has an infinite superiority over an ordinary banker, or money-lender: the latter calculates only on the credit of his debtor, which is frequently nominal; the former never makes an advance without being put in possession of what exceeds it in value; his rate of interest is much greater, and the credit of his debtor is of no importance. Nay, it is rather better that his circumstances should be desperate. It thence results, that, like other trades, the number of pawn-brokers will increase with the necessities of the people requiring their aid, and, on that account, giving them employment; just as bankers, whose issues increase when the calls of the public require a more ample supply of a circulating medium. Thus a strong inducement is continually held out to commence the profession of a pawn-broker; for the securities increase in a much greater ratio than the debts, while the latter are void of any risk. We find, in the city of London, that the number of pawn-brokers lately amounted to no less than about 240; and it was calculated, that the property of necessitous persons in their possession, probably amounted to a million sterling. Their numbers also had suddenly augmented, and they are still increasing. In Edinburgh, on the contrary, which is not above a tenth part of the
size

size of the metropolis, there was scarcely one a few years ago, and now the number does not exceed a dozen. Therefore the number is not one half in proportion to the population of the two different places, which indicates fewer necessitous people by a half in Edinburgh; arguing, either that the inhabitants are more industrious and more easily maintained, or less exposed to losses and fluctuations.

But the temptations held out to those who, in this manner, obtain possession of the property of others to such an amount, and with so little reference to its value, combined with the natural propensity of mankind to take advantage of the necessities of their neighbours, long ago rendered legislative interference necessary in regulating the duties and interests of pawnbrokers. Besides, it was of great consequence to check the facilities with which stolen goods might be pledged with, and sold by, them. Omitting, however, the older enactments on these branches, we shall limit ourselves to those of more recent date.

In the first place, it is provided by the stamp-acts, that every pawn-broker is to take out a license on a rol. stamp, to be annually renewed; and a separate license for dealing in plate.

The principal statute relating to pawn-brokers, thus licensed, is the 39, 40, Geo. III. c. 99. by which the following rates of profit are allowed, while regulations are made to prevent oppression. For every pledge upon which there shall have been lent not exceeding 2s. 6d. one halfpenny is allowed as interest, &c. for any time during which the said pledge shall remain in pawn not exceeding one calendar month; and the same for every month afterwards. For 5s. one penny; 7s. 6d. one penny halfpenny; 10s. two-pence; 12s. 6d. two-pence halfpenny; 15s. three-pence; 17s. 6d. three-pence halfpenny; 1l. four-pence; and so on progressively and in proportion for any sum not exceeding 40s. and for any intermediate sum between 2s. 6d. and 40s. at the rate of four-pence for 20s. And for every sum exceeding 40s. and not exceeding 42s. eight-pence; and for every sum exceeding 42s. and not exceeding 10l. at the rate of three-pence, and no more, for the loan of every 20s. of such money lent by the calendar month; and so in proportion for any fractional sum. § 1—3. Now these sums, though apparently inconsiderable, are in fact high per centages, and far surpassing the legal rate of interest; being 20 per cent. when the sum lent does not exceed 40s. and 15 per cent. when it does.

Entries to be made and duplicates given. § 6, 7. Any person fraudulently-pawning the goods of another, and convicted before a justice, shall forfeit from 5l. to 20s. and also the value of the goods pawned, &c. to be ascertained by the justice; and, on failure of payment, may be committed to the house of correction, for not more than three months, and be publicly whipped; the forfeitures, when paid, to be applied towards making satisfaction to the party injured, and defraying the costs: the overplus, if any, to the poor of the parish. § 8. Any person, counterfeiting or altering a duplicate, may be seized and taken before a justice; who is to commit the party to the house of correction, for not more than three months, nor less than one. § 9.

If any person shall offer to pawn any goods, refusing to give a satisfactory account of himself and the goods; or if there shall be reason to suspect that such goods are stolen; or if any person, not entitled, shall attempt to redeem goods pawned; they may be taken before a justice, who shall commit them for further examination; and, if it appears that the goods were stolen, or illegally obtained, or that the person offering to redeem the same has no title or pretence to them; the justice is to commit him to be dealt with according to law, where the nature of the offence shall authorize such commitment by any other law; or otherwise, for not more than three months. § 10.

Persons buying or taking in pledge unfinished goods,

or any linen, &c. entrusted to be washed, shall forfeit double the sum lent, and restore the goods. § 11. A justice may grant a search-warrant; in executing which, a peace-officer may break open doors, and the goods, if found, shall be restored to the owner. § 12, 13.

Pawn-brokers, refusing to deliver up goods pledged within one year, on tender of the money lent, and interest, on conviction, a justice is empowered to commit the offender till the goods be delivered up, or reasonable satisfaction made. § 14.

Persons producing duplicates, are to be deemed owners, unless on notice to the contrary from the real owner. § 15. Duplicates being lost, the owners, on oath before a justice, shall be entitled to another from the pawn-broker. § 16.

By § 17. it is declared, that all goods and chattels which are pawned or pledged, shall be deemed to be forfeited, and may be sold, at the expiration of a year from the date of pawning. But the pledger is, to a certain degree, protected by another clause, prohibiting pawn-brokers from purchasing goods in their own custody. If any sum above ten shillings, and not exceeding ten pounds, has been lent, the goods shall be sold by public auction after expiration of the year, under strict regulations in respect to previous advertisement, and publication of catalogues, specifying, in addition to their description, the month in which they were pledged, as also the name and place of abode of the pawnbroker. But it is provided that pictures, prints, books, bronzes, statues, busts, carvings in ivory and marble, cameos, intaglios, musical, mathematical, and philosophical, instruments, and china, shall be sold only at four times in the year; namely, the first Monday of January, April, July, and October, and on the following day if the number of articles render it necessary. Thus the pledger may redeem his goods at any time within a year, on payment of the statutory profits on the money lent; but, on his failure, they may be sold. Should he give notice to the pawn-broker before the year closes, of his intention to redeem, the sale must be postponed until three months subsequent to its termination. When the sale has actually taken place, the pawn-broker is entitled to appropriate only so much of the price received as shall cover his own advances, the statutory profits, and costs, and must pay the residue to the owner on demand, within *three years*, under high penalties in event of refusal.

It was decided on Jan. 23, 1822. *H. T.* in the court of King's Bench, that in the event of an article pawned not being redeemed within twelve months and a day, the pawn-broker is bound to account, if called upon by the owner, for the difference in its produce, deducting only the sum advanced, the interest, and expenses; and that, *if not actually sold, it may be redeemed after the time mentioned.* *Carter v. Smith.*

Pawn-brokers shall not purchase goods whilst in their custody, or suffer them to be redeemed for that purpose; nor lend money to any person appearing to be under twelve years of age, or intoxicated, or purchase duplicates of other pawnbrokers, or buy any goods before eight in the forenoon, and after seven in the evening; nor receive any goods in pawn before eight in the forenoon, or after eight at night, between Michaelmas and Lady-day; and before seven o'clock in the forenoon, and after nine at night, during the remainder of the year; except till eleven o'clock on the evenings of Saturday, and that preceding Good Friday and Christmas-day; nor carry on the trade on any Sunday, Good Friday, or Christmas-day, or any fast or thanksgiving day. § 20.

Pawn-brokers are to place in their shops a table of rates allowed by this act. § 21. Pawn-broker's christian and fir name, and business, to be written over the door; under a penalty of 10l. half to the informer, and half to the poor. § 23.

Pawn-brokers having sold goods illegally, or having embezzled or injured goods, justices may award reasonable satisfaction

satisfaction to the owners, in case the same shall not amount to the principal and profit; or, if it does, the goods shall be delivered to the owner, without paying any thing, under a penalty of 10*l.* § 24. Pawn-brokers to produce their books before any justice, if required, on a penalty of 10*l.* to 5*l.* § 25.

Penalty on pawn-brokers neglecting to make entry, 10*l.* and for every offence against this act, where no penalty is provided, 40*s.* to 10*l.* half to the informer, the remainder to the poor. § 26. Complaint shall, in all cases, be made within twelve months. § 27.

No person convicted of a fraud or felony may be an informer under this act. § 29. Churchwardens to prosecute for every offence at the expense of the parish, on notice from a justice. § 28.

This act does not extend to persons lending money upon goods at 5 per cent. interest.

This act to extend to the executors, &c. of pawn-brokers and pawners. § 31.

The form of conviction is settled by § 33. and an appeal given to the quarter-sessions by § 35.

However lucrative the business of pawn-brokers may be to those who follow it, doubts are entertained whether the toleration of them be not an evil to the public. They are, indeed, temporarily useful, to persons in the most necessitous circumstances; but, as it is impossible, by any legislative interference, to bring them under that control which would be desirable, as their interests are always at variance with the interests of their employers, and as mankind, under the pressure of necessity, are restrained by no sacrifice in seeking momentary relief, ultimate considerations are too often overlooked. Hence the first resort for aid frequently leads to a second, and then to others successively, while the property originally pledged remains unredeemed, and all the rest belonging to the owner gradually diminishes, till he is left destitute. It is the poor and necessitous only who avail themselves of raising supplies on their goods, to ward off some impending evil, and it is surprising how low such transactions are carried. Nay, the statute itself illustrates the nature of this miserable traffic more forcibly than could be done in other terms. It is enacted, that if, at the period of redeeming the goods impledged, there shall be a certain sum due of interest and profit, of which the lowest denomination shall be a farthing, and the redeemer "shall not be able to produce and pay to the pawn-broker a current farthing, which shall be to the satisfaction and liking of such person or persons as are to receive the same, but shall, in lieu thereof, tender to such person or persons to receive the same, one halfpenny, in order to discharge the said remaining farthing so due, as aforesaid, the said pawn-broker or pawn-brokers, his, her, or their, servant or agent, to whom such tender of a halfpenny shall be made, shall, in exchange thereof, deliver unto such person or persons, so redeeming goods as aforesaid, one good and lawful farthing of the current coin of this kingdom, or, in default thereof, shall wholly abate the said remaining farthing from the total sum to be received" from the redeemer. But it is not only in the view of the indigent yielding to the pressure of necessity, in parting with their property for an inconsiderable value, that society suffers an injury. The thoughtless and depraved here find ready means of gratifying their propensities, by the assistance of the pawn-broker's shop; and thousands part with their apparel and furniture for what is, the next moment, wasted in intoxication. Besides, the facility of obtaining the reception of stolen goods, is attended with the most pernicious consequences, and the most powerful encouragement to theft. Notwithstanding the law anxiously endeavours to secure property to its owners by imposing penalties on those who offer it in pawn, and in ordaining it to be restored by the pawn-broker, cases innumerable may be figured, where the pawn-broker cannot discriminate what is the genuine property of any individual in particular; and where it is not only difficult,

but may prove impossible, to bring an offender to justice. In the year 1817, an association was formed in Edinburgh, for the purpose of aiding those with advice and information who have dealings with pawn-brokers. Its special object is, to warn the ignorant of the laws under which their property is protected.

The banks called *Savings Banks* may probably prove a beneficial substitute for resort to the pawn-broker. Sums amounting to a shilling and upwards are received, and bear interest at 4 per cent. when accumulated to twelve shillings; thus enabling the labourer, or mechanic, or artisan, to preserve the remnant of his weekly wages, and convert it to advantage. Banks of this description are, at the present moment, rapidly disseminating throughout the different parishes and towns of England and Scotland; and their outset has been attended with one decided benefit, in diminishing the resort to alehouses, where the earnings of labour, too small to form an object for preservation, quickly disappeared. In some towns of Italy we have understood there are charitable institutions of a mixed nature between pawn-broking and banking. There, an advance seems to be made on goods impledged at a certain rate of interest by some, and by others money is received and returned, with 7 per cent. at the termination of a year. The transactions of these institutions, however, are not completely explained, either as to the security given or the advantage derived. *Ency. Brit. Suppl. Jacob's Law Dict.*

PAWNE'E, *f.* One to whom something is entrusted as a security for money borrowed.—If the pawn be laid up, and the *pawnee* robbed, he is not answerable. *Littleton's Rep.* 332.

PAWNE'ES, the name of an Indian nation, inhabiting a part of Louisiana, consisting of three villages. The number of warriors is 1993, of women 2170, and of children 2060, according to the statement made in the "Exploratory Travels in North America."

PAWNGAW', a town of Hindoostan, in Dowlatabad; twenty miles east of Perinda.

PAX, PEACE, an allegorical divinity among the ancients. The Athenians raised her a statue, which represented her as holding Plutus the god of wealth in her lap, to intimate that peace gives rise to prosperity and to opulence; and they were the first who erected an altar to her honour after the victories obtained by Timotheus over the Lacedæmonian power, though Plutarch asserts it had been done after the conquests of Cimon over the Persians. Among the Romans, she was worshipped in a variety of magnificent temples. That which was begun by Claudius, and finished by Vespasian, was not inferior to any in Rome. If we may believe Suetonius, Josephus, and St. Jerome, the emperor deposited there the precious and rich spoils of the temple of Jerusalem. In this temple those who professed the fine arts assembled, in order to dispute about their prerogatives, that in the presence of the goddess of peace all heats might be banished from their debates. This goddess had also in the same city an altar, which was very much frequented. Monuments represent to us Peace under the figure of a woman crowned with laurel, olive, or chaplets of roses, holding in one hand the caduceus, and in the other ears of corn, the symbol of plenty, which she procures. Aristophanes gives her Venus and the Graces for her companions.

PAX, *f.* [Lat. peace.] A small metallic plate, commonly of silver, with the representation of the crucifixion engraved upon it, which was kissed by the priest at a certain part of the mass, he repeating at the same time *Pax tecum*, "Peace be with you," and afterwards by the assistants in token of fraternal charity. The word has been often confounded with *pix*.—Innocent the First invented the kissing of the *pax* at mass. *Crowley's Deliberate Answ.* 1588.—Kiss the *pax*, and be quiet like your neighbours. *Chapman's Com. of May-Day*, 1611.

PAX'-WAX. See PACK-WAX, vol. xviii.

PAXA'ROS,

PAXA'ROS, or BIRD ISLAND, a small island near the south coast of Cuba. Lat. 19. 56. N. lon. 78. 24. W.—Also, an island on the coast of California, in the North Pacific Ocean. Lat. 30. 18. N. lon. 120. 45. W.—Also, small islands or rocks in the Pacific ocean, near the coast of Chili. Lat. 29. 40. S.

PAXIMA'DES, an island in the Mediterranean, near the south coast of the island of Candia. Lat. 34. 54. N. lon. 24. 43. E.

PAX'O, an island in the Mediterranean, about seven miles long, and three broad, with a good harbour. Its surface is highly beautiful, much inclosed, and nearly covered with olive-trees. It is one of the Seven Ionian Islands under the protection of Great Britain. See *St. MAURA*, vol. xiv. p. 556.

These islands appear to flourish, though great complaints have been made of mis-government and neglect; for sir Thomas Maitland, the governor, is governor of Malta also. Paxo, we are told, has fifty-six trading vessels, and exported goods to the value of 96,000 dollars in the year 1815; which included 8500 barrels, or 2125 hogheads, of oil. The value of the annual produce of the island was 23,000l. the produce of the taxes was 6957 dollars, the expenditure 6107. There are thirty-six churches, and 3968 inhabitants, the greater part of which are in St. Gago, the capital. It is eight miles south-east of Corfu, the seat of government, and twelve miles west of the coast of Albania. Lat. 39. 21. N. lon. 20. 21. E.—Antipaxo, an inlet five or six miles in circumference, and inhabited by a few fishermen, lies near it.

Goodison's "Historical Essay on the Ionian Islands," just published (Nov. 1822.) states the population of the whole of the islands of this Ionian Republic at 200,000 souls; viz. Corfu and Cephalonia, each about 60,000; Zante, about 35,000; Leucadia, or Santa Maura, 17,000; and the remainder in Paxo, Ithaca, and Cerigo. See also Gen. Vaudoncourt's Mem. of the Ionian Islands, and Dr. Holland's and Mr. Williams's Travels in Greece.

PAX'TON (Upper, Lower, and Middle), three townships in Dauphin county, Pennsylvania: the first contains 2232, the second 2180, and the third, including Swatara, 2998, inhabitants.—Also, a township of Worcester county, Massachusetts; eight miles west of Worcester, incorporated in 1765, and containing 619 inhabitants.—Also, a township of Ohio, in Ross-county, with 661 inhabitants.

To PAY, *v. a.* [*paier*, Fr. *apagar*, Span. *pagare*, Ital.] To discharge a debt. It is applied to debts of duty, as well as debts of commerce.—She does what she will, say what she will, take all, *pay* all. *Shakespeare, M. W. of Windsor*.—An hundred talents of silver did the children of Ammon *pay*. 2 *Chron.* xxvii. 5.—I have peace-offerings with me; this day have I *paid* my vows. *Prov.* vii. 14.

Your son has *paid* a soldier's debt;
He only liv'd but till he was a man.

Shakespeare.

It is opposed to *borrow*.—The wicked borroweth, and *payeth* not again. *Psalms*.—To dismiss one to whom any thing is due with his money: as, He had *paid* his labourers.—To atone; to make amends by suffering: with *for* before the cause of payment.—Men of parts, who were to act according to the result of their debates, and often *pay* for their mistakes with their heads, found those scholastic forms of little use to discover truth. *Locke*.

Bold Prometheus, whose untam'd desire
Rivall'd the sun with his own heav'nly fire,
Now doom'd the Scythian vulture's endless prey,
Severely *pays* for animating clay. *Roscommon.*

To beat.—I follow'd me close, and, with a thought,
Seven of the eleven I *paid*. *Shakespeare's Henry IV.*

Forty things more, my friends, which you know true,
For which, or pay me quick, or I'll *pay* you. *B. Jonson.*

To reward; to recompense:

She I love, or laughs at all my pain,
Or knows her worth too well, and *pays* me with disdain.
Dryden, Kn. Tale.

To give the equivalent for any thing bought.—Riches are got by consuming less of foreign commodities than what by commodities or labour is *paid* for. *Locke*.—It is very possible for a man that lives by cheating, to be very punctual in *paying* for what he buys; but then every one is assured that he does not do so out of any principle of true honesty. *Law*.—[In naval language.] To smear the surfaces of any thing with pitch, resin, turpentine, tallow, and the like.

PAY, *f.* Wages; hire; money given in return for service.—The soldier is willing to be converted, for there is neither *pay* nor plunder to be got. *L'Estrange*.

Come on, brave soldiers, doubt not of the day;
And, that once gotten, doubt not of large *pay*. *Shakespeare.*

PAY'-DAY, *f.* Day on which debts are to be discharged or wages paid.—Labourers pay away all their wages, and live upon trust till next *pay-day*. *Locke*.

PAY-HO', or PEI-HO, a river of China, which rises in the north part of the province of Pe-che-li, and runs into the gulf of Leao-tong in lat. 39. 3. N.

PAY-HOU', a lake of China, in Pe-tche-li: 140 miles south of Peking.

PAY'-MASTER, *f.* One who is to pay; one from whom wages or reward is received. If we desire that God should approve us, it is a sign we do his work, and expect him our *pay-master*. *Bp. Taylor*.

PAY'A, a town of South-America, in the province of Darien: thirty miles east of St. Marie de Darien.

PAY'ABLE, *adj.* Due; to be paid.—The marriage-money, the prince's brought, was *payable* ten days after the solemnization. *Bacon's Henry VII.*—Such as there is power to pay.—To repay, by a return equivalent, is not in every one's power; but thanks are a tribute *payable* by the poorest. *South*.

PAYASAL, See REMEDIOS.

PAY'AS, See PAIAS.

PAY'E'E, *f.* in commerce, the person to whom a bill is made payable.

PAY'ER, *f.* One that pays.—Ingrateful *payer* of my industries. *Beaumont and Fl. Kn. of Malta.*

PAYER'NE, a town of Switzerland, in the canton of Berne, formerly an imperial town under the protection of the dukes of Savoy. It submitted to Berne in the year 1536, and is governed by its own magistrates: twenty-two miles south-west of Berne. Lat. 46. 51. N. lon. 6. 44. E.

PAY'ERSDORFF, a town of Germany, in the margravate of Bayreuth. Near it is a castle, built of stone, in a state of decay. This town and castle were taken by the Swedes under Gustavus Adolphus.

PAYJAN', a town of Peru, in the diocese of Truxillo: fifteen miles north of Truxillo.

PAY'ING, *f.* The act of discharging a debt; the act or process of daubing any thing with some unctuous matter in order to preserve it; a severe chastisement.

PAY'MENT, *f.* The act of paying.—Persons of eminent virtue, when advanced, are less envied, for their fortune seemeth but due unto them; and no man envieth the *payment* of a debt. *Bacon*.—The thing given in discharge of debt or promise:

Commits his body
To painful labour both by sea and land,
And craves no other tribute at thy hands
But love, fair looks, and true obedience;
Too little *payment* for so great a debt. *Shakespeare.*

A reward.—The wages that sin bargains with the sinner, are life, pleasure, and profit; but the wages it pays him with, are death, torment, and destruction: he that would understand the falsehood and deceit of sin thoroughly, must

must compare its promises and its *payments* together. *South.*

Give her an hundred marks.
—An hundred marks! by this light I'll ha' more.
An ordinary groom is for such *payment*. *Shakespeare.*

Chastisement; sound beating. *Ainsworth.*

PAYMO'GO, a fort of Portugal in Estramadura, on the sea-coast: four miles south-south-east of Peniche.

PAYMO'GO, a town of Spain, in the province of Seville, on the frontiers of Portugal: thirty-five miles north of Ayamonte.

PAYNE (John), an English engraver of merit, the pupil of Simon Passe, born in London about the year 1607. Mr. Landseer says, that "Payne had caught the mantle of the Passes." Strutt says of him that he was a man of genius; and, though his works are not very numerous, they nevertheless manifest his superior abilities. He was recommended to Charles I. and had a fair prospect of making his fortune; but, carelefs of that as he was of his fame, he neglected his business, and died in indigence, anno 1647 or 48, before he had reached his 40th year. His chief engravings consist of frontispieces and other book-plates, and portraits; but he also engraved a variety of other subjects, such as landscapes, flowers, &c. His portraits, however, are his best works. Those he executed entirely with the graver in a free open style, so managed as to produce a very pleasing effect. Mr. Evelyn; speaking of this artist commends him also for a ship which he engraved. This ship, as Vertue informs us, was the Royal Sovereign, built by Phineas Pett. The print was of a prodigious size, and engraved on two plates, being, when joined, three feet long by two feet two inches wide.

PAYNE (Roger), a very eminent book-binder, was born in London, but in what year we are not informed. This ingenious man introduced a style of binding, uniting elegance with durability, such as no person has ever been able to imitate. He may be ranked, indeed, among artists of the greatest merit. The ornaments he employed were chosen with a classical taste, and, in many instances, appropriated to the subject of the work, or the age and time of the author; and each book of his binding was accompanied by a written description of the ornaments, in a most precise and curious style. His chef d'œuvre is his *Zephyrus*, in the possession of earl Spencer, the ornaments and decorations of which are most splendid and classical. The binding of the book cost the noble earl fifteen guineas. Those who are not accustomed to see book-binding executed in any other than the common manner, can have no idea of the merits of the deceased, who lived without a rival, and, we fear, has died without a successor. He died, in great poverty, in Duke's court, St. Martin's lane, Oct. 20, 1797; and was buried at the expense of his namesake Payne the bookseller at the Mews-gate; and to whom, in a great measure, the admirers of this ingenious man's performances may feel themselves indebted for the prolongation of his life; having for the last eight years provided him with a regular pecuniary assistance, both for the support of his body and the performance of his work. For this ingenious artist had no command of himself: when in possession of a few pounds, he would live jovially; when that was exhausted, almost famishing. *Gent. Mag.* Dec. 1797.

PAYNE (Thomas). See PAINE, vol. xviii.

PAYNESVILLE, a town of the state of Ohio, on Lake Erie.

PAY'NIM. See PAINIM, vol. xviii.

PAY'O (St.), a town of Portugal, in the province of Tras los Montes: eighteen miles west of Mirand-eduero.

PAY'RA, a town of South America, in the province of Quito: twelve miles north-west of Macas.

PAYRAC', a town of France, in the department of the Lot, and chief place of a canton, in the district of

Gourdon. The place contains 902, and the canton 5171, inhabitants.

PAYRE', a town of France, in the department of the Gers: three miles south of Auch.

PAYRO'LA, *f.* [contracted by Jussieu from *Paypayrola* of Aublet, its Caribbean name.] In botany, a genus of the class pentandria, order monogynia. Generic characters—Calyx: perianthium inferior, of one leaf, cloven into five roundish acute segments. Corolla: petals five, oblong, narrow, erect, united together, so as to resemble a tube, their tops reflexed; one larger, emarginate, inserted into the disk beneath the germen. Stamina: filaments five, erect, inserted into the disk; antheræ oblong, combined, two-celled. Pistillum: germen superior, placed on the disk; style elongated, stigma two-lobed. Aublet remarks that he never saw the fruit of this plant in its perfect state; but from an imperfect one, which he cut in halves, it appeared to have two cells.—*Essential Character.* Calyx inferior, five cleft; petals five, forming a tube, reflexed at their summit. Stigma two-lobed.

Payrola guianensis, the only species. Native of woods in Guiana, about Sinemari, upwards of twenty miles from the sea. It flowers in October. This is a shrub from twelve to fifteen feet in height; stem upright and branched; leaves alternate, stalked, large, ovate, acute, smooth, entire. Flowers spiked, axillary terminal, yellow, each furnished with three glands at its base. *Aublet's Guiana*, i. 249.

PAYS (René le), a writer of celebrity, born at Nantz in 1636, was brought up to business, and obtained the post of director-general of the gabelles in Dauphiné and Provence. He was first known in the literary world in 1685, by a little production in verse and prose, entitled, "Amitiés, Amours, et Amourettes," which was read with great avidity at Paris. It is said that, in answer to some enquiries made by ladies as to his person, he addressed to the duchess of Nemours a "Portrait" of himself, written in the same style. He professed to imitate Voiture, but was severely criticised by Boileau as a very inferior writer. Le Pays, however, instead of being offended with the satire, paid a visit to the poet, and obtained his friendship. He published letters, which prove that he had visited England and Holland. He was honoured by the duke of Savoy with the knighthood of St. Michael, and was an associate of the academy of Arles. He died in 1690, at the age of fifty-four.

To PAYSE, *v. n.* [used by Spenser for *poise*. Fr. *peser*. See To PEISE.] To balance:

Ne was it island then, ne was it *pays'd*

Amid the ocean waves.

Fairy Queen.

PAY'SER, *f.* [for *poiser*.] One that weighs.—To manage this coinage, porters bear the tin, *payzers* weigh it, a steward, comptroller, and receiver, keep the account. *Carew.*

PAY'TA, or St. MICHEL DE PAYTA, a town of Peru, in the diocese of Truxillo, founded by Francis Pizarro in the year 1531. It is small, consisting of houses which are only ground-floors, the walls of split canes and mud, and covered with leaves. These edifices, though extremely slight, are abundantly sufficient for a climate where rain is considered as a prodigy, and is not seen in many years; so that, a small quantity falling here in 1728, great part of the buildings were ruined; the walls as it were melting away before it. The only house built of stone in the whole place, is that of the governor. It has a parish-church and chapel, dedicated to Our Lady of Mercy, and served by a religious of that order.

The inhabitants of Payta are Spaniards, Mulattoes, and Mestizoes, who live chiefly by passengers going or returning from Panama to Lima, the number of whites being inconsiderable; all of them constituting but one street, and about 172 houses. The port, though little more than a bay, is esteemed the best on the coast, and affords

affords a secure anchoring-place. This is the only place where ships from Acapulco, Sonsonate, Panama, &c. can touch in their passage to Callao. The voyage is long and tedious, on account of contrary winds, rains, and shifting currents: so that, though the distance, according to the latitude of these parts, is only 140 leagues, a ship is very fortunate in performing it in forty or fifty days, and in not being obliged to return to Payta. Southward of the town is a mountain, called from its figure *Silla de Payta*, or the Saddle of Payta. The soil round the town is wholly sandy, and very barren: for, besides the total want of rain, it has not a single river for the conveyance of water, of which it would be entirely destitute, if it were not supplied every day with great fatigue from Colan, a town on the same bay, four leagues north, near which runs the river Chera, which waters Amotape. The Indians of Colan are obliged to send daily to Payta one or two balzes, or floats, loaded with water, which is distributed in stated proportions among the inhabitants. Payta has also the greatest part of its provisions from the same town. The nature of the soil, and the situation of the place, render it extremely hot. The town owes its whole support to the harbour, which is the place, as we have already intimated, where the cargoes of goods sent from Panama are landed, together with those coming from Callao to the jurisdictions of Piara and Loja. In the bay of Payta, and also that of Sechura, little farther to the south, there is an ample fishery, in which the Indians of Colan, Sechura, and the small hamlets near the coast, are constantly employed. The whole defence of the town consists in a small fort encompassed by a brick wall, and mounted by about eight pieces of cannon; but it has neither ditch nor outwork. It has been often taken by the English; and particularly in 1741 by the squadron of commodore Anson, when it was pillaged and burnt. Lat. 5. 10. S. lon. 81. 6. W.

PAYTOLLE'E, a town of Hindoostan, in Rohilcund: seven miles east of Bissowie.

PAZ (La), a province and diocese of Peru, belonging however to the vice-royalty of Buenos Ayres. This diocese contains six jurisdictions; viz. La Paz, Omafuyos, Pacajas, Laricaxas, Chicuito, and Paucar-colla; which see respectively. The jurisdiction of La Paz is of no great extent; and the city is almost the only place in it that is worthy of any notice. In the adjacent cordillera is a high mountain, called Illimani, which is supposed to contain immense riches; but, its summit being perpetually covered with ice and snow, no mine has been opened in this mountain. The province was formerly known by the name of *Chuquiayapu*, which in the idiom of that country, is commonly thought to signify "an inheritance of gold."

PAZ (La), a considerable city, and capital of the above province, having, according to Helms, more than 4000 hearths, or 20,000 inhabitants. It is an elegant and clean town, chiefly trading in the noted tea of Paraguay. The province was first conquered by Mayta-Capac, the fourth inca; and, the Spaniards having afterwards taken possession of it, this city was founded by Pedro de la Gasca, in order to secure a settlement of Spaniards, in the extensive interval of 170 leagues between Arequipa and Plata, for the improvement of commerce, and the convenience and safety of the traders. Its situation was selected in a valley called Las Pacafas, in October 1548, as a place abounding in grain and cattle, and full of Indians. Along the valley of La Paz flows a pretty large river, occasionally much increased by torrents from the Cordillera, about twelve leagues distant from the city; but, from its vicinity, a great part of the country is exposed to so cold an air, that hard frosts, snow, and hail, are not uncommon; but the city itself is secured from them by its happy situation. Other parts are so well sheltered, that they produce all the vegetables of a hot climate, as sugar-canes, cocoa, maize, and the like. In the mountainous parts are large woods of valuable timber,

VOL. XIX. No. 1314.

but infested with bears, tigers, and leopards, with a few deer; while on the heaths are found guanacos, vicunas, and glamas, with a great number of cattle of the European species. The city stands on unequal ground, among the branches of the Cordillera, and is surrounded by mountains. When the river in its vicinity is increased, either by rains or by the melting of the snow on the mountain, its current forces along large masses of rocks, with some grains of gold, which are found after the flood has subsided, and from which some idea may be formed of the riches inclosed in the bowels of these mountains. In the year 1730, an Indian accidentally discovered a lump of gold of so large a size, that the marquis de Castell Fuerte gave 12,000 pieces of eight for it, and sent it to Spain as a present worthy of his sovereign. Besides the cathedral and the parish-church, there are three others; and also religious fraternities of Franciscans, Dominicans, Augustines, the Fathers of Mercy, a college of Jesuits, and a convent and hospital, together with two nunneries. Here is also a college of St. Jerome, for the education of youth, whether designed for civil or ecclesiastical employments. It is 120 miles east-fourth-east of Arequipa. Lat. 17. 15. S. lon. 68. 36. W.

PAZ (James-Alvarez de), a Spanish Jesuit, was born at Toledo in the year 1560. After having been taught the classics and philosophy, at the age of eighteen he commenced his noviciate among the Jesuits, and soon distinguished himself by the composition of pious meditations, on which his tutors bestowed warm approbation. He went through his theological course at Alcala, and was afterwards sent by his superiors to Peru. Here he occupied successively the chairs of philosophy and divinity at Lima, with the highest applause, sedulously devoting the hours not demanded by his professional duties to divine contemplation, and the composition of those works which were from time to time given to the public. From Lima he was sent to preside as rector of the society's college at Quito; whence he was transferred to the same post at Cusco. Afterwards he filled the high office of provincial of Peru during six years. While he was visiting the different establishments belonging to the order in this capacity, he was seized with a mortal illness at Potosi, which carried him off in 1620, when about sixty years of age. He is highly panegyrized by his biographers, as having exhibited an illustrious example of all the Christian virtues, and uniformly practised that rigid mortification and self-denial to which the Catholics ascribe exalted merit. His works are written in Latin; but they have been translated into many of the European languages, and are held in high estimation. Their titles are, 1. *De Vita Spirituali, ejusque Perfectione*, lib. ix. 1608, folio; a Compendium of which was digested by a priest of Bois-le-duc, and printed in 1620, 8vo. 2. *De Exterminatione Mali, et Promotione Boni*, Lib. v. 1614, folio. 3. *De Inquisitione Pacis, sive Studio Orationis*, Lib. v. 1617, folio. And the following, prefixed to pieces extracted and condensed from the author's larger works: 4. *De Vita religiosa instituta, sive de quotidiana Virtutum Exercitatione*, 1613, 12mo. afterwards revised, and enlarged by the author into two volumes, 8vo. 5. *Meditationes tripartitæ*, 1620, 4to. 6. *De Humilitate, Virtutum omnium Fundamento*. 7. *De Virtutum Adeptione*. *Sotwell's Bibl. Script. Soc. Jesu.*

PAZA'RO, a cape of North America, on the west side of the peninsula of California, near to the south end of it; in about lat. 24. N. and lon. 113. W.

PAZMA'NI (Peter), a celebrated Hungarian cardinal, was descended from a noble Transylvanian family, and born at Great-Waradin in Hungary, but in what year we are not informed. He entered the order of Jesuits in the year 1587, and distinguished himself by the progress which he made in the different branches of literature, sacred and profane. In the year 1607, he was selected, on account of his superior acquirements, to be

professor of philosophy, and afterwards of divinity, at the college of Gratz, in Styria, in which posts he acquitted himself with universal satisfaction and applause. Afterwards he devoted himself to missions in different parts of the kingdom, and is said to have had great success in opposing the progress of the reformed opinions, and in bringing back many wanderers to the fold of the catholic church. By his zeal and activity he so powerfully recommended himself to the emperor Matthias, and the principal Hungarian nobility, that, upon a vacancy taking place in the archiepiscopal see of Gran, or Strigonia, he was nominated to that station, and by the command of the pope, against his own inclination, obliged to accept it. Being by this appointment primate of the kingdom, he assiduously exerted himself in establishing a strict discipline, and correcting the relaxed manners of the Hungarian clergy. For the encouragement of literature, he also founded colleges at Presburg, Posen, and other places. In the year 1629, at the solicitation of the emperor Ferdinand II. pope Urban VIII. promoted him to the purple: by the same prince he was afterwards sent ambassador to the court of Rome. He died at Posen in 1637, when on his journey towards Vienna, to attend the councils of the emperor Ferdinand III. He published, 1. Acta et Decreta Synodi Diœcesanæ Strygoniensis, celebratæ Tyrnauicæ, 1629, 4to. which will be useful to the ecclesiastical historian. 2. Sermons on the Gospels for all the Sundays, and several of the Festivals, throughout the Year, 1636, folio, in the Hungarian language. 3. A Collection of Prayers, 8vo. in the same language, which has undergone numerous impressions; and a multitude of doctrinal, practical, and controversial, treatises, in Hungarian and Latin, of which a long list is given in Sotvelli Bibl. Script. Soc. Jesu. *Gen. Biog.*

PAZZANO, a town of Naples, in Calabria Ultra: nineteen miles north-north-east of Gierace.

PE-CHOU'I, a town of China, of the third rank, in Chen-si: twenty-five miles north-west of Tong.

PE-HING', a town of China, of the third rank, in Chan-tong: twenty miles east-south-east of Pin.

PE-HO, a town of China, of the third rank, in Chen-si, on the Han river: thirty-seven miles east of Hing-ngan.

PE-KIANG', a river of China, which rises near Nanyang, in the north part of the province of Quantong, and runs into the river of Canton thirty miles below Canton.

PEA, *f.* [*pisum*, Lat. *piso*, Ital. *pira*, Sax. *pois*, Fr.] See *PISUM*.—A pea hath a papilionaceous flower, and out of his empalement rises the pointal, which becomes a long pod full of roundish seeds; the stalks are fistulous and weak, and seem to perforate the leaves by which they are embraced; the other leaves grow by pairs along the midrib, ending in a tendril. *Miller*.—The plural is *pease*, formerly *peafon*, which however is still spoken in several parts of England.—*Pease*, deprived of any aromatic parts, are mild and demulcent; but, being full of aerial particles, are flatulent. *Arbuthnot*.

Sow *peafon* and beans in the wane of the moon; Who soweth them sooner, he soweth too soone. *Tusser*.

Pease was formerly used as the singular number.—The vaunting poets found nought worth a *pease*. *Spenser's Shep. Cal. Oct.*—A bit of marmalade, no bigger than a *pease*. *Beaum. and Fl. Doub. Marriage*.

PEA, Everlasting. See LATHYRUS.

—, Heart. See CARDIOSPERMUM.

—, Pigeon. See CYTISUS.

—, Sweet. See LATHYRUS.

—, Wing. See LOTUS.

PE'A-STONE, in mineralogy. See PISOLITHUS.

PEACE, *f.* [*paix*, Fr. *pax*, Lat.] Respite from war.—Preserve us in *peace*; so preserve us in *peace*, that war may be always more odious to us than necessity. *Holyday*.
The Dane and Swede, rouz'd up to fierce alarms,
Bless the wife conduct of her pious arms;

Soon as her fleets appear, their terrours cease,
And all the northern world lies hush'd in *peace*. *Addison*.

Quiet from suits or disturbances.—The king gave judgment against Warren, and commanded that Sherborn should hold his land in *peace*. *Davies*.—Rest from any commotion. Stillness from riots or tumults.—All assembled here in arms against God's *peace* and the king's, we charge you to repair to your dwelling-places. *Shakespeare*.—Shallow, you have yourself been a great fighter, though now a man of *peace*. *Shakespeare's M. W. of Windsor*.—Reconciliation of differences.—Let him make *peace* with me. *Ishiah*, xxvii. 5.—State not hostile.—If I have rewarded evil unto him that was at *peace* with me, let the enemy persecute my foul. *Psalms* vii. 4.—Seldom used in the plural.—There be two false *peaces* or unities: the one grounded upon an implicit ignorance. *Bacon*.—Rest; quiet; content; freedom from terror; heavenly rest.—*Peace* be unto thee; fear not, thou shalt not die. *Judges* vi. 23.—The God of hope fill you with all joy and *peace* in believing, that you may abound in hope. *Rom.* xv. 13.—Religion directs us rather to secure inward *peace* than outward ease, to be more careful to avoid everlasting torment than light afflictions. *Tillotson*.—Silence; suppression of the thoughts.—In an examination, a freed servant, who had much power with Claudius, very faulcily had almost all the words; and, amongst other things, he asked in scorn one of the examiners, who was a freed servant of Scribonianus; I pray, sir, if Scribonianus had been emperor, what would you have done? he answered, I would have stood behind his chair and held my *peace*. *Bacon*.

'Twill out. I *peace*!

No, I will speak as liberal as the air. *Shakespeare*.

She said; and held her *peace*: Æneas went
Sad from the cave.

Dryden.

PEACE, in its general signification, stands in opposition to *war*. The right of making war and peace is one of the prerogatives of the king. In order to make a war completely effectual, it is necessary with us in England, that it be publicly declared, and duly proclaimed by the king's authority; and then all parts of both the contending nations, from the highest to the lowest, are bound by it. And, wherever the right resides of beginning a national war, there also must reside the right of ending it, or the power of making peace.

Peace is that desirable state, in which every one quietly enjoys his rights, or, if controverted, they are discussed with mildness and argument. Hobbes has dared to say that *war* is the natural state of man. But surely, if, by natural state of man, we understand that to which he is destined and called by his nature, *peace* should much rather be termed his natural state; for a rational being should terminate his differences by rational methods; whereas to decide them by force is proper to beasts. Man alone, and destitute of succour, would necessarily be very miserable; without commerce and the assistance of his species, he could have no enjoyment of his life; he could neither display his faculties, nor live in a manner suitable to his nature: these particulars are only to be found in peace. It is therefore only in this desirable state that men regard, succour, and love, each other: this is so happy a condition, that they would never quit it were they not blinded by the impetuosity of passion, and the gross deceptions of self-love. The various calamities attending war are at present too well known, from sad experience, in many parts of Europe; and it is a melancholy consideration, that the injustice of the wicked should so often render it inevitable.

Nations, truly humane, who have a proper sense of their duty, and understand their true and substantial interests, will never pursue their advantage to the detriment of another. However intent they may be on their own happiness, they will take care to unite it with that

of others, and to found it on justice and equity. Thus disposed, they will necessarily cultivate peace; for, if they do not live peaceably together, how can they perform those mutual and sacred duties which nature enjoins them? And this state is found to be no less necessary to their happiness, than the discharge of their duties. So that the law of nature every way obliges them to seek and cultivate peace.

This obligation of cultivating peace is a double tie. A king owes this care to his people, on whom war draws a multitude of evils; and this care is due to them in the most strict and indispensable manner; government being committed to him only for the advantage of the nation. This peace, so propitious to mankind, a nation or a sovereign should not only avoid disturbing; they should also promote it to the utmost of their power, dissuade others from breaking it without necessity, exhort them to a love of justice, equity, and public tranquillity, to a love of peace. It is one of the best offices possible to be performed to nations, nay to the whole world. What a glorious appellation is that of peace-maker! Were a powerful prince rightly acquainted with the advantages of it; did he represent to himself the splendid glory this endearing character offers him, with the gratitude, the love, the veneration, the confidence, of nations enjoying happiness under his auspices; did he know what it is to reign over hearts, he would become the benefactor, the friend, the father, of mankind; and in being so he would experience infinitely more delight than in the greatest conquests.

The most glorious period in the life of Augustus, was, when he shut the temple of Janus, adjusted the disputes of kings and nations, and gave peace to the world. Here he appears the greatest of mortals, almost divine.

But those disturbers of the public peace, those scourges of the earth, who, swayed by a lawless thirst of power, or a haughty and savage disposition, take up arms without justice or reason, who sport with the quiet of mankind, and the blood of their subjects; those false heroes, however deified by the injudicious admiration of the vulgar, are in effect the worst of enemies to their species, and deserve to be treated as foes to the happiness and repose of mankind. Experience, that unerring touchstone of truth, shows how very calamitous war is, even among nations not immediately engaged in it. War disturbs commerce, destroys the properties of men, raises the value of the necessaries of life, spreads frightful alarms, obliges all nations to be upon their guard, and to keep up, at a great expense, an armed force. He, therefore, that breaks a peace without cause, or merely to satisfy his pride and boundless ambition, necessarily injures those kingdoms which are the objects of his arms; and by this pernicious example essentially attacks the happiness and safety of every nation on the earth. He gives them a right to join in repressing, chastising, and depriving him of a power, which he has so shamefully abused. What evils does he not bring on his own nation, lavishing its blood to gratify his exorbitant passions, and exposing it to the resentment of confederate enemies! A famous warrior at the end of the last and beginning of the present century has rendered his memory odious by involving the nation he governed in continual wars, without either justice or necessity: if by his abilities and indefatigable application he procured distinguished successes in the field of battle, he drew on himself the execration of all Europe, and at length his own downfall.

Peace Societies.—The United States of America enjoy the honour of having been the first of the nations of the earth who founded an organized Society for the propagation of pacific principles. There are now, at least, five of such institutions in that country, most of them having their affiliated branches: of these the most important are the New York (which takes precedence of all others, with regard to priority of formation, having been established in August 1815), the Ohio, and the Massachusetts,

Peace Societies. The last named one consists of upwards of 400 members, among whom are one of the former presidents of the United States, several members of the legislature, and respectable judges of their courts, the chief justice of their supreme court, two of the former governors, and about ninety ministers of religion; the lieutenant-governor of the state is president of their society. Indeed on the American continent the cause of peace has been successfully advocated, both from the pulpit and the press; and the friends of peace-societies are in consequence rapidly multiplying there.

Turn we now from America to our own country. "A Society for the Promotion of permanent and universal Peace" was established in London in the year 1816. The object of it is to print and circulate tracts, and to diffuse information tending to show that war is inconsistent with the spirit of Christianity, and the true interests of mankind, and to point out the means best calculated to maintain permanent and universal peace upon the basis of Christian principles. The Society consists of persons of every denomination, who are desirous of uniting in the promotion of "Peace on earth, and good-will towards men." Subscribers are entitled to receive half the amount of their subscriptions in Tracts. The committee consists of individuals whose principles on the subject of war are in strict accordance with those on which the Society is founded. Among these we need only mention that eminent philanthropist Thomas Clarkson, the zealous co-operator with Mr. Wilberforce in the abolition of the slave-trade. A considerable number of cheap but neatly-printed tracts have been circulated, expressive of the opinions of the society, on the momentous subject of the unlawfulness of war, upon Christian principles, and to point out the means best calculated to maintain permanent and universal peace.

Ten auxiliary societies had been reported at the close of 1820. The number of tracts printed in the first year was 48,000, in the second 128,000.

Consistently with that respect which is at all times due to the constituted authorities of the country, the Committee, in 1818, presented an Address with a Set of the Society's publications to his majesty, during his late regency, through the hands of lord Sidmouth, minister for the home department. Addresses were likewise presented, through the means of Mr. Clarkson, at Aix la Chapelle, to the allied sovereigns in congress, and also to his majesty Alexander emperor of Russia. It does not appear that the society received any answer from the prince regent; but the answer from the emperor was so much in unison with the views of the Society, that we cannot forbear transcribing it in this place.

Aix la Chapelle, the 6th—18th Oct. 1818.

"I received, sir, with satisfaction, the communications of a society established upon principles conducive to permanent and universal peace. The mixture of good and evil observable in recent events, has exemplified in a signal manner the discriminating dispensation of Divine Providence in mercy and judgment. As a Christian, I cannot but desire the establishment of peace on earth by every lawful and practicable means. As a Christian sovereign, I must anticipate a time when *nation shall not lift up sword against nation, neither shall they learn war any more.* The unanimity of other Christian powers is yet uninterrupted, and, founded on the principle of our holy faith, has the fairest prospect of stability. Permanent and universal peace is not altogether at man's disposal. It is encouraging to observe the growth of pacific dispositions in the world; and societies conducted in a temperate and Christian spirit may contribute to their extension and maintenance. With these views, the object of your society cannot fail of my cordial approbation, without involving an implied concurrence in measures adopted for its attainment, over which I have no controul.

ALEXANDER."

PEACE,

PEACE, in our law-books, &c. is refrained to a quiet and inoffensive carriage towards the king and his people. Offences against the public peace are either such as are an actual breach of the peace; or constructively so, by tending to make others break it. Both of these species are either felonious or not felonious. The felonious breaches of the peace, are strained up to that degree of malignity by virtue of several modern statutes; and, particularly, the "riotous assembling" of twelve persons or more, and not dispersing upon proclamation: "unlawful hunting" in any legal forest, park, or warren, not being the king's property, by night, or with painted faces, (1 Hen. VII. c. 7.) or appearing with the face blacked, or with other disguise, and being armed with offensive weapons, to the breach of the public peace, and the terror of his majesty's subjects. 9 Geo. I. c. 22. Sending any letter without a name, or with a fictitious name, demanding money, &c. or threatening to kill any of his majesty's subjects, or to fire their houses, &c. 9 Geo. I. c. 22. 27 Geo. II. c. 15. Destroying any lock, sluice, or flood-gate, &c. turnpike gate, &c. The above-mentioned offences are felonies. Those that remain to be enumerated are merely misdemeanours; viz. affrays, riots, routs, and unlawful assemblies, consisting of at least three persons; tumultuous petitioning; forcible entry or detainer; riding or going armed with dangerous or unusual weapons; spreading false news; false and pretended prophecies.

Besides actual breaches of the peace, any thing that tends to provoke or excite others to break it, is an offence of the same denomination; such are challenges to fight, either by word or letter, or bearing such challenge; and libels. The English laws have provided various means for preventing offences against the public peace. Where any man stands in danger of harm from another, and makes oath thereof before a justice of the peace, he must be secured by good bond, which is called *binding to the peace*. Any justice of the peace may, *ex officio*, bind all those to keep the peace, who, in his presence, make any affray; or threaten to kill or beat another; or contend together with hot and angry words; or go about with unusual weapons or attendance, to the terror of the people; and all such as he knows to be common barretors; and such as are brought before him by the constable for a breach of the peace in his presence; and all such persons, as, having been before bound to the peace, have broken it and forfeited their recognizances. Also, wherever any private man hath just cause to fear that another will burn his house, or do him a corporal injury, by killing, imprisoning, or beating, him; or that he will procure others so to do; he may demand surety of the peace against such person; and every justice of the peace is bound to grant it, if he who demands it will make oath that he is actually under fear of death or bodily harm; and will show that he has just cause to be so, by reason of the other's menaces, attempts, or having lain in wait for him; and will also farther swear that he does not require such surety out of malice or mere vexation. This is called *swearing the peace* against another; and if the party does not find such sureties, as the justice in his discretion shall require, he may immediately be committed till he does. A recognizance for keeping the peace, when given, may be forfeited by any actual violence, or even an assault, or menace, to the person of him who demanded it, if it be a special recognizance; or, if the recognizance be general, by any unlawful action whatsoever, that either is or tends to a breach of the peace. *Blackst. Com. b. iv. 1 Hawk. P. C. 126, 7, 8.*

PEACE, *interj.* A word commanding silence.—*Peace! Fear, thou comest too late, when already the arm is taken. Sidney.*

Silence, ye troubled waves, and thou deep, *peace!*
Said then the Omnipotent Word. *Milton's P. L.*

PEACE, an island on the coast of Nova Scotia, south of Mirachi point.

PEACE, a large river of North America, which runs north-easterly into the Lake of the Hills. In the driest season, it is a quarter of a mile wide. The lands on this river are inhabited by the Beaver and Rocky-Mountain Indians, who are an uninformed and barbarous race of beings. Polygamy is practised among them, and the women are in the lowest state of debasement. At their funerals, among other extravagant tokens of sorrow, the women, if the deceased be a favourite son or husband, cut off a finger at the first joint. Some of the old women have not a whole finger left; but the men think it below their dignity to show any mark of grief. These persons are great gamesters, and pursue this as their employment for several days and nights. Their habitations are formed by setting up a number of poles, united at the top, and expanded at the bottom in a circle of twelve or fifteen feet diameter; these are covered with dressed skins sewed together. This business, and other drudgeries, are performed by the women, while the men sit smoking at their ease.

PEACE-BREAKER, *f.* One who disturbs the peace of the public.—They were of power to disturb their kings, to raise war, to do mischief, that is, to be *peace-breakers* with extreme devotion. *Holyday against Disloyalty.*

PEACE-MAKER, *f.* One who reconciles differences:

Peace, good queen;
And whet not on these too furious peers;
For blessed are the *peace-makers*. *Shakespeare.*

PEACE-OFFERING, *f.* Among the Jews, a sacrifice or gift offered to God for atonement and reconciliation for a crime or offence.—A sacrifice of *peace-offering* offer without blemish. *Lev. iii. 1.*

PEACE-OFFICER, *f.* An officer to keep the peace; a constable.

PEACE-PARTED, *adj.* Dismissed from the world in peace:

We should profane the service of the dead
To sing a requiem, and such rest to her
As to *peace-parted* souls. *Shakespeare's Hamlet.*

PEACE-SPEAKING, *adj.* Commanding peace, giving peace.

PEACEABLE, *adj.* Free from war; free from tumult.—The reformation of England was introduced in a *peaceable* manner, by the supreme power in parliament. *Swift.*—Quiet; undisturbed.—The laws were first intended for the reformation of abuses, and *peaceable* continuance of the subject. *Spenser.*

Lie, Philo, untouch'd on my *peaceable* shelf,
Nor take it amiss, that so little I heed thee;
I've no envy to thee, and some love to myself:
Then why should I answer? since first I must read thee.
Prior.

Not violent; not bloody.—The Chaldeans flattered both Cæsar and Pompey with long life and a happy and *peaceable* death; both which fell out extremely contrary. *Hale's Orig. of Mankind.*—Not quarrelsome; not turbulent.—These men are *peaceable*, therefore let them dwell in the land and trade. *Gen. xxxiv. 21.*

PEACEABLENESS, *f.* Quietness; disposition to peace.—Plant in us all those precious fruits of piety, justice, and charity, and *peaceableness*, and bowels of mercy toward all others. *Hammond on Fundamentals.*

PEACEABLY, *adv.* Without war; without tumult:

To his crown, she him restor'd,
In which he dy'd, made ripe for death by eld,
And after will'd it should to her remain,
Who *peaceably* the same long time did weld. *Spenser.*

Without tumults or commotion.—The balance of power was provided for, else Pisistratus could never have governed so *peaceably*, without changing any of Solon's laws. *Swift.*—Without disturbance:

The pangs of death do make him grin;
Disturb him not, let him pass *peaceably*. *Shakespeare.*

PEACE/E, a town of Hindoostan, in Oude: forty miles south of Goorackpour.

PE'ACEFUL, *adj.* Quiet; not in war; a poetical word: That rous'd the Tyrrhene realms with loud alarms,
And *peaceful* Italy involved in arms. *Dryden.*
Pacific; mild:

The *peaceful* power that governs love repairs
To feast upon soft vows and silent pray'rs. *Dryden.*
Undisturbed; still; secure:

Succeeding monarchs heard the subjects' cries,
Nor saw displeas'd the *peaceful* cottage rise. *Pope.*

PE'ACEFULLY, *adv.* Without war. Quietly; without disturbance:

Our lov'd earth; where *peacefully* we slept,
And far from heaven quiet possession kept. *Dryden.*
Mildly; gently.

PE'ACEFULNESS, *f.* Quiet; freedom from war or disturbance.

PE'ACELESS, *adj.* Wanting peace; disturbed:
Terrors, which with nature war, affront
Our *peaceless* souls: the world hath lost its light:
Heaven, and the deep below, our guilt pursue. *Sandys.*

PEACH, *f.* [*pêche*, Fr. a contraction of *Persicum* (*malum* understood), or *Persica* (*arbor*). A tree and fruit originally brought from Persia into Italy. See AMYGDALUS.]—September is drawn with a cheerful countenance: in his left hand a handful of millet, withal carrying a cornucopia of ripe *peaches*, pears, and pomegranates. *Peacham.*

The sunny wall,
Presents the downy *peach*. *Thomson's Autumn.*

To PEACH, *v. n.* [corrupted from *impeach*.] To accuse of some crime.—When man and wife fall to *peaching*, what soul loathes it not? *Whateley's Bride-Bush*, 1617.—If you talk of *peaching*, I'll *peach* first, and see whose oath will be believed. *Dryden.*

To PEACH, *v. a.* To accuse.—*Peche* men of treason prevyly I can. *Old Mor. of Hycke Scornor.*

PEACH-COLOURED, *adj.* Of a colour like a peach.—One Mr. Caper comes to jail at the suit of Mr. Three-pile the mercer, for some four suits of *peach-coloured* fatten, which now *peaches* him a beggar. *Shakespeare's Meas. for Meas.*

PEACH-ISLAND, an island of Canada, in Lake St. Clair, containing about 100 acres of land fit for tillage; the rest meadow and marsh.

PE'ACHAM, a post-town of America, in Caledonia county, Vermont, west of Barnet, on Connecticut river; containing 1301 inhabitants.

PE'ACHAM (Henry), author of a book, entitled "The Complete Gentleman," published in the reign of James I. It treats of "nobilitie in generall; of dignitie and necessitie of learning in princes and nobilitie; the time of learning; the duties of parents in their children's education; of a gentleman's carriage in the universitie; of stile in speaking, writing, and reading history; of cosmography; of memorable observation in the survey of the earth; of geometry; of poetry; of musick; of statues and medalls; of drawing and painting in oyle; of sundry blazons both ancient and modern; of armory or blazing armes; of exercise of body; of reputation and carriage; of travaile; of warre; of fishing." He was certainly a man of general knowledge, good taste, and acute observation. He resided a considerable time in Italy, where he learnt music of Orazio Vecchi. He was intimate with all the great masters of the time at home; has characterized their several styles, as well as those of

many on the continent. His opinions concerning their works are very accurate, and manifest great knowledge of all that was understood at the time respecting practical music. He seems to have been a travelling tutor, for which he appears to have been particularly well qualified. But with all his accomplishments, he is said to have been reduced to poverty in his old age, and chiefly to have subsisted by writing little penny books, which are the common amusement of children.

PE'ACHER, *f.* An accuser.—Certain thieves that were named "appellatores," accusers or *peachers* of others that were guiltlesse. *Fox's Acts and Mon.*

PE'ACHICK, *f.* The chick of a peacock.—Does the snivelling *peachick* think to make a cuckold of me? *Southern.*

PE'ACOCK, *f.* [Of this word the etymology is not known: perhaps it is *peak*-cock, from the tuft of feathers on its head; the peak of women being an ancient ornament: if it be not rather a corruption of *beau-coq*, Fr. from the more striking lustre of its spangled train. See PAVO.] A fowl eminent for the beauty of his feathers, and particularly of his tail.—The birds that are hardest to be drawn, are the tame birds; as cock, turkey-cock, and *peacock*. *Peacham.*

Let frantick Talbot triumph for a while;
And, like a *peacock*, sweep along his tail. *Shakespeare.*

PE'ACOCK (Reginald), a worthy prelate, was successively bishop of St. Asaph and of Chichester, by favour of Humphrey, the good duke of Gloucester; but he was deposed for resisting the papal authority, and denying the doctrine of transubstantiation, with other articles of the Roman-catholic faith. He was not equal to suffering in a righteous cause, but recanted his notions, and his books were publicly burnt. He then retired to an abbey, probably mortified and ashamed of his timidity, where he died about the year 1486.

PE'AGE DE PIZANÇON', a town of France, in the department of the Drôme, on the south side of the Iere, opposite Romans.

PE'AHEN, *f.* The female of the peacock.

PEAK, *f.* [Sax. *pique*, *pic*, Fr.] The top of a hill or eminence:

Thy sister seek
Or on Meander's bank or Latraus' *peak*. *Prior.*
Any thing acuminated:

He has mew'd your head, has rubb'd the snow off,
And run your beard into a *peak* of twenty. *Beaum. and Fl.*
The rising forepart of a head-dress.

To PEAK, *v. n.* [*pequeno*, Span. little.] To look sickly:

Weary se'nights, nine times nine,
Shall he dwindle, *peak*, and pine. *Shakespeare's Macbeth.*

To make a mean figure; to sneak.—The *peaking* cornuto her husband, dwelling in a continual larum of jealousy, comes me in the instant of our encounter. *Shakespeare.*

Why stand'st thou here,
Sneaking, and *peaking*, as thou would'st steal linen?
Beaum. and Fl. Wild Goose Chase.

PEAK, a mountain of England, which gives name to a district, in the county of Derby, between the Derwent and the Dove, which last river separates it from Staffordshire. It is mountainous, rocky, and barren; but abounds in mines of lead, iron, coal, and antimony; mill-stones and grind-stones are likewise dug here. The Wonders of the Peak, as they are styled, have been described successively under the articles BAKWELL, BUXTON, and DERBYSHIRE.

PEAKE BA'Y, a bay on the south coast of Jamaica. Lat. 17. 59. N. lon. 76. 58. W.

PE'AKIRK, a village of England, in the county of Northampton, between Paston and Market Deeping in
5 U Lincolnshire;

Lincolnshire; so called from *Pega*, a devout woman, who founded a cell in 714, which was converted into a monastery by Edmund Atheling, and afterwards destroyed by the Danes: six miles north of Peterborough.

PEAKS OF OTTER, the highest part of the mountain, called *Blue Ridge*, in the west part of Virginia, about 4000 feet above the level of the sea.

PEAL, *f.* [perhaps from *pellō, pellere tympana*, Lat.] A succession of loud sounds: as, of bells, thunder, cannon, or loud instruments.—They were saluted by the way with a fair *peal* of artillery from the tower. *Hayward*.—The breach of faith cannot be so highly expressed, as in that it shall be the last *peal* to call the judgments of God upon men. *Bacon*.

A *peal* shall rouse their sleep;
Then, all thy faints assembled, thou shalt judge
Bad men and angels. *Milton's P. R.*

Oh! for a *peal* of thunder that would make
Earth, sea, and air, and heaven, and Cato, tremble!
Addison.

It is once used by Shakespeare for a low dull noise, but improperly:

Ere to black Hecat's summons
The shard-born beetle, with his drowsy hums,
Hath rung night's yawning *peal*, there shall be done
A deed of dreadful note. *Shakespeare's Macbeth*.

To PEAL, *v. n.* To play solemnly and loud:
The *pealing* organ, and the pausing choir;
And the last words, that dust to dust convey'd. *Tickell*.

To PEAL, *v. a.* To assail with noise:
Nor was his ear less *peal'd*
With noises loud and ruinous, than when Bellona storms,
With all her battering engines bent to rase
Some capital city. *Milton's P. L.*

To stir with some agitation: as, to *peal* the pot, is when it boils to stir the liquor therein with a ladle. *Ainsworth*.—Mr. Malone considers this as a corruption of *keel*. So Grose says, that *peal* means to *cool*; and cites, as a northern expression, *peal* the pot.

PEANJE'E, a town of Pegu, on the Irawaddy: fifteen miles south of Prone.

PEAR, a town of South-Carolina, on the Santee: eighteen miles north-west of St. James.

PEAR, *f.* [*pepa*, Saxon; *poire*, French; *pyrum*, Lat.] A well-known fruit.—August shall bear the form of a young man, of a choleric aspect, upon his arm a basket of *pears*, plums, and apples. *Peacham*.

The juicy *pear*
Lies in a soft profusion scatter'd round. *Thomson*.

PEAR-TREE, *f.* The tree that bears pears. See *PYRUS*.—The *pear-tree* criticks will have to borrow his name of *æve*, fire. *Bacon*.

PEARCE (Zachary), a learned and worthy prelate of the church of England, was born in London in the year 1690. He was the son of a distiller in High-Holborn, who, having acquired a competent fortune, retired to an estate which he had purchased at Little Ealing, in Middlesex. Zachary received the first part of his education in a private school at Great Ealing; whence, in the year 1704, he was removed to Westminster-school, then under Dr. Busby. In this seminary he spent six years, during which he so distinguished himself by his merit, that he was elected one of the king's scholars. In 1710, when he was in his twentieth year, he was elected to Trinity-college, Cambridge. Mr. Pearce prosecuted his academic studies with great diligence and success, and was admitted to his degrees in arts at the statutable periods. During the first years of his residence at Cambridge, he occasionally amused himself with the lighter species of composition, and sent specimens of his talent in this line, some

of which discover humour and gaiety, to the Guardian and Spectator. In the year 1716, he published, from the University press, an edition of Cicero de Oratore, in 8vo. with notes and emendations; which, at the desire of a friend, he dedicated to lord chief justice Parker, and by so doing laid the foundation of his future fortune; for, soon after the book had been presented, Dr. Bentley, the master of Trinity-college, being on a visit to lord Parker, his lordship expressed his approbation of Mr. Pearce's performance, and his hope that, as the editor was then a candidate for a fellowship in his college, the doctor would secure his election. This Dr. Bentley engaged to do, upon receiving a promise that, if he made Mr. Pearce a fellow, his lordship would *unmake* him again, as soon as it should be in his power to present him to a living; and Mr. Pearce was elected accordingly. Immediately afterwards he waited on lord Parker, who received him in a very obliging manner, putting into his hands a purse of fifty guineas; and from that time, whenever he renewed his visits to his lordship, he always met with a kind reception.

In the year 1717, Mr. Pearce entered into deacon's orders; and in the following year he was ordained priest. In the year 1718, Parker having been appointed lord chancellor, Mr. Pearce was invited to live with his lordship, in the capacity of domestic chaplain; which invitation he gratefully accepted, and retained that post three years. In 1719, he was presented to the rectory of Stapleford-Abbots, in Essex; to which preferment the lord chancellor added, in the following year, that of the rectory of St. Bartholomew, behind the Royal Exchange, London. Not long after this, Mr. Pearce had the honour of being appointed chaplain to his majesty. In the year 1721-22, he married a lady possessed of a considerable fortune, with whom he lived more than half a century in the highest state of conjugal felicity, and had several children, all of whom died young. About a year after his marriage, he was presented by the chancellor to the valuable vicarage of St. Martin's-in-the-fields, Westminster. Being now incumbent of the parish which was honoured with the residence of the royal family, his lordship suggested to him the propriety of his taking the degree of Doctor of Divinity; and, as he was not of sufficient standing at the University, application was made to Dr. Wake, archbishop of Canterbury, who granted him that title by his diploma.

In 1724, Dr. Pearce dedicated to his patron, now Earl of Macclesfield, his edition of Longinus on the Sublime, with a new Latin version, and notes; which, by the masterly manner of its execution, contributed greatly to the increase of his reputation as a scholar and critic. To the ruin of the earl of Macclesfield, which took place in 1725, it was in some measure owing that several years elapsed from this time before our author received any additional preferment; and for his next he was indebted to the recommendation of queen Caroline, though she was dead before it was bestowed upon him. Among his parishioners at St. Martin's was lord Sundon, whose lady was a great favourite with the queen. As Dr. Pearce stood high in this lady's good graces, the frequent mention of her good opinion of him induced her majesty frequently to honour the doctor with her conversation at her drawing-room, and to recommend him to sir Robert Walpole for a deanery, whenever such a dignity, worthy of his acceptance, should become vacant. This recommendation sir Robert recollected in the year 1739, and Dr. Pearce was appointed dean of Winchester.

In the year 1744, the dean was elected prolocutor of the lower house of convocation for the province of Canterbury; and in 1748, he was promoted to the see of Bangor. It appears that he did not accept of the episcopal dignity without great reluctance; and it was still more in opposition to his earnest wishes that, in the year 1756, he was promoted to the bishopric of Rochester, together with the deanery of Westminster. For at this period he acquainted archbishop Potter with his intention

of asking the king's leave to resign his high station in the church; which the primate discouraged, intimating a doubt whether his majesty had it in his power to grant such a request. However, having arrived at the age of seventy-three, and believing himself to be unfit for discharging the duties of his station, he informed lord Bath of his intention to resign both his bishopric and his deanery, and to live retired upon his own private fortune; at the same time soliciting his lordship to request for him the honour of a private audience from his majesty for that purpose. Accordingly, the king fixed a day for his attendance in the closet, when he entreated for permission to resign both of his dignities; assuring his majesty that he was only influenced by a consciousness that his growing infirmities rendered him incapable of sustaining the burthen of those appointments, and by a desire of spending more time in his devotions and studies. He was of the same way of thinking, he said, with a general officer of the emperor Charles V. who, when he desired a dismissal from that monarch's service, and the emperor asked the reason for his request, answered, "Sir, every wise man would, at the latter end of life, wish to have an interval between the fatigues of business, and eternity!" After taking some time to deliberate, and receive the opinions of his legal advisers on the subject, his majesty signified his consent, and the bishop actually kissed hands on the occasion.

No sooner was lord Bath informed that the king had consented to yield to our prelate's wishes, than he requested his majesty to bestow the bishopric and deanery on Dr. Newton, bishop of Bristol. This application alarmed the jealousy of the ministry, who thought that no dignities in the church should be obtained but through their hands. They therefore resolved to oppose the bishop's resignation, as the shortest method of preventing, in this instance, an encroachment on their patronage; and they informed his majesty, that the design was generally disapproved of by the episcopal bench. Upon this, the king sent for Dr. Pearce, and told him, that he must think no more about resigning his bishopric. However, in the year 1768, he obtained the king's consent to resign his deanery of Westminster; and from that time he discharged his episcopal functions, and prosecuted his private studies, with all his remaining vigour, till the year 1773, when, by too great exertion, he exhausted his strength beyond recovery. Having confirmed seven hundred persons at Greenwich, he found himself, on the following day unable to speak, and never regained his former readiness of utterance. His complaint, which was paralytic, continued to increase, till, after several months of lingering decay, he died at Little-Ealing, on the 29th of June 1774, in the 84th year of his age.

Besides the articles already mentioned, bishop Pearce published, 3. An Account of Trinity-college, Cambridge, 1720, 8vo. 4. *Epistolæ duæ ad cereberrimum doctissimumque virum, F. V. Professorem Amstelodamensem scriptæ: quarum in altera agitur de editione Novi Testamenti a clarissimo Bentleio suscepta, &c.* 1721, 8vo. 5. A Letter to the Clergy of the Church of England, on occasion of the Bishop of Rochester's commitment to the Tower, 1722, 8vo. 6. The Miracles of Jesus vindicated, in 4 parts, 1727, 1728, 8vo. in answer to some of the principal parts of Mr. Woolston's Six Discourses on the Miracles of our Saviour, &c. 7. Two Letters in controversy with Dr. Middleton, on the subject of his attack upon Dr. Waterland, 1730 and 1731, 8vo. 8. Two Letters to the Rev. Dr. Waterland, upon the Eucharist. 9. Nine occasional Sermons; &c. By his will, he bequeathed his library to the dean and chapter of Westminster, excepting such books as they already possessed; which books, together with his manuscripts, he gave to his chaplain, the Rev. John Derby. To that gentleman was bequeathed the care of publishing the author's great work, the result of many years' studious application, and which reflects lasting honour upon his learning, critical

talents, and intimate knowledge of the sense and spirit of the sacred writings. It made its appearance in the year 1777, under the title of, 10. A Commentary, with Notes, on the Four Evangelists, and the Acts of the Apostles; together with a new Translation of St. Paul's First Epistle to the Corinthians, with a Paraphrase and Notes, &c. 2 vols. 4to. To the Commentary, &c. are added some of the author's earlier theological pieces. Mr. Derby also gave to the public, from the author's manuscripts, 11. Sermons on several Subjects, 1778, 4 vols. 8vo. *Account of the Life of the Author, prefixed to his Commentary. Monthly Review, vol. lxi.*

PEARCH. See PERCH.

PEARL, *f.* [*perle, Fr. perla, Span. supposed by Salmastius to come from spherula, Lat.* Mr. Bryant says, it is "the pearl of the Amonians and Cushites. *Paralia* is the Land of Pearls." *Analyt. of Anc. Myth. iii. 205. Todd.*—A different etymology is proposed in a work which is expected shortly to issue from the press. "The Latin corresponding word is *unio, union, from unire, to join; because pearls generally draw their value from being many of the same size, and united together: this leads me naturally to suppose, that the English pearl and the French perle are a contraction of *pareil, pareille, Fr. alike, similar.*"] *Pearls*, though esteemed of the number of gems by our jewellers are but a distemper in the fish that produces them. Some pearls have been known of the size of a pigeon's egg; as they increase in size they are less frequent and more valued; the true shape of the pearl is a perfect round; but some of a considerable size are of the shape of a pear, and serve for ear-rings. *Hill.**

Flowers purified, blue and white,

Like sapphire, *pearl*, in rich embroidery

Buckled below fair knighthood's bending knee. *Shakesp.*

See the articles MANAR, MYA, and MYTILUS.—Pearls have been lately discovered in the mussels of the little rivers Onune and Ouille, in the province of Luxembourg, belonging to the king of the Netherlands: they are various sizes, some as large as a pea, all of a very pure water, and perfectly round.

Artificial PEARLS, popularly called *beads*, were anciently only made of glass, incruited on the inside with a pearl-coloured varnish, a method first pursued by some artists at Murano; or with a kind of amalgam or coating of quicksilver withinside; afterwards they used small balls of wax or gum, covered with a pearl-coloured enamel. These were praised on account of their lustre; but, as their beauty was destroyed by moisture, they did not continue long in use.

There has since been invented in France another manner of making them, so near the natural ones in lustre and water that they deceive a good eye. These are what the ladies now generally wear in defect of true pearl. Take of thrice distilled vinegar two pounds; Venice turpentine, one pound; mix them together into a mass, and put them into a cucurbit; fit a head and receiver to it, and, after you have luted the joints, set it, when dry, on a sand-furnace, to distil the vinegar from it; do not give it too much heat, lest the stuff swell up: after this, put the vinegar into another glass cucurbit, in which there is a quantity of feed-pearl wrapped in a piece of thin silk, but so as not to touch the vinegar; put a cover or head upon the cucurbit, lute it well, and put it into bal. mariæ, where you may let it remain a fortnight. The heat of the balneum will raise the fumes of the vinegar, and they will soften the pearls in the silk, and bring them to the consistence of a paste; which being done, take them out, and mould them to what bigness, form, and shape, you please. Your mould must be of fine silver, the inside gilt; you must also refrain from touching the paste with your fingers, but use silver-gilt utensils, with which fill your moulds. When they are moulded, bore them through with a hog's bristle or gold wire, and let them dry a little; then thread them again on gold wire,

wire, and put them into a glass; close it up, and set them in the sun to dry. After they are thoroughly dry, put them in a glass matras into a stream of running water, and leave them there twenty days; by that time they will contract the natural hardness and solidity of pearls: then take them out, and hang them in mercurial water, where they will moisten, swell, and assume their oriental beauty; after which, shift them into a matras hermetically closed, to prevent any water coming to them, and let it down into a well, to continue there about eight days: then draw the matras up, and, in opening it, you will find pearls exactly resembling oriental ones.

The mercurial water is thus prepared: Take plate-tin of Cornwall; calcine it, and let the calx be pure and fine; then, with one ounce of the calx and two ounces of prepared mercury, make an amalgam; wash it with fair water, till the water remains insipid and clear; then dry the amalgam thoroughly, put it into a matras over the furnace, giving it such a heat as is requisite for sublimation. When the matter is well sublimated, take off the matras, and let it cool. Take out that sublimate, add one ounce of Venice sublimate to it, and grind them together on a marble; put this into another matras, close it well, and set it upside-down in a pail of water, and the whole mass will dissolve itself, in a little time, into mercurial water: this done, filter it into a glass receiver, set it on a gentle ash-fire to coagulate, and it will turn into a crystalline substance: beat this in a glass mortar, with a glass pestle, to a fine powder; strain it through a fine sieve, and put it into a matras, stop it close up, and place it in balneo mariæ; there let it remain till it resolves again into water, which will be fit for the above-mentioned use. *Postl. Dict. Com.*

The sieur Janin, or Jaquin, having observed, that the scales of a little fish called the *bleak*, found plentifully in the river Marne, had not only all the lustre of the real pearl, but that, after beating them to powder in water, they returned to their former brilliance upon drying; he thought himself of setting a piece or little mass thereof in the cavity of a bead or grain of girofol, which is a kind of counterfeit opal made of glass, and bordering much on the colour of pearl. The difficulty was to get it there, and when it was within to spread it equally throughout the bead. A little glass tube, six or seven inches long, and a line and half in diameter, but very sharp at one end, and a little crooked, served for the introducing of the matter, by blowing it with the mouth, after having taken up a drop of this mixture with the pointed extremity of the tube; and, to spread it throughout the inner circumference, he contented himself to shake it gently a long time, in a little osier basket lined with paper. The pulverized scales, fastened by this motion in the inside of the bead, resume their lustre as they dry. To increase this lustre, in winter, they lay the beads in a hair sieve, or a bolting-cloth, which they suspend to the ceiling, and under it, at six feet distance, they lay heaps of hot ashes. In summer they suspend them in the same manner, but without any fire. The pearls, thus well dried, become very brilliant, and nothing remains but to stop up the aperture, which is done by melting wax, conveyed into it with a tube like that used in introducing the powdered scales. After clearing off the superfluous wax, they perforate the pearls with a needle, and string them, and thus they form necklaces.

To blanch and cleanse PEARLS. First soak and rub them gently in bran-water, then in milk-warm water, and last of all steep them in mercurial water; then string and hang them in a glass, close it well, and set them in the sun to dry. The bran-water is made thus: Boil two good handfuls of wheaten bran in a quart of water, till all the strength of the bran is drawn out; which use thus: take a new glazed earthen pan, in which put your pearls on a string, and pour the third part of the bran-water upon it: when they have soaked, and the water is just warm, rub

your pearls gently with your hands, to clean them the better, and continue this till the water is cold; throw off that, and pour on another third part of the bran-water that is boiling; proceed with this as you did before, and when cold throw it away, and pour on the remainder of the water, still proceeding as before. After this, heat fair water, and pour it on your pearls to refresh them, and to wash away the remains of the bran by shifting them, and pouring on fresh warm water; this do thrice, without handling your pearls; then lay them on a sheet of clean white paper, and dry them in a shade; after which, dip them into mercurial water, to bring them to perfection. *Postl. Dict. Com.*

Or, pound alabafter to an impalpable powder, and rub the pearls therewith, very gently: this will not only cleanse them, but, if you let them remain in this powder twenty-four hours afterwards, they will still be the better for it. White coral has the same effect, used in the like manner. White tartar, calcined and divested of all its moisture, is very good for the same purpose. Salt dissolved, filtered, coagulated, well dried, and ground, is as effectual as any of the former things for cleansing of pearls, by rubbing them therewith; and, if afterwards you lay them up in some coarse ground millet, it will contribute to their brightness.

PEARL, *f.* A white speck or film growing on the eye. Any thing round and clear, as a drop:

Dropping liquid *pearl*,

Before the cruel queen, the lady and the girl
Upon their tender knees begg'd mercy.

Drayton.

PEARL, *f.* The name of the smallest regular printing-type, of which the present lines are a specimen.

To PEARL, *v. n.* To resemble pearls:

She let to fall

Few *perling* drops from her fair lamps of light. *Spenser.*

PEARL-ASH, *f.* A fixed alkaline salt, prepared chiefly in Germany, Russia, and Poland, by melting the salts out of the ashes of burnt wood; and, having reduced them again to dryness, evaporating the moisture, and calcining them for a considerable time in a furnace moderately hot. The goodness of pearl-ashes must be distinguished by a uniform and white appearance: they are nevertheless subject to a common adulteration, not easy to be distinguished by the mere appearance, which is done by the addition of common salt. In order to find out this fraud, take a small quantity of the suspected salt; and, after it has been softened by lying in the air, put it over the fire in a shovel: if it contains any common salt, a crackling and slight explosion will take place as the salt grows hot.

Pearl-ashes are much used in the manufacture of glass; and require no preparation, except where very great transparency is required, as in the case of looking-glasses, and the best kind of window-glass. For this purpose dissolve them in four times their weight of boiling water: when they are dissolved, let the solution be put into a clean tub, and suffered to remain there twenty-four hours or more. Let the clear part of the fluid be then decanted off from the sediment, and put back in the iron pot in which the solution was made; in this let the water be evaporated till the salts are left perfectly dry. Keep those that are not designed for immediate use in stone jars, well secured from moisture and air.

Mr. Kirwan, who instituted a set of experiments on the alkaline substances used in bleaching, &c. (see Irish Trans. for 1789.) tells us, that in 100 parts of the Dantzick pearl-ash, the vegetable alkali amounted to somewhat above 63. He has also given tables of the quantities of ashes and salt obtained from different vegetables; and he concludes from them, 1. That in general weeds yield much more ashes, and their ashes much more salt, than woods; and that, consequently, as to salts of the vegetable alkali kind, neither America, Trieste, nor the northern countries, possess any advantage over us. 2. That of all weeds fumitory produces most salt, and next to it wormwood;

wormwood; but, if we attend only to the quantity of salt in a given weight of ashes, the ashes of wormwood contain most. *Trifolium fibrinum* also produces more ashes and salt than fern. See POTASH.

PEARL-EYED, *adj.* Having a speck in the eye.

PEARL-GRASS, PEARL-PLANT, or PEARL-WORT. See SAGINA.

PEARL ISLAND, a small island in the gulf of Mexico, at the mouth of the Mississippi.

PEARL ISLAND, a small island in the West Indies. Lat. 14. 53. N. lon. 73. 13. W.

PEARL ISLAND, or KING'S ISLAND, a small island in the bay of Panama. Lat. 7. 12. N.

PEARL ISLANDS, a cluster of small islands in the Atlantic, near the coast of Nicaragua. Lat. 12. 35. N. lon. 83. 50. W.

PEARL KEY LAGOON, a bay on the Mosquito shore. Lat. 11. 15. N. lon. 83. 12. W.

PEARL KEYS, islets or rocks in the Spanish main, on the Mosquito shore. Lat. 12. 26. N. lon. 82. 45. W.

PEARL RIVER, a river of America, which rises in the Chaftaw country, in the west part of the Mississippi-territory, and, pursuing a southerly course to the gulf of Mexico, is navigable upwards of 150 miles. Its principal mouths are near the entrance at the east end of the Regulets, through which is the passage to lake Pontchartrain; it has seven feet at its entrance, and deep water afterwards. In 1769 there were some settlements on this river, where were raised tobacco, indigo, cotton, rice, Indian corn, and all sorts of vegetables. The land produces a variety of timber, fit for pipe and hoghead staves, masts, yards, and all kinds of planks for ship-building. This is the largest river between Mississippi and Mobile. Before it enters the Regulets or Rigolets, it divides into several channels.

PEARL RIVER, a river of Chiampa, which runs into the Chinese sea in lat. 10. 54. N. lon. 107. 33. E.

PEARL ROCKS, a cluster of low and dangerous rocks in the north Pacific Ocean; near the south extremity of Calvert's Island. Lat. 51. 54. N. lon. 237. 59. E.

PEARL-SPAR. See SPATUM cubicum.

PEARL-STONE, *f.* (Lave vitreuse perlée, *Havij.*) This mineral is regarded by many mineralogists as a volcanic production; it is frequently intermixed with Obsidian, and hence is classed by them as a variety of the latter mineral. It occurs in basaltic and porphyritic rocks, in large and somewhat angular concretions, which are composed of smaller roundish concretions and those of others still smaller. The surface of the concretions is smooth, shining, and pearly. The colour is grey, passing into pearl-grey and greyish-black. It is translucent on the edges; it scarcely scratches glass, is easily frangible, and is fusible with intumescence before the blow-pipe, into a white spongy glass. This mineral has been found near Sandy Brae, in Ireland, in the island of Iceland, and in Mexico; it was first discovered in Hungary, where it occurs in large beds. It is classed by Mr. Jameson and Werner with obsidian, pitch-stone, and pumice, as forming a member of the pitch-stone family. According to Klaproth, it is composed of

75.25	Silex.
12.	Alumine.
1.6	Oxyd of iron.
4.5	Potash.
2.5	Lime.
2.5	Water.

98.35

PEARLED, *adj.* Adorned or set with pearls; made of pearls:

You goodly nymphs

That, when you list, in *pearled* boats of shell

Glide on the dancing wave. *P. Fletcher's Pisc. Ecl.*

VOL. XIX. No. 1315.

The water-nymphs

Held up their *pearled* wrists, and took her in,
Bearing her straight to aged Nereus' hall. *Milton's Comus.*

Resembling pearls.—Her weeping eyes in *pearled* dew
the steep. *P. Fletcher.*

PEAR'LY, *adj.* Abounding with pearls; containing pearls:

Some in their *pearly* shells at ease, attend

Moist nutriment.

Milton's P. L.

Resembling pearls.—Another was invested with a *pearly*
shell, having the futures finely displayed upon its surface.
Woodward.

For what the day devours, the nightly dew

Shall to the morn in *pearly* drops renew.

Dryden.

PEARMAIN, *f.* [*parmain*, French.] An apple.—
Pearmain is an excellent and well-known fruit. *Mor-*
timer.

The *pearmain*, which to France long ere to us was known;
Which careful fruiterers now have denizen'd our own.

Drayton.

PEARNS POINT, a cape on the west coast of the
island of Antigua.

PEARSON (John), a very learned prelate of the
church of England, was the son of a clergyman, rector
of Creake and Snoring, in Norfolk, at one of which places
he was born in the year 1612-13. In the eleventh year
of his age he was sent to Eton school, where he laid an
excellent foundation of grammar-learning; and in the
year 1631, or 1632, he was elected from that seminary to
King's College, Cambridge. Here he was admitted to
the degree of B. A. in 1635; after which he was chosen
a fellow of his college. In 1639, he proceeded M.A. and
not long afterwards resigned his fellowship, but continued
to reside in college as a fellow-commoner. Having en-
tered into holy orders during the same year, bishop Da-
venant collated him to a prebend in the church of Sarum;
and, in 1640, he was appointed chaplain to the lord-keeper
Finch, who is said to have presented him to a living
in Suffolk. When the civil war commenced between
Charles I. and the parliament, Mr. Pearson was made
chaplain to George lord Goring, and attended him when
he went in the king's service into the west of England.
About the year 1643, he obtained the living of St. Cle-
ment's Eastcheap, in London. Here he preached a series
of sermons, which he afterwards cast into a different form,
and published under the title of "An Exposition on the
Creed, &c." 1659, 4to. This learned and well-known
performance has justly been pronounced an accomplished
work for style and method, and free from those defects
which are too generally found in theological systems. It
was afterwards reprinted, with improvements, in folio;
and has been held in such estimation, that twelve or thir-
teen impressions of it have been called for. Before the
appearance of this work, in the year 1657, he and Mr.
Peter (afterwards bishop) Gunning held a dispute with
two papists, on the subject of schism; of which a false
account was published at Paris, in 1658, which was dis-
claimed by both the protestant disputants, and even by
one of their popish opponents.

Soon after the restoration, preferments and honours
flowed in rapidly upon our author. Before the close of
the year 1660, he was collated, by Juxon bishop of Lon-
don, to the rectory of St. Christopher's, in that city;
created D. D. at Cambridge, by a *mandamus* from the
king; installed a prebend in the cathedral of Ely; nomi-
nated archdeacon of Surrey; and appointed master of
Jesus-college, in Cambridge. In the year 1661, he was
one of the assistant managers on the side of the Establish-
ment at the Savoy conference; on which occasion he ac-
quitted himself in a manner that was reputable to his
learning and abilities, as Mr. Baxter did him the justice
to acknowledge. "Dr. Pearson," says he, "was their

true logician and disputant, without whom, as far as I could discern, we should have had nothing from them but Dr. Gunning's passionate invectives, mixed with some argumentations. He disputed accurately, soberly, and calmly, (being but once in any passion,) breeding in us a great respect for him, and a persuasion that, if he had been independent, he would have been for peace, and that, if it were in his power, it would have gone well. He was the strength and honour of that cause which we doubted whether he heartily maintained."

In June 1661, he was appointed lady Margaret's Professor of Divinity at Cambridge, and he filled that chair with distinguished merit and applause. Upon a vacancy taking place in the mastership of Trinity-college, in 1662, he was elected to that honourable station; soon after which he resigned his prebends of Ely and Sarum, as well as his rectory of St. Christopher's. Dr. Pearson conducted himself in this post with great reputation till the year 1672, when he was deservedly advanced to the episcopal rank, by being nominated successor to the learned Dr. Wilkins, in the see of Chester; with which he was permitted to hold, *in commendam*, the archdeaconry of Surrey, and the rectory of Wigan in Lancashire. Before he was raised above the rank of a presbyter, he had prepared for publication a learned work, which made its appearance in 1672, entitled, "Vindiciæ Epistolæ S. Ignatii—Acceperunt Iſaaci Voſſii Epistolæ duæ adversus David Blondellum," 4to. This work owed its origin to the dispute then agitating concerning episcopacy, and was intended to support the arguments in its favour drawn from the epistles attributed to Ignatius, in opposition to such anti-episcopalians as preferred the charge of spuriousness against those remains of antiquity. Dr. Pearson held the bishopric of Chester upwards of thirteen years, but was disqualified from all public service by his infirmities for some years before his death. That event took place in 1686, when he was in the 75th year of his age.

Bishop Pearson was a man of profound and general learning, an exact chronologist, and intimately acquainted with the writings of the fathers, and with ecclesiastical history. Bishop Burnet says of him, that he "was in all respects the greatest divine of the age: a man of great learning, strong reason, and of a clear judgment. He was a judicious and grave preacher, more instructive than affective; and a man of a spotless life, and of an excellent temper. His Book of the Creed is among the best that our church has produced." Dr. Pearson had been admitted a Fellow of the Royal Society in 1667. He was the author of, 3. A Preface to the Golden Remains of the ever-memorable Mr. John Hales of Eton-college, 1660, 8vo. 4. No Necessity of Reformation of the public Doctrine of the Church of England, &c. same date, 4to. 5. A Sermon, preached before the king, and published by his majesty's command, 1671, 4to. 6. The Preface, *Præfatio Paranetica*, to J. Field's edition of the Septuagint, 1665, 12mo. 7. *Annales Cyprianici*, five tredecim annorum quibus S. Cyprianus inter Christianos versatus est, *Historia Chronologica*, printed with bishop Fell's beautiful edition of the works of that father, 1682, folio. He was also one of the editors of the *Critici Sacri*, or Collection of Critics and Commentators upon the Bible, in 9 vols. folio. And from his manuscripts were published, after his death, 8. V. Cl. Joannis Pearsonii, S. T. P. Cestriensis nuper Episcopi, *Opera Posthuma Chronologica*, &c. Singula prælo tradidit; edenda curavit, et Dissertationibus novis additionibus auxit H. Dodwellus, &c. 1688, 4to. *Reliquiæ Baxterianæ*. *Burnet's own Time*, vol. ii. *Gen. Biog.*

PEAS'ANT, *f.* [*paizan*, Fr.] A hind; one whose business is rural labour.—He holdeth himself a gentleman, and scorneth to work, which, he faith, is the life of the peasant or churl. *Spenser*.

I had rather coin my heart, than wring
From the hard hands of peasants their vile trash. *Shakeſp.*

PEAS'ANT, *adj.* Rustic; country.—This have I rumour'd through the peasant towns. *Shakeſpeare's Hen. IV.* Like peasant foot-boys do they keep the walls,
And dare not take up arms like gentlemen.

Shakeſpeare's Hen. VI. P. I.

PEAS'ANTLIKE, or PEASANTLY, *adj.* Rude; untaught; clownish; resembling the behaviour of peasants.—He is not esteemed to deserve the name of a complete architect, an excellent painter, or the like, that bears not a generous mind above the peasantly regard of wages and hire. *Milton's Animad. Rem. Defence.*—We frame to ourselves a peasantly notion of good and evil. *Spenser on Prod.*—Learning is thought pedantic, agriculture peasantlike. *Gov. of the Tongue.*

PEAS'ANTRY, *f.* Peasants; rustics; country people.—The peasantry in France, under a much heavier pressure of want and poverty than the day-labourers of England of the reformed religion, understood it much better than those of the higher condition among us. *Locke.*

How many then should cover, that stand bare:
How much low peasantry would then be gleaned
From the true seed of honour? how much honour
Picked from the chaff? *Shakeſpeare's Merch. of Ven.*

Behaviour of peasants; rusticity; coarseness.—As a gentleman you could never have descended to such peasantry of language. *Butler's Remains.*

PEAS'COD, or PEASHELL, *f.* The hawk that contains pease.—Thou art a steal'd peascod. *Shakeſpeare's K. Lear.*—I saw a green caterpillar as big as a small peascod. *Walton.*

As peascods once I pluck'd, I chanc'd to see
One that was closely fill'd with three times three.
I o'er the door the spell in secret laid. *Gay.*

PE'ASHAWM, *f.* The straw of pease.

PEASE, a township of Belmont county, in Ohio, having 1379 inhabitants.

PEAT, *f.* A species of earth used for fuel.—Turf and peat, and cowheards, are cheap fuels, and last long. *Bacon's Nat. Hist.*—See TURFA palustris.

PEAT-EARTH, *f.* Earth mixed with vegetable substances forming or producing peat.—Carew, in his Survey of Cornwall, mentions nuts found in peat-earth two miles east of St. Michael's Mount. *Woodward.*

PEAT-LAND, *f.* Land producing peat.—It is perhaps owing to an antiseptic quality in some of these plants, that there happens such an accumulation of their spoils, constantly penetrated with water, without their undergoing any putrefaction; a circumstance that essentially distinguishes our peat-lands from marshes, for the air is always salubrious. *De Luc's Geol. Letters to Prof. Blumenbach.*

PEAT LAW, a hill of Scotland, in the county of Selkirk: two miles north-west of Selkirk.

PEA'TRA, a town of European Turkey, in Moldavia: sixteen miles south-south-west of Niemecz.

PEAULE, a town of France, in the department of the Morbihan: four miles north-west of Roche Bernard, and six south of Rochefort.

PEB'BLE, or PEBBLE-STONE, *f.* [*pæbbl̄stana*, Sax.] A small stone.—Suddenly a file of boys delivered such a shower of pebbles loose shot, that I was fain to draw mine honour in. *Shakeſpeare.*—You may see pebbles gathered together, and a crust of cement between them, as hard as the pebbles. *Bacon.*—Through the midst of it ran a sweet brook, which did both hold the eye open with her azure streams, and yet seek to close the eye with the purling noise it made upon the pebble-stones it ran over. *Sidney.*

Winds murmur'd through the leaves your long delay;
And fountains o'er the pebbles chid your stay. *Dryden.*

The bishop and the duke of Gloſter's men,
Forbidden late to carry any weapon,
Have fill'd their pockets full of pebble stones. *Shakeſpeare.*

PEBBLES

PEBBLES are distinguished from the flints and homochroa, by their having a variety of colours. They are defined to be stones, composed of a crystalline matter, debased by earths of various kinds in the same species, and then subject to veins, clouds, and other variegations; usually formed by incrustations round a central nucleus, but sometimes the effect of a simple concretion, and veined like the agates, by the disposition which the motion of the fluid they were formed in gave their differently-coloured substances.

The variety of pebbles, of England alone, is so great, that a hasty describer would be apt to make almost as many species as he saw specimens. A careful examination will teach us, however, to distinguish them into a certain number of essentially different species, to which all the rest may be referred, as accidental variations. When we find the same substances and the same colours, or those resulting from a mixture of the same, such as nature frequently makes in a number of stones, we shall easily be able to determine that these are all of the same species, though in different appearances; and that, whether the matter be disposed in one or two, or in twenty, crusts laid regularly round a central nucleus, or thrown without a nucleus into irregular lines, or finally blended into a sort of uniform mass. These are the three states in which we are liable to find every species of pebble; for, if it hath been most naturally and regularly formed by incrustation round a central nucleus, we find that ever the same in the same species, and the crusts not less regular and certain. If the whole has been more hastily formed, and has been the result only of one simple concretion, if that has happened while its different substances were all moist and thin, they have blended together and made a mixed mass of the joint colour of them all; but if they have been something harder when this has happened, and too far concreted to diffuse wholly among one another, they are found thrown together into irregular veins. These are the natural differences of all the pebbles. *Hill's Hist. Foss.* p. 512.

The term *pebble-stone* is applicable to a numerous class of rocks, &c. consisting of pebbles of various sizes and colours; which are irregularly connected together, either with or without an intermediate substance; and it is presumed that the cemented particles are pebbles, or have acquired their rounded form by attrition, from their uniform smoothness.

One of the most striking varieties of pebble-stone very commonly occurs scattered in large masses over the county of Hereford. The whole appearance of the mass has given rise to the term *plum-pudding stone* in this country; and the resemblance that gave rise to the term is so remarkable, that it cannot fail to strike the mind upon the first view. The term has been very generally adopted by foreign mineralogists; who, however, commonly call it simply *pudding-stone*, or *English pudding-stone*; (*puddinge*, of Brochant; *pudding Anglais*, of Haüy.) See *Breccia silicena*, under the article MINERALOGY, vol. xv. p. 470.

The use of these stones, and their disposition in the earth, is a subject of great admiration; and may serve as one of the numerous proofs of an over-ruling Providence in the disposition of all natural bodies. The surface of the earth is composed of vegetable mould, made up of different earth mixed with the putrid remains of animal and vegetable bodies; and is of the proper texture and compages for conducting the moisture to the roots of trees and plants; and under this are laid the sands and pebbles which serve as a sort of drain to carry off the redundant moisture deeper into the earth, where it may be ready to supply the place of what is constantly rising in exhalations; and lest the strata of sand should be too thick, it is common to find thin ones of clay between, which serve to put a stop to the descent of the moisture, and keep it from passing off too soon; and lest these thin strata of clay should yield and give way, and by their softness, when wetted, give leave to the particles of sand to

blend themselves with, and even force their way through, them, there are found in many places thin coats of a poor iron-ore, placed regularly above and below the clay; and by that means not only strengthening and supporting the clay, but effectually keeping the sand from making its way into it. *Phil. Transf.* No. 483.

PEBBLE-CRYSTAL, *f.* The crystal, in form of nodules, is found lodged in the earthy strata left in a train by the water departing at the conclusion of the deluge: this sort, called by the lapidaries *pebble-crystal*, is in shape irregular. *Woodward.*

PEBBLED, *adj.* Sprinkled or abounding with pebbles.—This bank fair spreading in a *pebbled* shore. *Thomson.*

PEBBLY, *adj.* Full of pebbles.—We passed many rivers and rivulets, which commonly ran with a clear shallow stream over a hard *pebbly* bottom. *Dr. Johnson's Journ West. Islands.*

Strow'd bibulous above I see the sands,
The *pebbly* gravel next.

Thomson.

PEC (La), a town of France, in the department of Paris: ten miles west of Paris.

PECA'QUE (St.), a town of Mexico, in the province of Xalisco: forty-five miles north of Compostella. Lat. 22. N. lon. 101. 30 W.

PECCABILITY, *f.* [from *peccable*.] State of being subject to sin.—Where the common *peccability* of mankind is urged to induce commiseration towards the offenders; if this be of force in sin, where the concurrence of the will renders the person more inexcusable, it will surely hold much more in bare error, which is purely involuntary. *Decay of Chr. Piety.*

PEC'CABLE, *adj.* [from *pecco*, Lat. to sin.] Liable to sin.—As creatures they are *peccable*. *Waterhouse on Fortescue.*—Both he and they were originally created pure and innocent, though fallible and *peccable* at the same time. *Berrow's Lapse of Hum. Souls.*

PECCADIL'LO, *f.* [Spanish; *peccadille*, French.] This word had been introduced into our language long before the time of Dryden, from whose writings Dr. Johnson's earliest example is cited. *Todd.* A petty fault; a slight crime; a venial offence.—We pay no Peter-pence; we run not to Rome-market to buy trash. I hope his Holiness dispenseth with us for these *peccadillos*. *Bp. Hall's Hon. of the Mar. Clergy*, 1620.—He means those little vices, which we call follies and the defects of the human understanding, or at most the *peccadillos* of life, rather than the tragical vices to which men are hurried by their unruly passions. *Dryden.*—'Tis low ebb with his accusers, when such *peccadillos* as these are put in to swell the charge. *Atterbury.*

PECCA'IS, a town of France, in the department of the Gard, built for the defence of the salt-works in the neighbourhood: three miles south-east of Aigues Mortes.

PECCAM'INOUS, *adj.* [*peccamen*, Lat.] Full of sin. *Cole.*

PEC'CANCY, *f.* [from *peccant*.] Bad quality.—Apply refrigerants without any preceding evacuation, because the disease took its original merely from the disaffection of the part, and not from the *peccancy* of the humours. *Wifeman.*—Offence.—This distorting of equivocal words, which passeth commonly for a trivial *peccancy*, if it be well examined, will be found a very dangerous admission. *W. Montague's Dev. Eff.* 1648.

PEC'CANT, *adj.* [Fr. from *peccans*, Lat.] Guilty; criminal.—That such a *peccant* creature should disapprove and repent of every violation of the rules of just and honest, this right reason could not but infer. *South.*

From them I will not hide
My judgements, how with mankind I proceed;
As how with *peccant* angels late they saw. *Milton.*

Ill disposed; corrupt; bad; offensive to the body; injurious to health. It is chiefly used in medical writers.—Such as have the bile *peccant* or deficient are relieved by bitters, which are a sort of subsidiary gall. *Arbuthnot.*

With

With laxatives preserve your body sound,
And purge the *peccant* humours that abound. *Dryden*.

Wrong; bad; deficient; unformal.—Nor is the party cited bound to appear, if the citation be *peccant* in form or matter. *Ayliffe's Pavergon*.

PECCANT, *f.* An offender. *Not in use*.—This con-
cededness, and itch of being taken for a counsellor,
maketh more reprovers than *peccants* in the world. *Whit-*
lock's Mann. of the Eng. 1654.

PECCA'VI. [Latin. A colloquial expression still in
use: as, He cried *peccavi*.] I have offended.—In queen
Mary's time, upon the return of the Catholique religion,
the nunnes came again to Wilton abbey; and this Wil-
liam earl of Pembroke, came to the gate with his cappe
in his hand, and fell upon his knee to the lady abbesse
and the nunnes, crying *peccavi!* Upon queen Mary's
death, the earl came to Wilton, like a tygre, and turned
them out, crying, Out ye whores, to worke, to worke!
Aubrey's Anecd.

PECE'TA, *f.* A Spanish silver coin. The old Mexican
pece'ta of two Mexican reals (1736) is in weight 4 dwt.
7½ gr.; its content in pure silver grains 93'6; and its value
1s. 1d. sterling. The pece'ta of two reals of new plate
(1775) is in weight 3 dwt. 18 gr. content 72'2; and value
10d. sterling.

PECE'TO, a town of France, in the department of the
Po: three miles south-west of Chieri.

PECHAN'TRE (Nicholas de), a French poet, was
born at Toulouse in 1638. He gained the poetical prize
from the academy des Jeux Floraux three times. His
tragedy of Geta was performed at Paris in 1687, with
great applause. This was followed by Jugurtha, the
Death of Nero, and some others. Pechantre died in the
year 1708.

PECHARE'E, a town of Hindoostan, in the circar of
Chanderee: thirty-five miles west-south-west of Chanderee.

PECH'LENDE, *f.* in mineralogy. See URANIUM
sulphuratum.

PE'CHIA, a town of Servia, on the Drino: thirty-five
miles north-east of Ragusa, 130 west-south-west of Nissa.
Lat. 43. 14. N. lon. 19. 15. E.

PECH'LARN, or POCHLARN, a town of Austria, on the
right bank of the Danube. The river is very wide, and
the Romans had here a harbour for their navy: they
called it *Præclava*, and it was considered one of the
strongest places in the country: forty-two miles east of
Lintz, forty-five miles west of Vienna. Lat. 48. 14. N.
lon. 15. 20. E.

PECH'LIN (John Nicholas), an eminent physician,
was born at Leyden in 1646. He took the degree of
M. D. in the university of that city in 1667, and after-
wards travelled into Italy for further improvement. He
was placed in the medical chair at Kiel in Holstein in
1673, and rendered himself celebrated by many ingenious
and learned publications. He was received into the Aca-
demy Naturæ Curiosorum in 1678, and into the Royal
Society of London in 1691. The duke of Holstein
Gottorp appointed him to the post of his first physician
in 1680, and afterwards to those of his librarian and
counsellor. In 1704, he accompanied the hereditary
prince of Holstein to Stockholm as his preceptor. He
died in that capital in 1706, and left a family, which rose
to high distinction in Sweden. The first work attributed
to Pechlin, was an attack on the systems of Sylvius de la
Boe and Graaf, entitled, "Metamorphosis Æsculapii et
Apollonis Pancreatici," under the name of Janus Leonice-
nus. His other works are, 2. De Apoplexia, 1667.
3. De Purgantium Medicamentorum facultatibus, 1672.
4. De Vulneribus Sclopetarum, 1674. 5. De Fabrica et
Ufu Cordis, 1676. 6. De Aeris et Alimentis defectu,
1676. This contains some relations partaking of the
marvellous, respecting the retention of life under water,
which he attributes to the nitrous quality of the air and
water. 7. De Habitu et Colore Æthiopum, 1677. He
attributes the colour of negroes to the bile tinging the

cellular membrane, and not to the solar heat. 8. Theo-
philus Bibaculus, five de potu Theæ," 1684; a panegyric
on tea, in a poetical and exaggerated style. 9. Observa-
tionum Physico-medicarum, lib. iii. 1691, 4to. This is
the author's principal work, the result of much practice
and observation. It contains many curious and valuable
remarks, related in a perspicuous and elegant style, but
exhibits some marks of credulity. He also has some
papers in the Ephem. Naturæ Curiosorum. *Halleri Bibl.*
Med.

PECHME'JA (John), a French writer, was born at
Villa Franca in 1741. He became professor of elocution
in the college of La Flèche, and died in 1785. His
eulogy on the celebrated Colbert was crowned with the
approbation of the academy in 1773; but he is principally
known by a work in poetic prose, called *Telephe*, 2 vols.

PE'CHOR, a town of Hindoostan, in the circar of
Gohud: twenty-five miles south-south-east of Gwalior.

PECHOW'LY, a town of Hindoostan, in the circar of
Chanderee: forty miles north-west of Chanderee.

PECK, *f.* [from the Sax. *pocca*, or perhaps from *patz*,
a vessel. *Skimmer* and *Dr. Johnson*.—Serenuslikewise gives
the Sax. *pocca*, and the Icel. *poke*, a pouch, a sack, as the
etymon. *Poke* is a northern word for all measures. See
Ray's Collect. 2d edit. p. 55. *Todd*.] The fourth part of
a bushel.—To every hill of ashes, some put a *peck* of un-
slacked lime, which they cover with the ashes till rain
flacks the lime, and then they spread them. *Mortimer's*
Husb.

Burn our vessels, like a new-
Seal'd *peck* or bushel, for being true.

Hudibras.

He drove about his turnips in a cart;
And from the same machine sold *pecks* of pease. *King.*

Proverbially; a great deal:

Her finger was so small, the ring
Would not stay on which they did bring;

It was too wide a *peck*;

It look'd like the great collar just

About our young colt's neck.

Suckling.

To PECK, *v. a.* [*becquer*, Fr. *picquer*, Dutch.] To strike
with the beak as a bird:

As a hooded hawk, or owl,
She in vain doth rouse, and *peck*
This and that way with her beak.
Thy baiting does no good,
Nor thy *pecking* through thy hood,
Nor thy stretching out thy claws. *Fanshaw's Pass. Fido.*

To pick up food with the beak.—Can any thing be more
surprising, than to consider Cicero observing, with a re-
ligious attention, after what manner the chickens *peck'd*
the grains of corn thrown them. *Addison.*

She was his only joy, and he her pride;
She, when he walk'd, went *pecking* by his side. *Dryden.*

To strike with any pointed instrument.—With a pick-ax
of iron about sixteen inches long, sharpened at the one
end to *peck*, and flat-headed at the other to drive little
iron wedges to cleave rocks. *Carew's Surv. of Cornwall.*
—To strike; to make blows.—They will make head
against a common enemy, whereas mankind lie *pecking* at
one another, till they are torn to pieces. *L'Estrange.*—
The following passage is perhaps more properly written
to *pick*, to *throw*.—Get up o' th' rail, I'll *peck* you o'er the
pales else. *Shakespeare.*

PECK (Francis), an industrious antiquary, was born
in 1692 at Stamford in Lincolnshire. He was educated
at Cambridge, where he took the degree of M. A. He
entered into holy orders, and became curate of King's
Clifton in Northamptonshire, and afterwards obtained the
rectory of Godeby in Leicestershire, which was his sole
preferment. Having in 1721 published proposals for
printing the history and antiquities of his native town,
his work appeared in 1727, under the title of "*Academia*
tertia

tertia Anglicana, or the Antiquarian Annals of Stamford in Lincoln, Rutland, and Northamptonshires," folio. His inquiries relative to this object led him to extend his researches; and in 1729 he printed a sheet of "Queries concerning the Natural History and Antiquities of Leicestershire and Rutland," which were reprinted in 1740; but, though he made a great progress in collecting materials for a work on those subjects, it never made its appearance. In 1732 he published the first volume of the work by which he is most known, entitled "*Desiderata Curiosa*, or a Collection of divers scarce and curious Pieces, relating chiefly to Matters of English History; consisting of choice Tracts, Memoirs, Letters, Wills, Epitaphs, &c." A second volume followed in 1735; and the whole was reprinted in one 4to. volume in 1779, by Mr. Thomas Evans. This collection has been quoted by later biographers and antiquaries. In 1735 he displayed his industry in "A complete Catalogue of all the Discourses written both for and against Popery in the Time of King James the Second;" and in 1739 he edited "Nineteen Letters of the truly reverend and learned Henry Hammond, D.D." Two volumes in 4to. came from his fertile pen in 1740: one entitled "Memoirs of the Life and Actions of Oliver Cromwell, as delivered in three Panegyrics of him written in Latin; with a Collection of divers curious historical Pieces, relating to Oliver Cromwell and a great Number of other remarkable Persons;" the other, "New Memoirs of the Life and Poetical Works of Mr. John Milton," with a great variety of critical illustrations and other additions. This was the last of his publications. His life and labours terminated together in 1743. He left behind him a great number of materials for nine different works which he had in contemplation. Of his MSS. the greater part came into the possession of sir Thomas Cave, of which the most valuable were five vols. in 4to. fairly written out for the press, under the title of "*Monasticon Anglicanum, Supplementis novis adauctum*," and particularly relating to the Præmonstratensian order in England. These were presented to the British Museum in 1779, by the last sir Thomas Cave. *Nichols's Anecd. of Bowyer. New Biogr. Dict.*

PECK'ELSHEIM, a town of Westphalia, in the bishopric of Paderborn: fifteen miles south-east of Paderborn. Lat. 51. 34. N. lon. 9. 15. E.

PECKER, *f.* One that pecks.—A kind of bird: as, the wood-pecker.

The titmouse and the pecker's hungry brood,
And Progne with her bosom stain'd in blood. *Dryden.*

PECKHAM, a hamlet in the parish of Camberwell, hundred of Brixton, and county of Surrey, is situated at the distance of $4\frac{1}{2}$ miles south-fourth-east from St. Paul's cathedral. In Domesday book, the manor is mentioned as belonging to *Battersea*, and being the property of Odo bishop of Bayeux, half-brother to the Conqueror. At a later period it appears to have been divided into two manors, called Bredinghurst and Balynges, from persons of that name who possessed them in the reigns of king John and Edward I. The manor of Bredinghurst is now vested in the widow of William Shard, esq. but the manor-house has been lately demolished, and the site let on building-leaves. At Peckham are meeting-houses for the Anabaptists, and Presbyterians. Here is annually held a large show-fair during the summer season: hence the common saying, "All holiday at Peckham." It is held on the 21st, 22d, and 23d, days of August; and succeeds that of Camberwell, which concludes on the 20th. Peckham has recently been embellished by many gentlemen's seats; and a new and neat chapel has been erected. The houses have been greatly augmented of late years. Here is a whimsical building, called the Folly, which, at some distance, forms a conspicuous object. The number of inhabitants in 1821 was 6419.

The parish of *Camberwell* is bounded by the parish of Newington-Butts, St. George's Southwark, and Rother-

hithe, on the east; by Deptford and Beckenham, in Kent, on the south; by Croydon, and a detached part of Battersea, on the west; and by Lambeth on the north. At the time of the Domesday survey it comprehended one manor only, which was held of the Conqueror by Haimo, the sheriff; but it was soon afterwards divided, and eventually became several distinct manors, called Camberwell-Buckingham, Milkwell, Camberwell-Ferne or Fryen, Dowdale or Uredale, and Deptford Strand. There were also two inferior manors, Camberwell and Cold-Abbey, both of them held of Camberwell-Buckingham. The land in this parish is mostly possessed of great fertility, and, exclusive of the scites of the houses, is laid out in nearly an equal proportion between arable, pasture, and gardens.

The village of Camberwell is distant about three miles and a quarter from St. Paul's cathedral. The church here was erected about the commencement of the reign of Henry VIII. and consists of a nave, chancel, and two aisles, with a small embattled tower at the west end; the whole composed of flints and rough stone, except the south-west part, which is of brick. The chancel is of a very singular shape, being the section of a hexagon. In the east window of the north aisle are several full-length figures painted upon glass: these are now much mutilated, as well as the inscription beneath, which however is sufficiently entire to inform us, that they were intended to represent some members of the Muscamp family, who had their burying-place in this aisle. There are besides, in the same window, two imperfect representations of female saints. This church contains many monuments of the Scotts, Bowyers, and others who have been interred within its walls. In the parish-register here are several very curious entries: one of which records an instance of a woman bearing a child at the age of sixty-three. In this parish are several charity-schools, which are supported chiefly by subscription, except the free grammar-school. This was founded and endowed by the Rev. Edward Wilson, in the reign of James I. and now affords education to twelve boys. But the chief charitable foundation of which it has to boast is *Dulwich-College*, situated in the hamlet whence it derives its name. Camberwell parish contains, according to the population returns, 2060 houses, and 11,309 inhabitants. See *DULWICH*, vol. vi.

PECK'LED, *adj.* [corrupted from *speckled*.] Spotted; varied with spots.—Some are *peckled*, some greenish. *Walton's Angler.*

PECK'WACKET. See *PIGWACKET*.

PECK'WELL (Dr. Henry), a very eminent English divine, and popular preacher among the Calvinistic Methodists, born 1747, died 1787, having passed an active life in the exercise and promotion of charity. He was founder of a charitable institution called "The Sick Man's Friend," whose object is, to relieve the bodily wants of the sick poor of every denomination, and to convey knowledge and instruction to the mind. *Jones's Biog.*

PEC'ORA, *f.* [from *pecus*, Lat. cattle.] In zoology, the fifth order of the class MAMMALIA, which see, vol. xiv. p. 236.

PEC'OROUS, *adj.* Abounding in cattle. *Cole.*

PEC'QUENCOURT, a town of France, in the department of the North, on the Scarpe: five miles east of Douay.

PEC'QUET (John), a distinguished anatomist, was a native of Dieppe. He studied physic at Montpellier, at which place, in 1647, he made accidentally the discovery of the receptacle of the chyle and the thoracic duct, which has rendered him famous. He took the degree of M. D. at Montpellier; and afterwards came to Paris, where he employed himself in anatomical researches, with Mentel and other able men. It was in 1651 that he first made known his discovery, which may rank among the most brilliant accessions to science of that age. It was published in a work entitled, "*Experimenta nova Anatomica, quibus incognitum Chyli Receptaculum, et ab eo per thoracem in ramos usque subclavios Vasa Lactea deteguntur.*"

teguntur." Although Eustachius had given some hints of the existence of a thoracic duct, yet Pecquet deserves the credit of having clearly traced the whole course of the lacteal system to its termination in the subclavian veins. There was subjoined a valuable "Dissertatio de Circulatione Sanguinis et Chyli Motu;" in which he demonstrated the course of the venous blood even in the *vena portarum* and the pulmonary veins, and made some other important observations on the motion of the blood and chyle. His work was reprinted at Paris in 1654, with the addition of a "Dissertatio nova de Thoracis Lacteis," in which he refuted the theoretical objections of Riolan by new and decisive experiments. Pecquet also wrote some papers on anatomical subjects in the Memoirs of the Academy of Sciences, (of which society he was admitted a member in 1666,) and in the *Journal des Savans*. He was physician to the famous financier Fouquet, who used to confer with him in his leisure hours on scientific topics. A theory which this ingenious physiologist had unfortunately adopted concerning the alimentary nature of vinous spirit, made him not only advise the liberal use of brandy to others, but indulge in it so freely himself, that it shortened his days; and he died, under the age of fifty, in 1674. *Halleri Bibl. Anatom.*

PECQUET (Anthony), a French writer, was born in 1704. He attained the rank of grand master of the water-works and forests of Rouen, and superintendent of the military school. The works by which he is principally known are, 1. An Analysis of the Spirit of Laws, and the Spirit of Political Maxims, 3 vols. 2. The Forest Laws of France, 2 vols. 3. Thoughts on Man. He also translated the *Pastor Fido* of Guarini, and other Italian works, into French. He died in 1762.

PECTEN, *f.* [Lat. from its longitudinal striæ like the teeth of a comb.] The Scallop. See the article OSTREA, vol. xviii. p. 27, and the accompanying Plate.

PECTEN VENERIS, in botany. See SCANDIX.

PECTINAL, *adj.* [*pecten*, Lat. a comb.] Resembling a comb, or the teeth of a comb.

PECTINAL, *f.*—There are fishes whose eyes regard the heavens, as plain and cartilaginous fishes, as *pectinals*, or such as have their bones made laterally like a comb. *Brown*.

PECTINATED, *adj.* Standing from each other like the teeth of a comb.—To fit cross-legg'd or with our fingers *pectinated*, is accounted bad. *Brown's Vulg. Err.*

PECTINATION, *f.* The state of being *pectinated*.—The complication or *pectination* of the fingers was an hieroglyphic of impediment. *Brown's Vulg. Err.*—Combing of the head.—Frequent *pectination* is recommended by many physicians to women, and men who wear their hair, as an exercise; and, at the same time, a kind of friction. *Chambers*.

PECTIS, *f.* [might be so called perhaps, by Linnæus, the author of the name, from *pecten*, Lat. a comb, as applicable to the fringed bases of the leaves.] In botany, a genus of the class *lyngenesia*, order *polygamia superflua*; natural order of *compositæ oppositifoliæ*, (*corymbifera*, *Juss.*) Generic characters—Calyx: common five-leaved, cylindrical; leaflets lanceolate, blunt, almost equal. Corolla: compound rayed. Corollets hermaphrodite, four to six, in the disk. Females five, set in the ray. Proper of the hermaphrodite funnel-form, five-cleft; of the female, ligulate ovate, shorter than the calyx. Stamina: in the hermaphrodites; filaments five, short. Antheræ cylindrical tubular. Pistillum: in the hermaphrodites; germen linear; style filiform; stigma bifid. In the females; germen linear; style filiform; stigmas two, revolute. Pericarpium: none. Calyx unchanged, spreading. Seeds: in the hermaphrodites, solitary, linear; down with two or three spreading awns. In the females, very like the other. Receptacle: naked.—*Essential Character*. Calyx five-leaved, cylindrical; florets in the ray five; down awned; receptacle naked. There are six species.

1. *Pectis ciliaris*: leaves linear ciliate. Root branched, with filiform radicles. Stem herbaceous, half a foot high, branched, dichotomous, diffused, round, smooth. Branchlets scattered, diffused, round, spreading, red. Leaves sessile, half embracing at the base, linear, acuminate; tooth-ciliate at the base, perforated at the edge, membranaceous-ferrate when examined with a glass, nerveless, smooth. Flowers small, yellow. The leaves, when bruised, have a sweet smell, like favy. Native of Hispaniola: flowering there in June.

2. *Pectis punctata*: leaves linear quite entire, dotted underneath. Stem herbaceous, a foot high and more, angular, branched, smooth. Native of Hispaniola, on sandy coasts. Jacquin describes it as a tender upright plant, from two to three feet in height, with smooth striated dichotomous branches. Leaves attenuated to both ends, acuminate, quite entire, smooth above, dotted at the back, subsessile, an inch and a half long. Flowers small, dirty yellow, inodorous. Found every-where about Carthage in New Spain, on the borders of woods; flowering in September and October.

3. *Pectis linifolia*: leaves linear quite entire, even on both sides. This plant is spreading and slender, and seldom rises above eighteen or twenty inches in height. It is a native of the West Indies; and common in all sugar-islands.

4. *Pectis humifusa*: leaves ovate dotted underneath, ciliate on both sides at the base, stems procumbent. Native of Guadaloupe and Santa Cruz.

5. *Pectis prostrata*: leaves oblong, fringed at the base; flowers sessile; calyx-leaves elliptic-oblong; stem procumbent. Native of New Spain. It flowered at Madrid in the autumn of 1795. This seems, as Willdenow remarks, very near the former, from which it differs in having longer leaves, but especially in the want of stalks to the flowers, which are quite sessile, either at the ends of the branches, or in the fork between them. The leaves are an inch or more in length; glaucous and dotted, as in the foregoing, underneath.

6. *Pectis pinnata*: leaves deeply pinnatifid, thread-shaped; stem paniced; seed-down of several jagged scales as long as the florets. Frequent in New Spain. It has been cultivated for twenty-five years past in the gardens of Spain and France. Roth says the root is annual, which we believe to be the case; Lamarck makes it perennial. Stem erect, two feet high, leafy, angular, deeply furrowed, smooth, alternately branched, paniced, many-flowered. Leaves alternate, almost capillary, and obtuse, like some of the finer kinds of *Artemisia*; one inch and a half or two inches long; smooth, very bitter, besprinkled all over with minute glandular dots. Flower-stalks scattered and terminal, angular, roundish, slender, single-flowered, with one linear bract; calyx turbinate; its leaves obovate, besprinkled with minute shining dots, and beautifully tinged with violet; corolla yellow; the radiant florets but one or two, ovate; those of the disk about six. Seeds square, with bristly angles. Down of five or more very beautiful, rather unequal, lanceolate, acute, membranous, glittering scales, all streaked with purple, their edges more or less deeply jagged or fringed; these scales are about as long as the corolla of each floret, and we do not find them ever accompanied with any bristles.

PECTIS, *f.* An ancient musical instrument, of the form or use of which we are not very certain. Athenæus says, that the *pectis*, *magadis*, and *barbiton*, were the same instrument. It has been supposed to have been a dicord, a small instrument of two strings, with a neck, or finger-board, by which they were shortened with the pressure of the fingers, and a complete scale produced.

PECTORAL, *adj.* [from *pectoralis*, Lat.] Belonging to the breast.—Take your spectacles, sir; it sticks in the paper, and was a *pectoral* roll we prepared for you to swallow down to your heart. *Milton's Anim. Rem. Defence*.—Tar-water is extremely *pectoral* and restorative. *Bp. Berkeley's Siris*.—*Pectoral* medicines, in the language of the

the older physicians, were all those medicines which were appropriated to the relief of the disorders of the breast or lungs. The epithet, however, was indefinite, inasmuch as it included demulcents, attenuants, astringents, and even anodynes, or whatever contributed to ease the breathing and cough. It has, therefore, been discarded. The more limited term, *expectorants*, is preferable. *Cyclo-pædia*.

PECTORAL, *f.* A medicine intended against diseases of the breast.—Being troubled with a cough, *pectorals* were prescribed; and he was thereby relieved. *Wiseman*.—A breast-plate.—The twelve stones in the *pectoral* of the high priest. *Hammmul*.

PECTORALLY, *adv.* In the habit of using pectorals. —Be regular, and live *pectorally*. *Chesterfield*.

PECTOREL, *f.* In our old writers, armour for the breast; a breast-plate, or petral, for a horse. It is mentioned stat. 14 Car. II. cap. 3.

PECUL, or **PICUL**, *f.* A weight used in some parts of the East Indies. The bahar of three peculs, or 300 catties, in Bantam weighs 396 lb. avoirdupois. The pecul of 100 catties at Cheribou weighs 125 lb. Dutch troy-weight, or 132 lb. avoirdupois. What is called the China pecul at Malacca weighs only 125 lb. avoirdupois. Rice is sold by the coyang of 40 peculs, or 5400 lb. avoirdupois. The Siam pecul weighs 129 lb. avoirdupois.

To PECULATE, *v. n.* To rob or defraud the public. —An oppressive, irregular, capricious, unsteady, rapacious, and *peculating*, despotism. *Burke*.

PECULATE, or **PECULATION**, *f.* [*peculatus*, Lat. *peculat*, Fr.] Robbery of the public; theft of public money. —The popular clamours of corruption and *peculate*, with which the nation had been so much possessed, were in a great measure dissipated. *Burnet's Hist. of his own Times*. —One of these gentlemen was accused of the grossest *peculations*. *Burke*.

PECULATOR, *f.* [Latin.] A robber of the public.

PECULIAR, *adj.* [*peculiaris*, from *peculium*, Lat.] Appropriate; belonging to any one with exclusion of others.—I agree with sir William Temple, that the word humour is *peculiar* to our English tongue; but not that the thing itself is *peculiar* to the English, because the contrary may be found in many Spanish, Italian, and French productions. *Swift*.—Not common to other things. —The only sacred hymns they are that Christianity hath *peculiar* unto itself, the other being songs too of praise and of thanksgiving, but songs wherewith as we serve God, so the Jews likewise. *Hooker*.—Particular; single. To join *most* with *peculiar*, though found in Dryden, is improper.—Space and duration being ideas that have something very abstruse and *peculiar* in their nature, the comparing them one with another may be of use for their illustration. *Locke*.

One *peculiar* nation to select
From all the rest, of whom to be invoc'd. *Milton*.

I neither fear, nor will provoke, the war;
My fate is Juno's most *peculiar* care. *Dryden*.

PECULIAR, *f.* The property; the exclusive property.—Revenge is so absolutely the *peculiar* of heaven, that no consideration whatever can empower even the best men to assume the execution of it. *South*.

By tincture or reflection, they augment
Their small *peculiar*. *Milton's P. L.*

Something absconded from the ordinary jurisdiction.—A particular parish or church, that hath jurisdiction within itself, and power to grant administration or probate of wills, &c. exempt from the ordinary. *Jacob*.—See vol. v. p. 300.

PECULIARITY, *f.* Particularity; something found only in one.—If an author possessed any distinguishing marks of style or *peculiar*ity of thinking, there would remain in his least successful writings some few tokens whereby to discover him. *Swift*.

To PECULIARIZE, *v. a.* To appropriate; to make

peculiar.—There was to be no more distinction betwixt the children of Abraham and other people, and no one land more *peculiarized* than another. *Nelson's Fests*.

PECULIARLY, *adv.* Particularly; singly.—That is *peculiarly* the effect of the fun's variation. *Woodward*.—In a manner not common to others.—When his danger increased, he then thought fit to pray *peculiarly* for him. *Fell*.

PECULIARNESS, *f.* Appropriation.—Mankind by tradition had learned to accommodate the worship of their God, by appropriating some place to that use; nature teaching them, that the work was honoured and dignified by the *peculiar*ness of the place appointed for the same. *Mede's Rev. of God's House*, 1638.

PECULIUM, *f.* [Latin.] The stock which a person in the power or property of another, as a slave, minor, or the like, might acquire by his own industry, without any advance or assistance from his father or master; but merely by their permission. The slaves among the Romans frequently amassed considerable sums in this way. The word is generally taken to signify the advanced price which a slave could get for his master's cattle (*pecus*) or other goods, beyond the price fixed upon them by the master: this became the slave's own property.

In the Romish church, *peculium* denotes the property which each monk or religious reserves, and possesses to himself.

PECUNIA, *f.* [Latin.] Money. But *pecunia*, in our old law-books, is sometimes used for cattle, and sometimes for other goods as well as money. In the emendation of the laws of Edward the Confessor, by William I. it is ordered, that no *viva pecunia* "living money," i. e. cattle, be bought or sold, except within cities, and that before three sufficient witnesses. So in *Domesday* book, *pecunia* is frequently used, *pro pecude*; as, *pasture ad pecuniam villæ*.

PECUNIA, a goddess among the Romans, whom they invoked with a view of procuring money in abundance. But, as the specie was coined of different metals, especially of gold, silver, and brass, and as one divinity would have too much occupation in taking care of the different coinages, a particular one was appointed for each. The three goddesses represented upon some medals of the emperor Commodus and his successors, with a pair of scales, the cornucopia, and a heap of money, by them, prove that there was at least that number, and the antiquaries agree that they presided over the coinage of three metals. Besides these three divinities, there was also *Æs* or *Æsculanus*, for the brass coin.

PECUNIARY, *adj.* [*pecuniarius*, from *pecunia*, Lat. *pecuniare*, Fr.] Relating to money.—Their impostures delude not only unto *pecuniary* defraudations, but the irreparable deceit of death. *Brown*.—Consisting of money.—Pain of infamy is a severer punishment upon ingenuous natures than a *pecuniary* mulct. *Bacon*.

PECUNIOUS, *adj.* [*pecuniæus*, Fr.] Full of money. *Not in use*.

PECUNIUS, a deity of the ancient Prussians, in honour of whom they kept a fire lighted with oak perpetually burning. A priest constantly attended; and, if the fire happened to go out by his neglect, he was instantly put to death. When it thundered, they imagined that their grand priest conversed with their god, and for that reason they fell prostrate on the earth, praying for seasonable weather. *James's Mil. Dict.*

PED, *f.* [properly *pad*, from *paja*, Span. straw. See **PAD**.] A small pack-saddle.—A *ped* is much shorter than a pannel, and is raised before and behind, and serves for small burdens. *Johnson*.—A pannel and wanty, pack-saddle and *ped*. *Tusser*.—A basket; a hamper.—A hawk is a wicker *ped*, wherein they used to carry fish. *E. K. Notes on Spenser's Shep. Cal.*

PEDACE, a town of Naples, in Calabria Citra: six miles south of Cosenza.

PEDAGE, *f.* [*pedagium*, from *pes*, Lat. foot.] Toll, or a local due, exacted on persons, goods, and carriages, passing

passing through certain places. Pedage is usually levied for the repairing of roads, bridges, and causeways, the paving of streets, &c.—Anciently, those who had the right of *pedage*, were to keep the roads secure, and answer for all robberies committed on the passengers between sun and sun; which is still observed in some parts of England and in Italy. *Chambers*.

PEDAGOG'IC, or PEDAGOGICAL, *adj.* [from *pedagogue*.] Suiting or belonging to a schoolmaster.—In the *pedagogic* character he also published Holcot's [Huloet's] dictionary. *Warton's Hist. E. P.*—Those *pedagogical* Jehu's, those furious school-drivers. *South's Serm. on Education*.

PEDAGOGISM, *f.* [from *pedagogue*.] Office or character of a pedagogue.—Now the worm of criticism works in him, he will tell us the derivation of "German rutters, of meat, and of ink;" which doubtless, rightly applied with some gall in it, may prove good to heal this tetter of *pedagogism* that bepreads them. *Milton's Apol. for Smectymn*.

PEDAGOGUE, *f.* [*pedagogue*, Lat. *παιδαγωγος*, Gr. of *παις*, a boy, and *αγω*, to guide.] One who teaches boys; a schoolmaster; a pedant.—If thou hast sons, in the first place be careful of their *pedagogue*, that he be modest, sober, learned. *Sir M. Sandys's Ess.* 1634.—Fleury observes, that the Greeks gave the name *pedagogues* to slaves appointed to tend their children, lead them, teach them to walk, conduct them to school, &c. The Romans also give the same denomination to the slaves who were entrusted with the care and instruction of their children. *Chambers*.

Few *pedagogues* but curse the barren chair,
Like him who hang'd himself for mere despair
And poverty. *Dryden*.

To PEDAGOGUE, *v. a.* To teach with superciliousness:

This may confine their younger stiles,
Whom Dryden *pedagogues* at Will's;
But never cou'd be meant to tie
Authentic wits like you and I.

Prior.

PEDAGOGY, *f.* Preparatory discipline.—The old sabbath appertained to the *pedagogy* and rudiments of the law; and therefore, when the great Master came and fulfilled all that was prefigured by it, it then ceased. *White*.—In time, the reason of men ripening to such a pitch as to be above the *pedagogy* of Moses's rod and the discipline of types, God thought fit to display the substance without the shadow. *South*.

PEDAH'ZAR, [Heb. a powerful deliverer.] A man's name.

PEDAI'AH, [Heb. the redemption of the Lord.] A man's name.

PEDAL, *adj.* [*pedalis*, Lat.] Belonging to a foot.

PED'AL, *f.* One of those large pipes of some organs, which are so called because played upon and stopt with the foot.

PEDALIUM, *f.* [a Greek name, chosen for this plant by professor David van Royen, in allusion, as it seems, to the shape of the fruit. *Πηδάλιον* is, as professor Martyn says, the "rudder of a ship," which each dilated angle, or wing, of the part in question, somewhat resembles; but the Greek word also means "a stud, button, or head of a nail," and the regular or artificial figure of the whole fruit, reticulated like filagree, might well suggest such an application of it here.] In botany a genus of the class didynamia, order angiospermia, natural order of luridæ, (bignonix, *Juss*.) Generic characters—Calyx: perianthium five-parted, small, permanent; the upper segment very short; the lowest longer. Corolla: one-petalled, subringent; tube three-cornered, with the belly flat: border five-cleft, wide, oblique: segments rounded; upper ones smaller, lowest wider. Stamina: filaments four, glandular-hairy at the base, shorter than

the tube: two shorter than the other two. Antheræ cordate, twin, terminated by a gland: rudiment of a fifth filament between the shorter stamens, with a very small anther. Pistillum: germ conical; style the length of the stamens. Stigma bifid; the upper segment reflex, the lower revolute. Pericarpium: drupe juiceless, ovate-pyramidal, four-cornered, the corners thorny towards the base. Seed: nut covered with bony fibres variously interwoven, four-winged, two-celled. Nucleus two, oblong, covered with an aril; one lower. There is a void cell, below the fertile ones.—*Essential Character*. Calyx five-parted; corolla subringent, with a five-cleft border; nut suberous, four-cornered, thorny at the corners, two-celled; seeds two.

Pedaliium murex, or prickly-fruited pedaliium, a single species. Stem simple. Leaves opposite, obovate, blunt, toothed, truncated, naked, with the petioles glandular on each side. Flowers axillary, solitary, small. Fruit nodding. According to Jussieu, it is a trichotomous herb, with opposite leaves. (Burman describes them as alternate, but perhaps his is a different species.) Flowers axillary, subsolitary. It has nearly the same fruit with *Tropa*; and the habit of *Martynia*. Of the same genus with this, or of a genus nearly allied to it is *Planta Euphrasix affinis*, Pluk. t. 373, f. 2. referred by Linnæus to *Torenia*. This plant, whilst it is in flower, smells very strong of mawk. Native of the East Indies. Introduced in 1778, by the late sir Joseph Banks, bart. It flowers in August and September; and is an annual plant.

PEDA'NEOUS, *adj.* Going on foot.

PEDA'NEUS, *f.* in the Roman civil law, a petty judge who had no formal seat of justice, but heard causes standing and without any tribunal. The word seems formed from *stans in pedibus*: and is used among the ancients by way of opposition to those magistrates who were seated in the curule chair, *in sella curuli*, or had a tribunal or bench raised on high. The Roman *pedanei*, therefore, were such as had no tribunal nor pretorium; but rendered justice *de plano*, or *plano pede*. From the eighty-second Novel, it appears that the emperor Zeno established these *pedanei* in the see of every province; and that Justinian erected seven of them at Constantinople, in manner of an office: granting them power to judge in any sum as high as three hundred crowns.

PED'ANT, *f.* [French.] A schoolmaster.—A *pedant* that keeps a school in the church. *Shakespeare*.

The boy, who scarce has paid his entrance down
To his proud *pedant*, or declin'd a noun. *Dryden*.

A man vain of low knowledge; a man awkwardly ostentatious of his literature.—The preface has so much of the *pedant*, and so little of the conversation of men in it, that I shall pass it over. *Addison*.

In learning let a nymph delight,
The *pedant* gets a mistress by't.

Swift.

Pursuit of fame with *pedants* fills our schools,
And into coxcombs burnishes our fools.

Young.

PEDANTIC, or PEDANTICAL, *adj.* Awkwardly ostentatious of learning.—Mr. Cheeke had eloquence in the Latin and Greek tongues; but, for other sufficiencies, *pedantic* enough. *Hayward*.—When we see any thing in an old satirist that looks forced and *pedantic*, we ought to consider how it appeared in the time the poet writ. *Addison*.—A spirit of contradiction is so *pedantic* and hateful, that a man should watch against every instance of it. *Watts*.—We now believe the Copernic system; yet we shall still use the popular terms of sun-rise and sun-set, and not introduce a new *pedantic* description of them from the motion of the earth. *Bentley*.—The obscurity is brought over them by ignorance and age, made yet more obscure by their *pedantic* elucidators. *Felton*.

PEDANTICALLY, or PEDANTICLY, *adv.* With awkward ostentation of literature.—The earl of Roscommon has excellently rendered it; too faithfully is, indeed, *pedantically*;

pedantically; 'tis a faith like that which proceeds from superstition. *Dryden*.

And what thou dost *pedantiely* object

Concerning my rude, rugged, uncouth, style,
As childish toy I manfully neglect,
And at thy hidden snares do inly smile.

More's Poems, 1647.

PED'ANTISM, *f.* The practice or profession of a pedant; pedantry. *Phillips*.

To PED'ANTIZE, *v. n.* To play the pedant; to domineer over lads; to use pedantical expressions. *Not now in use.*

PED'ANTRY, *f.* Awkward ostentation of needless learning.—From the universities the young nobility are sent for fear of contracting any airs of *pedantry* by a college education. *Swift*.—An obstinate addiction to the forms of some private life, and not regarding general things enough.—There is a *pedantry* in manners, as in all arts and sciences; and sometimes in trades. *Pedantry* is properly the overrating any kind of knowledge we pretend to; and, if that kind of knowledge be a trifle in itself, the *pedantry* is the greater. For which reason I look upon fiddlers, dancing-masters, heralds, masters of ceremony, &c. to be greater pedants than Lipsius or the elder Scaliger. *Swift on Good Manners*.

PED'ARIAN, *f.* in antiquity, those senators who signified their votes by their feet, not their tongues; that is, such as walked over to the side of those whose opinion they approved of, in divisions of the senate.

The origin of the word Dr. Middleton thinks owing to this, that, though the magistrates of Rome had a right to a place and vote in the senate, as well during their office as after it, and before they were put upon the roll by the censors, yet they had not probably a right to speak or debate there on any question, at least in the earlier times of the republic. For this seems to have been the original distinction between them and the ancient senators, as it is plainly intimated in the formula of the consular edict, sent abroad to summon the senate, which was addressed to all senators, as those who had a right to vote in the senate. From which distinction, these last, who had only a right to vote, were called, by way of ridicule, *pedarians*; because they signified their votes by their feet, not their tongues, and upon every division of the senate, went over to the side of those whose opinions they approved. It was in allusion to this old custom, which seems, however, to have been wholly dropped in the later ages of the republic, that the mute part of the senate continued still to be called by the name of pedarians, as we learn from Cicero, who, in giving an account to Atticus of a certain debate and decree of the senate upon it, says, that "it was made with the eager and general concurrence of the pedarians, though against the authority of all the consulars." See Aulus Gellius, lib. iii. c. 18. Cicero ad Attic. i. 19. Middleton of the Rom. Sen. p. 86.

PE'DATE, *adj.* in botany, deeply cut into segments connected with the petiole on the inner side only, like a bird's foot.

PEDDAGU'DAMY, a town of Hindoostan, in the circar of Ellore: ten miles north-west of Ellore.

PEDDAPOUR, a town of Hindoostan, in the circar of Rajamundry: twenty-two miles east-north-east of Rajamundry.

PED'DI-BALABA'RUM, a town of Hindoostan, in Mysore: sixteen miles north of Bangalore.

To PED'DLE, *v. n.* [perhaps from *petty*.] To be busy about trifles. It is commonly written *piddle*: as, What *piddling* work is here.—To act as a pedlar.—*Peddling* women cry Scotch cloth of a goat a-yard. *Crown's Sir Courtly Nice*.

PED'DLING, *adj.* Petty; trifling; unimportant.—Unnecessary rigours and *peddling* severities. *Bp. Taylor's Artif. Handsom*.—So slight a pleasure I may part with,

VOL. XIX. No. 1316.

and find no mis; this *peddling* profit I may resign, and 'twill be no breach of my estate. *Decay of Chr. Piety*.

PEDE'E, *f.* A footboy; a lackey. *Phillips*.

PEDE'E (Great), a river of America, which rises in North Carolina, on the borders of Virginia, in several small rivers which unite together, and afterwards take the name of Pedee. Its course is south, a little inclining to the east, and it runs into the Atlantic Ocean, six miles below George Town, in lat. 33. 17. N. lon. 5. W.

PEDE'E (Little), a river of South Carolina, which runs into the Great Pedee sixteen miles below Queenborough in South Carolina.

PEDEMON'TE D'AL'ISI, a town of Naples, in Lavora: twenty miles north-north-east of Capua.

PEDE'NA, or BI'BEN, a town of Itria, the see of a bishop: twenty-five miles south-south-east of Trieste, and sixty-four north-east of Rovigno. Lat. 45. 22. N. lon. 14. 16. E.

PEDE'ENSAC, a town of France, in the department of the Gironde: fifteen miles south of Bourdeaux.

PEDE'ERAST, *f.* [from the Gr. *παις*, a boy, and *εραστης*, a lover.] One who has a criminal passion for boys.

PEDE'ERASTY, *f.* A criminal passion for boys.

PEDE'RE'RO, *f.* [*pedrero*, Span. from *pedra*, a stone.] A small fort of cannon, which is particularly used on the quarter-deck of ships, to fire, or throw forth stones, broken iron, or partridge-shot, on an enemy attempting to board. They are generally open at the breach, having their chamber made to take out, to be loaded that way, instead of at the muzzle.

PEDE'ERNEE', a town of France, in the department of the North Coasts: four miles north-west of Guingamp, and ten south-west of Lannion.

PEDE'ERNEI'RA, a seaport town on the west coast of Portugal, in the province of Estremadura, containing 1300 inhabitants: eighteen miles south-west of Leyria, and eighteen north-east of Peniche. Lat. 39. 31. N. lon. 8. 56. W.

PEDE'ERSORE, a town of Sweden, in the government of Wafa: three miles south of Jacobstadt.

PEDE'STAL, *f.* [*pedestal*, Fr.] The lower member of a pillar; the basis of a statue. See ARCHITECTURE.—In the centre of it was a grim idol; the fore-part of the *pedestal* was curiously embossed with a triumph. *Addison*.

So stiff, so mute! some statue you would swear
Stept from its *pedestal* to take the air.

Pope.

PEDE'STRIAL, *adj.* [*pedestris*, from *pes*, the foot, Lat.] Employing the foot; belonging to the foot. A modern word.—Of the different methods that have been described in history, by which archery has been practised, that in use among the Ethiopians, and a few other nations, is undoubtedly the most extraordinary. We read that these people, instead of holding their bow in the left hand, as is the usual custom, drew it by the assistance of their feet. The fact is recorded by Diodorus Siculus and Strabo; the latter of whom informs us of a curious expedient of this *pedestrial* archery, used by the Ethiopians in hunting elephants. *Mosely on Archery*.

PEDE'STRIAN, *adj.* On foot.

PEDE'STRIAN, *f.* One who makes a journey on foot; one distinguished for his powers of walking. A modern word. Hence,

PEDE'STRIANISM, *f.* Feats of walking.—Curiosity is a prevailing foible in almost every country; and the person who is capable of performing any wonderful exploit seldom fails to excite the attention of the admiring multitude. The inhabitants of this kingdom have for some years past been endeavouring to raise this passion by the swiftness of their horses; and, while some have lavished away their fortunes in pursuit of this pleasure, others have more prudently employed these noble animals, and rendered their speed of general service, by using them in business where dispatch is necessary. Hence it has become an universal practice to have recourse to them

them in matters of haste and expedition, and *men* have therefore had few opportunities of showing their alertness. In England, indeed, from the goodness of the roads, the opportunities of changing horses, and their extraordinary speed for single stages, swiftness in man is of less consequence to us than it was to our ancestors, who kept in their service men of prodigious swiftness called running footmen, and used in all messages and affairs of dispatch.

Foot-races formed one species of the games among the ancients; but we do not find any instances of walking a considerable distance for a wager. However, the exertions of men must have been often called into use for the purpose of delivering messages, and of carrying dispatches and other intelligence.

Philippides, who was sent by the Athenians to implore the assistance of the Spartans in the Persian war, in the space of two days ran 170 Roman miles. Euchides was sent from Athens to get some of the holy fire from Delphos; he went and returned the same day, which is 125 Roman miles.

Henry V. king of England, was so swift in running, that he, with two of his lords, without bow or other engine, would take a wild buck or doe in a large park.

There was a sort of footmen, called *piechi*, who attended upon the Turkish emperors, and were occasionally dispatched with orders and expresses. They ran so admirably swift, that with a little pole-axe and a phial of sweet waters in their hands, they have gone from Constantinople to Adrianople in a day and a night, which is about 160 Roman miles.

Among the moderns we have however numerous and curious instances of pedestrianism.

On the 4th of January, 1759, Geo. Guest, of Birmingham, who had laid a wager that he could walk 1000 miles in twenty-eight days, set out on his journey, and finished it with great ease. It seemed that he had laid by for bets; for in the two last days, we are told, he had 106 miles to walk, but walked them with so little fatigue to himself; that, to show his agility, he came the last six miles within the hour, though he had full six hours to do it in.

In July, 1765, a young woman went from Blencogo to within two or three miles of Newcastle, in one day, being 72 miles. *Notum quid femina possit.*

But the most famous champion of pedestrianism, the man, at least, who first set the thing a-going, as we may say, in our time, was Mr. Foster Powell, a lawyer's clerk in New Inn. He was born at Horsforth, near Leeds, in Yorkshire, in the year 1734. His first pedestrian feat upon record is in the year 1764, when he went a journey on the Bath road, fifty miles, which he accomplished in seven hours, going the first ten miles in one hour.

In the former part of his life, he travelled into several parts of Swisserland and France. But the first journey which he undertook, that spread his fame, was in the year 1773, when he engaged to go on foot from London to York and back again, (the distance is 402 miles,) in six days, which he accomplished in five days eighteen hours. He set off from Hicks's Hall, and returned to the same place. After that he did not undertake any journey till the year 1786, when he engaged to go on-foot 100 miles on the Bath road in twenty-four hours, which he accomplished in twenty-three hours and a quarter. He set off from Hyde Park corner, and returned to the same place. The next year, 1787, he undertook to go on foot from Canterbury to London and back again in twenty-four hours; the distance is 112 miles; which he accomplished to the great astonishment of many thousand spectators, who waited his return. The following year, 1788, he undertook, at Canterbury, to run one mile against Mr. Smith of the same place. This wager he lost. The same year he engaged to perform, his favourite journey from London to York, and back again, in six days, which he accomplished in five days twenty hours. In the year 1789 he engaged to go on-foot from Canterbury to Lon-

don and back again in twenty-four hours; and would have accomplished it but for the misfortune of losing his way on Blackheath, as he was coming to town, and which detained him near an hour above the time allowed him. The next year, 1790, he engaged to go on-foot from London to York and back again in six days, which he accomplished in five days eighteen hours. The same year he undertook to go against Mr. West, of Windfor, forty miles on the Bath road. In this undertaking he was beat, owing to the great difference of age between him and West. This bet was for twenty guineas on each side.

Having now convinced the world so often that he could accomplish the journey to York and back again in less than six days, he was determined, for the last time in his life, to attempt it in a much shorter time, although he was at the advanced age of fifty-eight years. Accordingly, in the year 1792, he set off from Shoreditch Church to York Minster and back again, and accomplished it in five days fifteen hours and a quarter, to the great astonishment of many thousand spectators. This same year he walked, for a bet of twenty guineas, on the Clapham road, six miles in fifty minutes and a half. After that he went down to Brighton, and engaged to walk one mile and run another in fifteen minutes, which he performed in fourteen minutes forty-three seconds. He walked the mile in nine minutes twenty seconds, and ran the other in five minutes twenty-three seconds. So great was his fame spread as a pedestrian, and so desirous were people in general to have a sight of him, that, absurd as it may appear, he was engaged at Astley's Amphitheatre for twelve nights, where he had a benefit, and exhibited the different paces at which he travelled, though in a small circle. Mr. Powell in person was tall and thin, his height about five feet nine inches, made strong downwards, and well calculated for walking. His complexion was of a fallow colour. He was very particular in his diet when he was about setting out on his journeys; and seldom or never ate meat when travelling, but mostly light food. His last journey to York was supposed by the faculty to be the cause of his death, as he never recovered the fatigue which he experienced in performing it in so short a time, and at so advanced an age, his health at that time being indifferent. He departed this life Monday morning, about four o'clock, April 15, 1793, in the fifty-ninth year of his age; and was interred in the burying-ground of St. Faith, the east corner of St. Paul's church-yard, near Cheapside, at his own desire.

The following instance of exertion in walking, performed by one Thomas Savager, which took place the beginning of the year 1789, is related by the Rev. John Lodge, in his Sketches towards a Topographical History of the County of Hereford. "This man, who was at that time about fifty years of age, five feet four inches high, and lame, from one leg being considerably shorter than the other, undertook, for a wager of twenty guineas, to walk 404 miles in six days. The line agreed upon for the display of his agility, was on the turnpike road from Hereford to Ludlow, and back again. Owing to the unevenness and badness of the road in general, and especially to the lofty hill of Dunmore, which he was obliged to pass at least three times a-day, the odds at starting were a guinea to a shilling against him, and were still further increased on the third day by a fall of snow, which made the road exceedingly slippery and dirty. He continued his career, however, with infinite spirit, and won his wager five hours within the time allowed. It appeared afterwards, by adding together the superfluous ground he had walked to his lodgings at Hereford, Ludlow, and elsewhere contiguous to the road, that, instead of 404, he had actually travelled no less than 429 miles," which makes more than three miles an hour for the whole 139 hours!

Jan. 10, 1810, a journeyman taylor, named Macdonald, undertook for a trifling wager to walk from Westminster bridge

bridge to Chatham, and back again, being a distance of sixty-four miles, in fifteen hours; which he performed in forty minutes less than the given time. For the greater expedition, he chose to go without shoes and stockings.

July 12, 1809, Capt. Barclay completed at Newmarket his (then thought very extraordinary) task of walking 1000 miles in 1000 successive hours; which certainly was no trifling exertion, since he must have been kept out of bed for six weeks.

But the task completed by Josiah Eaton, in December 1815, upon Blackheath, not only exceeded all former experiments of this nature, but gave a convincing proof that man is scarcely acquainted with his own capacity and powers, and that it needs but resolution and practice to effect even the most apparently improbable objects. The match completed by Eaton with so much ease, was imitative of that performed by Capt. Barclay with so much difficulty. Barclay, it is well known, endured the utmost fatigue and pain, and was roused from his intervening hours of rest by the most severe treatment: but Eaton was ever found upon the alert; and repaired from his resting to the starting place with cheerfulness and vigour. The same uniform health and strength also which marked his career distinguished his last hour's performance; at the conclusion of which he went before the lord-mayor, and made the following affidavit, which, with other certificates by persons who witnessed his performance, removes all doubt as to the complete achievement of this undertaking: "Having undertaken to walk 1100 miles in 1100 successive hours, on Blackheath, I hereby make oath, that I commenced the same at twelve o'clock at noon, on the 10th day of November last, and that from that time to the conclusion of the task, at eight o'clock on the morning of the 26th of December inst. I continued to walk eight furlongs every hour, and so on successively, until I completed 8800, which is 1100 miles. And this I declare to be the truth: so help me God. JOSIAH EATON."

In the preceding month, namely, on the 20th of November, one Baker concluded a walk of 1000 miles in twenty days. It appears, by measurement, that Baker, in performing the 1000 miles, had made 1,921,920 steps, and gone 8008 times up and down the course: on being weighed, he had lost, during the time, only one-half pound in weight.

Feb. 11, 1818, a Mr. Howard completed the task of walking 600 miles in ten days. This match is beyond the powers of a horse; and the man was greatly distressed at the latter end of his journey. It was for a wager of 200 guineas.

May 9 of the same year, D. Crisp accomplished the extraordinary undertaking of walking to and from Oxford and London for seventeen successive days, being sixty-one miles each. He performed the whole within fifty-two minutes of the allowed time.

James Bigmore, of Sudbury, in Suffolk, a poor lad whose exertions in running by the side of stage-coaches have been often noticed, accomplished an extraordinary feat on the 26th of April, 1819. He started from Sudbury with the Phenomena coach at half-past twelve at noon, and ran eleven miles in the first hour. On stopping at the different stages he took no rest, but assisted in putting in the horses, and again set off with alacrity. In this manner he kept up with the coach the whole way to Norwich, a distance of nearly sixty miles, where he arrived five minutes before seven: nor did he seem at all distressed, but walked about to view the city. In order to breathe freely, he places a piece of cane between his teeth, so as to keep his lips partly open. The only recompence he obtains for so hard labour is the voluntary contribution of accidental admirers of his feats.

In the year 1820, George Wilson, calling himself "the Blackheath Pedestrian," published the following list of his feats in this way.

"April 16, 1813.—At Newcastle-upon-Tyne, 50 miles

in 12 hours, in a small flagged yard, 33 feet by 25½, taking 10,300 turns to make up the distance; and accomplished this task four minutes and forty-three seconds within the time stipulated.

Aug. 30, 31, 1814.—At Shooter's Hill, on the Dover road, in the county of Kent, between the seven and eight mile stones, 96 miles in 24 hours, and accomplished this task 28 minutes within the time stipulated.

Sept. 11-27, 1815.—At Blackheath, 751¼ miles in 15 days, and on the morning of the sixteenth day was stopped, by order of part of the magistrates of the district.

May 23, 24, 1816.—At Cambridge, 100 miles in 24 hours, and lost this match by 3½ minutes, owing to a very heavy fall of rain, which continued between three and four hours. Commenced at six o'clock in the evening, and finished at six the following day, on the Hill's road, near Parker's Pieces, in the county of Cambridge.

July 10, 1816.—At Norwich, in the Prussia Gardens, 50 miles in 12 hours; and accomplished this task 15 minutes within the time, in the midst of a severe thunder-storm.

Aug. 1, 2, 1816.—At Yarmouth in Norfolk, 100 miles in 24 hours, in Vauxhall Garden, North Ferry; and accomplished this task 9½ minutes within the time.

Aug. 8, 1816.—At Lowestoft, Suffolk, 50 miles in 12 hours, on the Bowling Green; and accomplished this task 15 minutes within the time, which took 16½ rounds to make a mile.

Aug. 27, 1816.—At Lynn, in Norfolk, 50 miles a-day, for 5 successive days, at 13 hours to the day, to begin at 6 o'clock in the morning and to finish at 7 o'clock in the evening; and was always done within the time stipulated.

Oct. 14 to Nov. 2.—At Hull, in Yorkshire, 1000 miles in 18 days; which he accomplished 2 days sooner than any other man in the kingdom, and finished his task 40 minutes and 50 seconds within the time amidst a heavy shower of rain, in a garden near the town.

July 7-26, 1817.—At Manchester, in Vauxhall Garden, which took five rounds to make a mile, 1000 miles in 18 days, being the second time of accomplishing this extraordinary task.

March 9, 1819.—At Weymouth, on the Esplanade, 50 miles in 12 hours; which he performed 20 minutes within the time, on a half-mile course.

June 1, 1819.—At Newport, in the Isle of Wight, 100 mile, in 26 hours, which took six rounds to make a mile; and performed this task 5 minutes within the time.

Sept. 20-25, 1819.—At Lewes, in Sussex, 300 miles in 6 days, at 50 miles a-day, which took twelve rounds to make a mile.

And, lastly, at Chelsea in Middlesex, 1000 miles in 18 days, with four rounds to make a mile; being the third time of accomplishing this extraordinary task, and which he will not again attempt, being 54 years of age on the 24th of June, 1820, and having accomplished so many extensive and arduous undertakings."

1822.—Mr. Barnard West, a noted pedestrian, started at twelve o'clock on Monday, Sept. 30, to go from Kensington to Maidenhead Bridge and back, 48 miles in 7 hours, for a stake of 200 guineas. The pedestrian, on his return, halted at Brentford, having the last five miles to do in 40 minutes. He won the match with great difficulty, having only three minutes to spare.

A match, which equals any pedestrian feat on record, took place on Wednesday, Oct. 2, in Cranbourn Grove, Windsor Forest. Bumstead, a gentleman's groom, was matched by his master for one hundred guineas, to run 10 miles in 56 minutes. The first five miles were done in 27 minutes and 25 seconds, without visible fatigue, but in the ninth mile there seemed something amiss, and betting was 2 to 1 on time. It was a momentary loss of wind, which the pedestrian recovered, and won in 55 min. 51 sec. having 9 seconds to spare.

On Monday, Oct. 14, at Sheffield, a man named Town-fend

send performed a surprising task; viz. gathering with his mouth one hundred stones placed at the distance of one yard, and walking four miles backward, and running eight, making in the whole eighteen miles, which he performed in three hours and fifty-six minutes, being four minutes under the time specified. He gathered the hundred stones in forty-seven minutes, equal to a distance of nearly six miles.

Captain Fairburn, on the 14th Oct. undertook to walk, fair toe and heel, eighteen miles in three hours and a quarter, for 200l. The ground selected was Epping Forest, and he won in three hours nine minutes and ten seconds.

One Skipper finished an arduous undertaking at Newmarket on Wednesday, Oct. 16, having walked 1000 miles in 1000 successive half-hours. He appeared in good health at the close. He had no backers.

Abernethy, a Scotch pedestrian, this month performed a match to from London to Nottingham and back, making a circuitous route of 260 miles, in four successive days. He started on the 16th of October.

On Friday, October 18, a match, which excited very great interest at the club-houses, and upon which there was heavy betting, was decided on the Kilburn-road. Captain Smith, well known in the sporting world as a good pedestrian, undertook to run five miles in thirty minutes, for a stake of 50l. He started at eight o'clock from Maida-hill, a mile in and out, and finally performed the match, not even having a second to spare.

Another great pedestrian feat was performed this month by Mr. James Tinney, at Oundle. He engaged to walk ninety-six miles in twenty-four successive hours; and performed the task one minute within the time, without apparent distress, coming in to the winning point at the rate of six miles an-hour. He walked on the Peterborough road, a mile out and in: twelve or fourteen miles of the journey was on pavement as bad as any in the kingdom.

We have seen that Powell walked once from London to York and back in five days fifteen hours fifteen minutes. Townsend, whom we have mentioned above, made a wager, that he would perform the same journey in less time than that celebrated pedestrian. Townsend started from York on Monday the 21st of October at noon; arrived at Bawtry at eleven that night, and slept till four on Tuesday morning, when he started in heavy rain and very dark; arrived at Stamford at eleven at night, and quitted it at half past two on Wednesday morning; was detained on the next stage for an hour by illness; arrived at a village twenty-six miles from London at eleven at night; went to bed ill; rose at two on Thursday, was detained another hour by illness, but reached St. Paul's, London, notwithstanding, at ten minutes after ten in the forenoon of that day. Stopped in London only half an hour; on returning this day had three hours drenching rain; arrived at Roydon at eleven at night, but, though he had bespoke a bed and supper at one of the inns, found himself shut out, and was obliged to walk some miles further, when, overcome by hunger, cold, and fatigue, he retired into a hovel for a little repose; arrived at Huntingdon at six on Friday morning, at Grantham a little after eight at night, slept till two on Saturday morning, started immediately; arrived at Newark at five, considerably indisposed: took some medicine; in a short time became as fresh as ever; was at Redford at one, at Bawtry at three, at Doncaster at five, at Ferrybridge at nine, and at Tadcaster at twelve, nearly knocked up; was here met by a great number of spectators, whose cheers gave him fresh spirits; started for York, and arrived at ten minutes before three on Sunday morning; having thus performed this Herculean task in five days, fourteen hours, and fifty minutes, and won the wager by twenty-five minutes.

Ralph Abernethy, a Scotchman, walked, (Nov. 3.) on the Bath road, seventy-two miles in twenty-four hours and forty-five minutes.

Thus we have brought up the history of pedestrianism to within a month of the time we are writing. But we must now go back a few years, in order to introduce to our readers a very interesting character, who walked thousands of miles, not against time and to get money, but in the most laudable pursuit, of increasing the knowledge of countries little frequented. The following narrative is from the Gentleman's Magazine for January 1796.

"A few days ago arrived in town from Halifax, in Nova-Scotia, Mr. Spillard, the celebrated pedestrian traveller, so frequently mentioned in the European and American publications. This singular character has been out near twelve years, and has travelled on foot, during that time, the distance of 69,000 miles and upwards, through all Europe, a great part of Asiatic Turkey, through Barbary, up to Mequinez and Fez in Morocco, and through the Arabs country.

"Being desirous to add America to the other three quarters of the world, he took passage from Gibraltar, about six years ago, for Boston; and has travelled, during that time, through all the United States, through East Florida, and from the river St. Mary's, through the wilderness, to the Lower and Upper Creek Nation, where he was kindly received by his friend Col. Magillivray. Being protected by him, he remained there for a considerable time, and was furnished by that gentleman with notes of that nation, of Indian manners and customs. From the Creeks he visited the Chickasaw, Cherokee, and Choctaw, nations of Indians, and was present at their councils and talks. From the Creek nation he proceeded to Pensacola, in East Florida, where he procured letters of recommendation from governor O'Neal, in the Spanish service, to the baron de Carondelet, at New Orleans, the governor of Louisiana, who very politely received him, and gave him a general passport, with letters of recommendation to the governor of the Natchez, and to all the commandants of districts and out-posts in this extensive province.

"Mr. Spillard's intention being to go up the Missouri to its source, he set out from New Orleans, accompanied by some gentlemen, who would insist upon seeing him as far as the post of the Walnut Hills. There he crossed the Mississippi, with six men in his company, and went up it till he came to the confluence of the Missouri with the Mississippi. Having gone up the Missouri a distance of more than 3000 miles, he fell in with six white hunters, from the Ouchita river, who advised him not to attempt going up any farther, as they themselves had lost all their peltry and horses, and narrowly escaped with their lives from the Ouza Indians; these Indians never give any quarter to either red or white men. Thus deterred, he came down to Natchez, and soon after came down the Mississippi till he got to the confluence of the Red River, the source of which he was determined to find out at all events. He accordingly went up as far as Annilise, where he parted with his canoe, and struck off to Oppalusa, which, as well as Atakapau and New Iberia, he carefully examined. Here he struck across the mountains to Nachitoches, which is the last Spanish port upon the Red River. Previous to leaving New Orleans, the governor gave him letters to the governor of the province of Thokofs, in New Spain, where he arrived at the city of St. Antoine in a month after his departure from Nachitoches. The governor, Dr. John Curtefs, received him politely, and, after resting a few days, gave him a small guard as an escort to the South Mountain of Santalee. Here he fell in with the south branch of the Red River, which he continued down till he came to the north branch, and so continued along its banks in the great plain till he came to the Pawnee nation of Indians, and so on to the Cansee Indians, continuing his route till he arrived again at Nachitoches, and so down to the mouth of the river.

"Mr. Spillard is the first person who has ever taken a draught of this river from its source, from the mountains

of Santalee to its junction with the Mississippi, a distance, with its windings, little short of 4000 miles. This gentleman, in attempting to get to England, had been twice captured by French privateers out of Charlestown, and stripped of every thing valuable about him; but had the good fortune to save his journals and notes, which are intended shortly for publication. He came to England in his majesty's ship the *Thistle*."

PEDESTRIOUS, *adj.* Not winged; going on foot.—Men conceive they never lie down, and enjoy not the position of rest, ordained unto all *pedestrians* animals. *Brown*.

PEDICELLARIA, *f.* the STALKED WORM; in natural history, a genus of the class vermes, order mollusca. Generic characters—Body soft, and seated on a rigid stiff peduncle; aperture single. There are three species.

1. *Pedicellaria globifera*: head spherical, reddish, with the appearance of a small cherry; no neck; peduncle or stem tawny. This is shown on the Helminthology Plate III. fig. 7. in our ninth volume.

2. *Pedicellaria triphylla*: head three-lobed; lobes sometimes nearly square, and unarmed; neck round. The head has reddish or hyaline lobes, sometimes ovate; the neck is flexuous and blue; the peduncle or stem is of a chestnut-brown. See the preceding Plate, at p. 428. where the lobes of the head are shown both shut and open, and of the natural size, at fig. 7. the same magnified at fig. 8, 9. and a variety with the lobes square, and greatly magnified, at fig. 10.

3. *Pedicellaria tridens*: head three-lobed; lobes oval, and awned; neck round. The neck is smooth and hyaline, sometimes reddish; the lobes of the head are sometimes four, and thrice as long as the neck, rarely unarmed with awns; the peduncle is reddish, and three times as long as the neck. This is shown, with the awns shut and open, in three positions, of the natural size, at fig. 11. magnified at fig. 12, 13, 14. a four-awned variety at fig. 15. a variety without awns, fig. 16. All the species and their varieties inhabit the Northern Seas among the spines of the Echini.

PEDICLE, *f.* [*pedicellus*, a diminutive of *pes*, Lat. a foot.] Footstalk; that little stalk whereby the leaf, fruit, or flower, is sustained, and connected to its branch or stem.—Flowers will keep fresh a long time after gathering, by immersing their *pedicles* in water. The great secret of preserving fruits for the winter is to seal up their *pedicles* with wax. Cherries with the shortest *pedicles* are esteemed the best. The pistil of the flower sometimes becomes the *pedicle* of the fruit. *Chambers*.

PEDICULAR, *adj.* [*pedicularis*, from *pediculus*, a louse, Lat. *pediculaire*, Fr.] Having the phthiriasis, or lousy distemper. See **PEDICULUS**.

PEDICULARIS, *f.* [from *pediculus*, Lat. a louse; which alludes to a quality attributed to some of the species, of making sheep lousy that feed upon them. This report might perhaps arise, as with respect to the *Drosera* and *Hydrocotyle*, from their growing in watery pastures, where sheep become unhealthy and scabby, whether they feed on any of these herbs, which is very doubtful, or not.]

LOUSE-WORT; a very noble and beautiful genus of plants, (notwithstanding its unpromising name,) of the class didynamia, order angiospermia, natural order of personatæ, (*pediculares*, *Juss.*) Generic characters—Calyx: perianthium one-leafed, roundish, ventricose; with a five-cleft equal mouth; permanent. Corolla: one-petalled, ringent; tube oblong, gibbous: upper lip galeate, erect, compressed, emarginate, narrower: lower spreading, flat, half-three-cleft, blunt: middle segment narrower. Stamina: filaments four, the length of the upper lip, under which they lie concealed: two shorter; antheræ incumbent, roundish, compressed. Pistillum: germen roundish; style filiform, in the same situation with the stamens, but longer; stigma blunt, bent in. Pericarpium: capsule roundish, mucronate, oblique, two-celled, opening at top; partition contrary. Seeds: several, ovate, angular; receptacle subglobular, in the base of the capsule. *Essen-*

tial Character. Calyx five-cleft; capsule two-celled, mucronate, oblique; seeds coated. There are nineteen species.

1. *Pedicularis palustris*, marsh louse-wort, or red rattle: stem branched, calyxes crested callous-dotted, lip of the corollas oblique. Root annual. Stem about a foot high, upright, angular, purplish, hollow, branched. Leaves bipinnatifid; or pinnate with about ten pairs of long pinnae, which are semipinnate with short indented pinnales. Leaves and flowers distant. Flowers axillary, solitary, on short peduncles, forming a loose spike; corolla purple, varying to white: helmet with a little tooth on each side, not notched at the end; lower lip fringed with fine soft hairs. Native of many parts of Europe, particularly the northern parts, in marshes and wet meadows; flowering in June and July. It is an unwelcome guest in meadows, being disagreeable to cattle, and thought by some to be destructive to sheep: it is somewhat caustic, and seems to be seldom eaten.

2. *Pedicularis sylvatica*, common or heath louse-wort; or red-rattle: stem branched, calyxes oblong angular even, lip of the corollas cordate. Stem very short. Branches from the root, long, spreading close to the ground. Leaves simply pinnate, with roundish acutely serrate pinnae. Floral leaves deeply divided: segments toothed. Leaves and flowers crowded. Flowers in a cluster at the top of the plant, and sparingly on the branches; calyx green within, purplish without, nearly half as long as the corolla, one of the clefts much deeper; segments toothed, that opposite to the deepest cleft narrowest; corolla purple, much more slender than the calyx: tube compressed: upper lip with a little tooth on each side; lower lip with three divisions, the middle segment a little smaller. Native of many parts of Europe and Siberia, in wet pastures and heaths, also in woods; flowering in June. The expressed juice, or a decoction of this plant, has been used with advantage as an injection for sinuous ulcers.

The calyx is commonly said to be five-cleft, with one segment very small and often simple; the other four-crested. To Villars it appeared to be four-cleft, like that of the preceding, from which it is distinguished by being a much smaller plant, frequently only two or three inches in height, whereas the other is sometimes eighteen inches, and in warm climates two and even three feet high: procumbent; and the flowers longer.

β. A very remarkable variety of this species is noticed by Dr. Smith, president of the Linnæan Society, in the tenth volume of their Transactions, p. 227. It consists, says Dr. Smith, of a solitary flower of that plant, which, instead of its proper ringent form, with two long and two short stamens, has a salver-shaped regular corolla, with six stamens, four of which are longer than the others. There is also what appears to be the style partly changed to a petal, and yet bearing a membranous expansion like one side of an anther. I conceive therefore that this is really an attempt at a seventh stamen, though become partly a petal. There is however no other sign of a style. "This specimen is very interesting to me, as being another instance of the same kind of variety as I have noticed in *Galeopsis tetrahit* at Matlock, (see *Fl. Lapponica*, ed. 2, 201.) I have also had in my own garden some regular salver-shaped flowers of *Chelone barbata* on the very same branch with the proper ringent ones. Such accidents are frequent in various species of *Antirrhinum* and *Bignonia*. They should be kept in mind by all students of systematical arrangement, as a warning not to expect that our artificial rules can keep pace with the intricacies of nature."

3. *Pedicularis rostrata*, or beaked louse-wort: stem declining, somewhat branched; helmet of the corollas acuminate-beaked; calyxes crested, subhirfute. Root black, thick, having large fibres swelling out a little in the middle. Stem inclined, five or six inches high, having sometimes a lateral branch from the lower part, with one

or two flowers on it; and also, but very seldom, another shorter near the base of the spike; which is rounded, and has few flowers, of a purple or deep red colour. Villars remarks, that this species not being always branched, to distinguish it from his *gyroflexa*, we must observe that the flowers of this are peduncled, in very small number, of a deep red, with the upper lip very much lengthened out and curved; the stem also is thinner. Native of Switzerland, Austria, Carniola, Dauphiné, Piedmont, and Silesia.

4. *Pedicularis Sceptrum Carolinum*, or sceptred louse-wort: stem simple, flowers by threes in whorls, corollas closed, calyxes crested, capsules regular. This is distinguished from the other species by the gape of the corolla being closed, the pericarp roundish, acuminate but regular, whereas in the others it is bent in with an oblique point. The size is half that of a man; the flowers four, five, or sometimes three only, at each joint, remote, in whorls; the corolla of a golden yellow colour, except that the lower lip is tinged with purple or blood-red at top. Rudbeck named it *Sceptrum Carolinum* in honour of Charles XII. king of Sweden, from its manner of growth like a sceptre. Discovered by Rudbeck in Lapland, where it was also found by Linnæus, in such abundance in one place on the highway as to stop a horse going full speed. It grows also in Dalekarlia, Ostrobothnia between Kemi and Uloa, near Ulfala, in Westrogothia, but more rarely: Norway, in several places: Prussia and Russia: in bogs, wet woods, &c. It is represented on the annexed Plate.

5. *Pedicularis verticillata*, or whorled louse-wort: stem simple, leaves in fours. Root more simple or less branched than in the other sorts. Stems several, simple, with smooth bipinnate leaves on them, opposite by threes or fours. Calyx rayed, often white, membranaceous, a little coloured and puffed out after flowering. It is very small, and has beautiful red flowers. It seems to be biennial. Native of Switzerland, Austria, Carniola, the south of France, Silesia, Siberia, &c.

6. *Pedicularis resupinata*, or topsy-turvy louse-wort: stem simple, leaves lanceolate ferrate crenulate, flowers resupine. Stem a foot high, even, quite simple. Flowers from the upper axils solitary, sessile; calyx even, blunt, bifid, entire; corolla of a very deep purple, turned upside-down. It varies with flesh-coloured and milk-white flowers. Native of Siberia.

7. *Pedicularis recutita*, or jagged-leaved louse-wort: stem simple, leaves pinnatifid ferrate, spike leafy, calyxes coloured, corollas blunt. Root perennial, woody. Stem upright, even, not more than a foot high. Native of Switzerland, Austria, and Silesia. Introduced in 1787, by William Pitcairn, M. D.

8. *Pedicularis tristis*, or dull-coloured louse-wort: stem simple, helmet of the corollas villose at the edge. This is a very hairy plant. Stem quite simple, a span high. Flowers heaped into a spike or head; corolla blunt, yellow; with the helmet a little curved inwards, villose at the edge. Native of Siberia.

9. *Pedicularis flammea*, or upright louse-wort: stem simple, leaves pinnate imbricate backwards. This at first sight resembles *Sceptrum Carolinum* in miniature, but it is twenty times less. It differs from the other species in having the leaves very like those of *Filipendula*, with the segments imbricate; the root tuberous and fusiform, like skirrets, with a few scales at the base; the corolla tawny, with the top of the upper lip purple, the lower lip shorter by half than the upper. Stem scarcely a finger's length, round, upright, dark purple. Root-leaves very many, spreading, on filiform petioles, bluntly lanceolate, almost divided to the midrib; the divisions ovate, the edge of one lying over the next, crenate and each notch crenulate. Stem-leaves fewer, some immediately under the spike, like the root-leaves. Spike terminating the stem, and covering a third part of it, upright, compressed, oblong. Calyx striated, thin, four-toothed, oblong. Corolla narrow, the lower lip very small, the upper narrow, almost

upright, blunt. Pericarp acuminate, with the tip curved inwards. The calyxes are by no means ferrate; and the corolla is very dark purple, especially at the end. Haller says that the upper petal or helmet is ferruginous; the lower or beard pale yellow. Native of Lapland, Switzerland, Silesia, Siberia. Introduced in 1775, by Drs. Pitcairn and Fothergill. It is represented at fig. 1. Plate II.

10. *Pedicularis hirsuta*, or hairy louse-wort: stem simple, leaves tooth-pinnate linear, calyxes hirsute. Root perennial. Stem half a finger's length, thick, with oblong clustered scales at the base. Root-leaves almost linear scales; stem-leaves a little longer than the scales. Spike terminating, very short, but thick and quadrangular: flowers six to twelve, sessile; pale flesh-colour, with a deeper heart-shaped spot on the lower lip. It differs from the rest in its wide embracing petioles, villose calyxes, the colour of the corolla, and the notches of the leaves.

Villars can scarcely think that the little Lapland plant is the same with that of Dauphiné and Piedmont. He describes it to be only two or three inches high, with the stem and leaves smooth. Leaves bipinnate, very fine and flat: on the stem only one or two, pinnate. Flowers from five to seven, in a distinct spike; calyx in five simple divisions, very villose; upper lip of the corolla blunt, a little curved: the whole bright red. It is allied to *P. incarnata*, but is only one sixth of the size. Villars found a plant at the Grande Chartreuse, connecting these two, in the size, and the form of the leaves, but the calyx less villose than either. Native of Lapland, Dauphiné, Piedmont, Siberia.

11. *Pedicularis rosea*, or rose-coloured louse-wort: stem simple, leaves pinnate, pinnae oblong pinnatifid, calyxes hirsute. Root branched, yellowish white. Stems one, two, or three, rising amid abundance of root-leaves, not much shorter than the stems, and having the appearance of lanceolate bipinnate fronds. Stem upright, somewhat angular. Each flower rises on a short red pedicle from the axil of a leafy bract, almost exceeding the calyx, green, pinnatifid-toothed; but in the upper bractes the teeth decrease to two, and even one. Calyx from an ovate base tubularly cylindrical, five toothed: teeth equal, simple, acute, red, as are also the nerves of the tube: the rest of the calyx is green, but the villose hairs that cover it are white and transparent; corolla elegant, red; with a tube longer than the calyx, fading away from red to white: helmet deep red; style rose-coloured at top, with a bluntish yellowish stigma. Native of Carinthia; flowering in July.

12. *Pedicularis incarnata*, or flesh-coloured louse-wort: stem simple, leaves pinnate ferrate, calyxes rounded smooth, helmet of the corollas hooked acute. Stem from a foot to eighteen inches in height, upright, not branched, terminating in a very long spike. This plant seldom has more than one stem from a root. Leaves large, bipinnate, thick and solid, smooth or very little villose; they are better furnished, and the divisions are thicker and much less deeply cut, than in *P. comosa* and *foliosa*. Flowers many, red, in a long loose spike. There is one variety, which is smaller and smooth; and another, with the leaves less cut and almost simple, the stem lower, and the flowers fewer, the colour of fire inclining more or less to yellow. There is no doubt of this being the plant of Allioni and Haller; but Villars hesitates respecting Linnæus, who describes the calyx as smooth. Native of Switzerland, Austria, Dauphiné, Silesia, and Siberia.

13. *Pedicularis Lapponica*, or Lapland louse-wort: stem simple, leaves pinnatifid ferrate, calyxes bifid blunt. Root perennial. Stem a span high, upright, almost straight, round, smooth. Root-leaves scarcely any. Stem-leaves seven or eight, lanceolate, acute, narrowed at the base into the petiole, alternate, divided to the middle into from fourteen to twenty pinnae, each having from two to five toothlets on each side, smooth. Spike terminating, loose, four-cornered, composed of from six to sixteen flowers, declining from the perpendicular, each

PEDICULARIS.





Upright Lousewort



Lapland Lousewort

J. Pass. sc.

each furnished with its bracte; the lower bractes longer than the flowers, the upper ones scarcely so long as the calyx; calyx smooth, tubular, with a bifid blunt mouth; corolla yellow, with the upper lip compressed, produced at the tip, reflexed downwards, and prominent, like an eagle's beak.

In *Flora Suecica* it is described as a palm in height; all the leaves of the same size, and not the root-leaves larger; pinnatifid, ferrate; calyxes sometimes quite entire, sometimes with two or four teeth. It differs from *P. tuberosa* in being smaller, in having more leaves on the stalk, smaller flowers, the root-leaves the same with those of the stem, the pinnae not subdivided but merely ferrate, the calyxes not ferrate, but, excepting three or four teeth, quite entire at the edge, and the stems smooth, not hirsute. Native of the mountains of Lapland and Dalecarlia, Denmark and Siberia. This elegant species is delineated on Plate II. at fig. 2.

14. *Pedicularis comosa*, or spiked louse-wort: stem simple, spike leafy, helmet of the corollas acute emarginate, calyxes five-toothed. By its port, size, and disposition of the flowers, this species holds the place between *P. tuberosa* and *foliosa*. Lateral roots whitish, tuberous, thicker at the end, as represented in John Bauhin's figure (3. 438.) the middle root is bigger and blackish. Stems commonly two, a foot high. Root-leaves tripinnate, the last divisions terminating in a white thread or spine a quarter or a third of a line in length. Stem-leaves two or three, smaller, and with the leaflets fewer and more separated. Spike terminating, three or four inches long, with white or yellow flowers, separated by bractes, which lengthen on their axis, and appear little beyond the flower, though they are longer: helmet bent back like a sickle, compressed, ending in a narrow but truncated point: they are inclined or roll round to the left, as in *P. rostrata* and *gyroflexa*. Native of the mountains of Italy, Dauphiné, and Siberia. Introduced in 1775, by Drs. Pitcairn and Fothergill.

15. *Pedicularis foliosa*, or leafy-spiked louse-wort: stem simple, spike leafy, helmet of the corollas very blunt entire, calyxes five-toothed. This is loftier and stronger than most of the other species. Stem from a foot to eighteen inches in height, strong and thick, losing the root-leaves, as soon as it rises to flower. Leaves very large, tripinnate, with the divisions very narrow, distinct and sharp, without sensible points; stem-leaves two or three, smaller and at the upper part only. The flowers form a considerable spike, are of a yellow colour, and separated by large bipinnate leaves.

Gouan remarks, that this is very different from the other species, even when it is not in flower. For the root-leaves are pinnate, with the pinnae deeply pinnatifid, and the lobules sharply toothed: the stem-leaves, on the other hand, especially the upper ones, are decursively pinnate, the pinnae being confluent, as in *Tansley*, *Achillea*, &c. Native of Swisserland, Austria, and the south of France. Introduced in 1786, by Edmund Davall, esq.

16. *Pedicularis Canadensis*, or Canadian louse-wort: stem simple, spike somewhat leafy, helmet of the corollas bristly-two-toothed, calyxes truncated downwards. Root perennial. Stem upright, a span high, pubescent towards the top. Found by Kalm in North America.

17. *Pedicularis tuberosa*, or tuberous louse-wort: stem simple, calyxes crested, helmet of the corollas hooked-beaked. Villars describes a plant under this name of *P. tuberosa*, which is so nearly allied to *P. comosa*, that it may possibly be no more than a variety of it. Stem simple, villose, and very thick; height from eight inches to a foot. Leaves villose, almost tripinnate, the divisions distinct, resembling a small fern; each last division ends in a very short recurved whitish thread. The stem has only a leaf or two. The flowers form a very thick spike, closer at top than at bottom: they are yellow or whitish. The leaves among the flowers and the divisions of the calyx are both simple. (According to Allioni they are divided.)

The upper lip of the corolla is sickle-shaped, and pointed at the end. According to Linnæus, it is a native of the Swiss, Italian, and Siberian, mountains. But Villars doubts the existence of it; and refers the *tuberosa* of Linnæus, Allioni, and Scopoli, to his *gyroflexa*.

18. *Pedicularis gyroflexa*, or gyrated louse-wort: leaves bipinnate, leaflets somewhat toothed, curled, and blunt; flowers turned to the left, hooked-headed. Root perennial, composed of a dark black trunk, often carious, three or four lines in diameter, from which spring thick lateral fibres, horizontal, quite simple, pretty long, not at all swelling out, any more than the trunk of the root. Stems one, two, sometimes several, rise bending to the height of six or eight inches, seldom a foot; they are villose, firm, and have one or two bipinnate leaves at their base, and as many, but smaller, on the upper part; they are terminated by a spike of a beautiful red colour, truncated and villose, composed of pinnatifid bractes of several villose calyxes, the divisions of which are toothed or pinnatifid. Helmet of the corolla turned to the left.

There is a variety, with finer and more distinct leaves, a yellow flower, and the pistil longer than the corolla, which, according to Bellardi, is the *tuberosa* of Linnæus. Native of the south of France, Swisserland, Carniola, and Piedmont.

19. *Pedicularis Groenlandica*, or Greenland louse-wort: stem simple, leaves pinnate ferrate, calyxes oblong, smooth, helmet of the corollas awl-shaped bowed longer. Native of Greenland. First given by Retzius under the name of *P. incarnata*, from which it differs in the leaves, spike, calyx, and helmet of the corolla.

The alpine species of *Pedicularis*, that is, all, except the two first and the sixteenth, have successively occupied several of the first botanists in the present age: Linnæus in Lapland, Haller in Swisserland, Gmelin in Siberia, Seguier and Allioni in Italy, and Villars in Dauphiné. Linnæus has described six natives of Lapland; Haller ten of Swisserland, but he said that he had thirty species from different countries; Gmelin twelve; Allioni eleven; and Villars ten, besides several remarkable varieties. These plants have their leaves very much cut, and that in a very regular manner. Their flowers are red, white, or yellow, and the mixture or shades of these three colours sometimes give the corolla the colour of fire. They grow in general at a considerable elevation, namely, more than a thousand toises above the level of the sea. Villars has taken much pains with these plants, and has corrected some mistakes into which Haller and Linnæus have fallen. He observes with great modesty, that if the cedars have bent, what are we to expect of the reeds? and that he could not pass by a favourable opportunity of celebrating their memories, by showing that their mistakes were almost unavoidable, and have even been useful to us. "May I not, says he, in paying homage to truth and the memory of the two first botanists of our time, hope for much indulgence from those learned men who have it in their power to correct my errors, and to complete the work which I have only begun?"

PEDICULUS, *f.* the LOUSE; in entomology, a genus of insects of the order aptera. Generic characters—Mouth with a retractile recurved sucker without proboscis; without feelers; the antennæ are as long as the thorax; it has two eyes; the abdomen is depressed; it has six legs formed for running. The insects of this genus live by extracting animal juices; the larvæ and pupæ are six-footed and nimble, resembling the perfect insect. Of these strange and unpleasing animals, there are sixty-six species, some of which infest the bodies of quadrupeds, others of birds, and some even of insects themselves. It must, however, be observed, that many small insects, infesting other animals, have been often referred to the genus *Pediculus*, which in reality belong to those of *Acarus*, *Monoculus*, &c. &c.

1. *Pediculus humanus*, the common louse: this nauseous insect is so well known as to render any very particular

ticular description unnecessary. As a species, it is distinguished by its pale livid colour, and lobated oval abdomen, with five joints to the antennæ. It is produced from a small oval egg, popularly called a *nit*, which is fastened or agglutinated by its smaller end to the hair on which it is deposited. From this egg proceeds the insect, complete in all its parts, fit to propagate its species immediately, and therefore differing only from the parent animal in its smaller size. Such diminutive specimens are far preferable, for microscopic observation, to the full-grown insect, showing in a more distinct manner the disposition of the viscera, muscles, &c. &c. When thus examined by the microscope, the principal appearances, according to Mr. Adams, are as follow: "In the head we may distinguish two fine black eyes, looking backward and fenced with hair; near these are the two antennæ, each of which has five joints set with short bristles; the fore-part of the head is rather long, the hinder more round or obtuse; there is a small part that projects from the nose or snout, this serves as a sheath or case to the proboscis or piercer, which the creature thrusts into the skin to draw out the blood and humours which are its destined food, for it has no mouth which opens in the common way. This proboscis has been estimated to be seven-hundred times smaller than a hair; it is contained in another case within the first, and can be drawn in or thrust out at pleasure. The skin is hard and transparent. From the under side proceed six legs, each of which has five joints, and terminates in two unequal hooked claws; these it uses as we would a thumb and finger; there are hairs between the claws, as well as all over the legs; the body finishes in a cloven tail, which is generally covered, and partly concealed, by hairs. From the extreme transparency of its skin, the internal parts may be seen to greater advantage than in any other insect; as, the various ramifications of the veins and arteries, in which a kind of regular pulsation may be observed, as well as the peristaltic motion of the intestines, which is continued from the stomach to the tail. When the louse feeds, the blood rushes like a torrent into the stomach, moving with so strong a propulsion and contraction, as appears very curious. The digestive powers are so great, that the colour of the blood changes in its passage from thick and black at its first entrance to a fine ruby colour in the intestines, and nearly white in the veins. Its greediness is so great, that the excrement contained in the intestines is ejected at the same time, to make room for this new supply."

It is affirmed by Leeuwenhoek that the male is furnished at the extremity of the abdomen with a sting; and that it is this instrument which causes the chief irritation suffered from these animals; the action of the sucker hardly seeming to have caused any perceptible pain on the skin of his hand. The male is readily distinguished from the female by having the tail or tip of the abdomen rounded: in the female it is forked or bifid. The same accurate observer (Leeuwenhoek), being desirous of earning the proportion and time of the increase of these insects, placed two lice in a black silk stocking, which he continued to wear day and night. He found that in six days, one of them had laid fifty eggs; and upon dissecting it, he found as many more in the ovary: he therefore concluded that in twelve days it would have laid an hundred eggs: these eggs, hatching in six days, which he found to be their natural time, would probably produce fifty males, and as many females; and these females, coming to their full growth in eighteen days; might each of them be supposed, after twelve days more, to lay also an hundred eggs; which in six days farther, (the time required to hatch them,) might produce a younger brood of five thousand; so that in eight weeks a louse might see five thousand of its own descendants!

It will be readily supposed, that the figures we shall give of these minute insects will be considerably magnified, that their parts may be brought distinctly before the

eye of the reader. Fig. 1. however, of the annexed Plate, shows the common louse of its natural size; fig. 2. the same magnified; fig. 3. more considerably magnified, and lying on its back.

β. Body-louse: less compact and paler. These pediculi are bred abundantly among the inhabitants of fordid dwellings, of gaols, and workhouses, &c. and in such situations prey upon persons of all ages indiscriminately. There is, however, also a peculiar state of skin in people advanced in years, and connected with the disease, which has been denominated *Prurigo senilis* by Dr. Willan, in which they are generated, notwithstanding every attention to cleanliness or regimen, and multiply so rapidly, that the patient endures extreme distress from their perpetual irritation. The nits or eggs are deposited on the small hairs of the skin; and the pediculi are only found on the skin or on the linen, and not under the cuticle, as some of the old authors have represented. Many marvellous stories, indeed, are related by Forestus, Schenckius, and others, respecting lice bred under the skin, and discharged in swarms from abscesses, strumous ulcers, and vesications: and many individuals of great note are stated to have died, in ancient times, from the multitude of these devouring pediculi. Thus Plutarch relates of Sylla: "It was long before he perceived that he had an ulcer within his body; but at last the flesh putrefied, and produced such a quantity of lice, that, though many persons were employed day and night in destroying them, yet they increased much faster than they could be removed; and to such a degree did the distemper prevail, that his clothes, baths, basins, and food, were polluted with that perpetual flux of corruption and vermin. He went many times in the day into the water, to scower and cleanse his body, but all in vain; the vermin multiplied so fast as to baffle every attempt to destroy them." The biographer adds, "It is said, that among the ancients, there died of this disease Acastus the son of Pelias, and nearer our own times Alcæon the poet, Pherecydes the philosopher, Callisthenes the Olynthian, during the time of his imprisonment, and Mutius the lawyer: and, if it be proper to add to these a person not distinguished by any merit or virtue, Eunus, a fugitive slave, who was author of the war in Sicily, called the servile war, and who was taken and carried prisoner to Rome, died likewise of this sickness." (See Plutarch's Life of Sylla; also, Plin. Hist. Nat. lib. xxvi. cap. 13. who, speaking of phthiriasis, observes, "quæ Sylla dictator consumptus est.") Herod, Ennius, and by some Plato, are said also to have been destroyed by the lousy disease. In more recent times, Amatus Lusitanus has affirmed, that he was witness to the case of a gentleman, who perished miserably in this disease: "for so universally did these insects swarm over his body, that two negro servants were entirely employed in collecting baskets-full from his person, and carrying them to the sea." Amat. Lusit. Contur. iii. Cur. 58. See also Forest. Obs. Med. lib. viii. obs. 14. Johan. Schenck. Obs. Med. lib. v. obs. 2.

The mode in which pediculi are generated being now well ascertained, and such fatal swarms of them being altogether unknown in modern experience, we can scarcely give credit to these accounts. They are not only in all probability much exaggerated, but have actually originated in mistake. The larvæ, or grubs, of several winged insects, especially those of the common fly (*Musca domestica*), and of the black beetle (*Tenebrio molitor*), not unfrequently breed, both in the internal passages, and in external wounds, of the human body. And in warm climates, the flies are so numerous about the persons of the sick, that the utmost care is requisite to prevent the generation of larvæ from the eggs which they deposit, not only in superficial wounds, but in the nostrils, mouth, gums, &c. sometimes even penetrating to the brain itself, and producing death. From this view of the subject, therefore, little doubt can remain, that the fatal cases of antiquity, above alluded to, occurring in the warmer regions

P E D I C U L U S .



1. 2. 3. Common Louse. 4. on the Crown. 5. on the Wild Goose. 6. on the Curlew. 7. on the Coot. 8. on the Peacock. 9. on the Pheasant.

gions of Europe, were in reality cases of ulceration, arising from scurvy or some other cachectic condition, which afforded a nidus for the breeding of the maggots of flies; and were not true instances of the morbus pedicularis.

The generation of lice, however, in connexion with the prurigo of elderly people, though not fatal, is frequently a very troublesome and obstinate malady, and many external applications have been resorted to from ancient times to destroy these loathsome and irritating parasites. But the destruction of them is commonly a mere alleviation; since their reproduction is extremely rapid. A decoction of the seeds of flaxseed, or of the cocculus indicus, or the powder of either of these substances, alone or mixed with lard in the form of an ointment, are very effectual destroyers of the pediculi of the head, and even of the body-lice. The mercurial ointments, such as that of the white precipitated oxyde, are also very efficacious in the same instances. The spike-oil, as it has been called, which is the essential oil of lavender, mixed with oil of turpentine, has been deemed the most efficacious poison for these pediculi: its virtue depends perhaps principally upon the oil of turpentine, which is doubtless the most ready instrument of destruction to all the insect tribe. Sir Edward Wilmot is said by Dr. Heberden to have used, with complete success, in a case of morbus pedicularis, a composition somewhat similar to the spike-oil; viz. of rectified oil of turpentine, and spirit of wine, each four ounces, camphor six drachms. A solution of the corrosive muriate of mercury in spirit is also often efficacious in the pedicular prurigo of the body, and tends to remove the pruriginous affection of the skin, which seems to give rise to the tendency to generate lice. It is to be observed, however, as a matter of caution, that none of these pungent stimulating substances can be applied to the skin, without inflicting extreme pain, unless its surface be unbroken: for where the cuticle is abraded by scratching, or by the breaking of pustules and vesicles, or by the formation of rhagades or chaps, the irritation and smarting excited by them is intolerable, and is followed by considerable inflammation. This disorder has been slightly mentioned, in our article PATHOLOGY, under the name of Exormia prurigo senilis. See p. 353. Plate VII. fig. 1. B.

2. *Pediculus pubis*, the crab-lice: abdomen emarginate behind; legs cheliform, hence its trivial name. In the antennæ are five articulations. It is found about the hairs of the groin, and sometimes, though very rarely, on the eye-brows of persons who are not attentive to habits of cleanliness; but never on the head or body. These troublesome visitors are instantly and completely destroyed by inunction with the common blue mercurial ointment.

3. *Pediculus ricinoides*: the abdomen is orbicular, marked with a white line; the scutellum is composed of three lobes; the snout is white. It is a native of America. It gets into the legs of the naked inhabitants, where it draws blood, and depositing its eggs in the wound occasions very alarming ulcers.

4. *Pediculus suis*: found on the body of swine.

5. *Pediculus porcelli*: found on the body of the *Cavia cobaya*, or Guinea pig.

6. *Pediculus cameli*: head projecting and pointed; body ferruginous; abdomen ovate. It is found on the camel.

7. *Pediculus ovis*: this infests the body of sheep.

8. *Pediculus cervi*: on the stag and deer.

9. *Pediculus bubali*: yellowish, with dusky-brown streaks; the abdomen has ten conic marginal tubercles. It is found on the buffalo.

10. *Pediculus bovis*: abdomen with eight transverse ferruginous lines. It inhabits the bodies of oxen, and cattle in general.

11. *Pediculus vituli*: abdomen lead-colour, and pointed at the end. Found on the bodies of heifers and cattle.

12. *Pediculus equi*: found on the body of the horse.

13. *Pediculus affini*: head projecting, obtuse; abdomen ovate, brown; legs cheliform. Found on the body of the ass.

14. *Pediculus vulturis*: oblong; abdomen brown, with two yellowish lines. It is found in the East Indies on the vulture, and is a large insect. It is farther characterized as having a flat head, yellowish, with black margins; the thorax is yellowish, with a black margin and dorsal line.

15. *Pediculus tinnunculi*: head arrow-shaped, and mucronate on each side behind. Found on the *Falco tinnunculus*, or kestrel.

16. *Pediculus buteonis*: abdomen margined: the segments with two impressed dots on each side. It infests the *Falco buteo*, or buzzard.

17. *Pediculus strigis*: abdomen ovate, white, edged with red; legs red. Found infesting various species of the *Strix* and *Falco*.

18. *Pediculus corvi*: abdomen ovate, with a striate margin. Found on various species of the crow.

19. *Pediculus cornicis*: abdomen ovate, pale, with lateral black spots, in which is a white pupil. Found on the common crow. See the Plate, fig. 4.

20. *Pediculus infausti*: thorax narrow; abdomen ovate, pale, diaphanous. It infests the *Corvus infaustus*.

21. *Pediculus picæ*: head obtuse, brown, with four black dots. This is found on the *Corvus pica*, or magpie.

22. *Pediculus oriolis*: white, with a brown line on the abdomen. Found on the roller and oriole.

23. *Pediculus cuculi*: abdomen oblong, whitish, with brown bands. It infests the *Cuculus canorus*, or cuckoo.

24. *Pediculus cygni*: head emarginate; abdomen ovate; the margin striate with black. It is found on the swan.

25. *Pediculus anseris*: filiform, pale; the margin dotted with black. It is found on the wild and tame goose. The animal represented at fig. 5. was taken from the wild goose.

26. *Pediculus moschatae*: this is found on the *Anas moschata*, or Muscovy duck.

27. *Pediculus querquedulae*: this infests the *Anas querquedula*, or garganey.

28. *Pediculus mergi*: white, with a yellowish head; body long. Found on the *Mergus ferrator*.

29. *Pediculus procellariae*: long, filiform, brown; with pale legs. It inhabits Brazil, on the *Procellaria*, or petrel.

30. *Pediculus vagelli*: ovate, pale; thorax with two brown lines. Found on the *Procellaria glacialis*.

31. *Pediculus diomedæ*: head obtuse; body white; sides of the abdomen black. It inhabits Brazil; on the *Diomedea*, or albatross.

32. *Pediculus pelecani*: antennæ double. Infests the *Pelecanus sinensis*, or corvorant; and is shown at fig. 6.

33. *Pediculus sternæ*: head triangular; abdomen ovate, pale; the back longitudinally blackish. Found on various species of the tern and gull.

34. *Pediculus plataleæ*: found on the *Platalea leucorodia*, or spoon-bill.

35. *Pediculus ardeæ*: found on several species of the *Ardea*, or crane.

36. *Pediculus gruis*: abdomen subclavate, pale, with snowy spiracles. It is found on storks and herons.

37. *Pediculus ciconiæ*: long, filiform; abdomen white; the sides dotted with black. It infests storks.

38. *Pediculus charadrii*. This species is found on the *Charadrius pluvialis*, or golden plover.

39. *Pediculus fulicæ*. This infests the *Fulica atra*, or common coot; and is shown at fig. 7.

40. *Pediculus recurvirostræ*: oblong, with a triangular grooved head. It is found on the *Recurvirostra*, or avocet.

41. *Pediculus hæmatopi*: glaucous; thorax very narrow; abdomen ovate; with pale incisures. Found on the *Hæmatopus ostralegus*, or sea-pie.

42. *Pediculus pavonis*: head globular, and very large; body

body striate with pale and brown. Found on the peacock. See fig. 8.

43. *Pediculus meleagridis*: head triangular, obtuse; abdomen ovate, grey. This infests the turkey.

44. *Pediculus gallinæ*: thorax and head mucronate on each side. This species infests poultry; and is destroyed by pepper.

45. *Pediculus phasiani*: head ovate and large; abdomen globular, obtuse. It is found on the pheasant.

46. *Pediculus caponis*: abdomen edged with black. Found on common poultry.

47. *Pediculus tetraonis*. This species is found on the black game, partridge, &c. See fig. 9.

48. *Pediculus lagopi*: on the *Tetrao lagopus*, or ptarmigan.

49. *Pediculus columbæ*: body filiform, ferruginous, and clavate behind. Found on common pigeons.

50. *Pediculus emberizæ*: pale brown; abdomen whitish, with lateral brown spots; head triangular. Found on the hunting.

51. *Pediculus pari*: body ovate; tail ending in four bristles. Found on various species of the parus, or titmouse.

52. *Pediculus motacillæ*: head heart-shaped, rufous; abdomen white and tapering at the base. It is found on the wagtail.

53. *Pediculus hirundinis*: palish; abdomen black, spotted with white. Found infesting the *Hirundo apus*, or swift. The abdomen is bristly on both sides.

54. *Pediculus gryllotalpæ*: blood-red, with white legs. Found on the mole cricket. The sucker is long, inflected, black; body red, immaculate.

55. *Pediculus apis*: body filiform, ferruginous. Inhabits Europe, on bees.

56. *Pediculus farionis*: this is found on the *Salmo fario*, or trout.

57. *Pediculus anatis*: whitish; first segment of the thorax round, truncate on each side; the abdomen linear and long. On the wild duck.

58. *Pediculus ortyometræ*: oblong; with a heart-shaped head; thorax narrow; segments of the abdomen bristly, with large spotted spiracles on each side. This infests the land-rail.

59. *Pediculus alaudæ*: on the *Alauda arvensis*, or skylark.

60. *Pediculus sturni*: on the *Sturnus vulgaris*, or starling.

61. *Pediculus curvirostræ*: this is found on the *Loxia curvirostra*, or grosbeak.

62. *Pediculus pyrrhulæ*: this infests the *Loxia pyrrhula*, or bull-finch.

63. *Pediculus cloridis*: this is found on the *Loxia chloris*, or green-finch.

64. *Pediculus citrinellæ*: this infests the *Emberiza citrinella*, or yellow-hammer.

65. *Pediculus curruçæ*: this is found on the *Motacilla curruca*, or babbling warbler.

66. *Pediculus rubeculæ*: on the *M. rubecola*, or red-breast. *Gmelin's Linn. Adams on the Microscope*; and, for the figures, see *Redi* and *Degeer*.

PED'IGREE, *f.* [*per* and *degré*, Skinner.] Genealogy; lineage; account of descent.—I am no herald to enquire of men's *pedigrees*; it sufficeth me if I know their virtues. *Sidney*.—The Jews preserved the *pedigrees* of their several tribes with a more scrupulous exactness than any other nation. *Atterbury*.

To the old heroes hence was given
A *pedigree* which reach'd to heaven.

Waller.

PEDILU'VIUM, *f.* [from the Lat. *pes*, foot, and *luo*, to wash.] A bath for the feet; the act of bathing the feet.

The older practitioners resorted to the pediluvium in a variety of diseases upon hypothetical principles; conceiving that, by drawing the blood into the vessels of the feet, it relieved distant organs, as the head or lungs,

which were overcharged by a state of inflammation in congestion: hence it was recommended in apoplexy, pleurisy, and other topical affections of distant parts. This doctrine of *revulsion*, however, as applied to the operation of the pediluvium, is more questionable than under any other application of it; for as, like the general warm-bath, it somewhat accelerates the general circulation, it must be a doubtful remedy in cases where the motion of the heart and arteries is already too great. The operation of the pediluvium is, in fact, simply that of a partial warm-bath; and its use is at present limited to those disorders in which that more general remedy is indicated; being a more practicable and easy expedient, though necessarily much less effectual in its influence. The most valuable and common application of the pediluvium is at the onset of febrile diseases, while a certain degree of chilliness is present. Used in this state previous to going to bed, it contributes, by moderately exciting the heart and arteries, to equalise the circulation, and determine the blood to the surface, whence a slight diaphoresis often follows its use under these circumstances. Thus the attack of a commencing catarrh or rheumatism is often warded off by the use of pediluvium, aided by other proper means; and to this kind of treatment its operation is probably to be limited. In the more advanced stage of febrile diseases, especially when there is delirium, or a general heat, its advantages are very problematical.

PEDIMENT, *f.* [*pedis*, Lat.] In architecture, an ornament that crowns the ordonances, finishes the fronts of buildings, and serves as a decoration over gates, windows, and niches; it is ordinarily of a triangular form, but sometimes makes the arch of a circle.—The *pediment* of the southern transept is pinnacled, not inelegantly, with a flourished cross. *Warton's Hist. of Kildington*.

PEDINABARUM', a town of Hindoostan: sixty miles south-east of Travancore.

PEDINAIG-DUR'GAM, a town of Hindoostan, in Mysore: ten miles south-east of Vencatighery.

PE'DIR, a town on the north coast of the island of Sumatra: twenty miles east of Acheen. Lat. 5. 13. N. lon. 96. 5. E.

PED'LAR, or PEDLER, *f.* [a *petty dealer*: "a contraction produced by frequent use." *Dr. Johnson*.—Others from *ped pouldreux*, dusty-foot, *Todd*.] One who travels the country with small commodities.—A narrow education may beget among some of the clergy in possession such contempt for all innovators, as merchants have for *pedlers*. *Swift*.

All as a poor *pedler* he did wend,
Bearing a truffle of trifles at his backe;
As bells and babes and glasses in his packe. *Spenser*.

Atlas was so exceeding strong,
He bore the skies upon his back,
Just as a *pedler* does his pack.

Swift.

For the regulations, by acts of parliament, which regard these walking tradesmen, see the article *HAWKER*, vol. ix. With us, pedlars are looked upon in a very contemptible light; and the reason is, because we have so little occasion for them, and because they injure the regular stationary shopkeepers in the villages they pass through. Before turnpike-roads were formed, and when the communication between towns was very unfrequent and difficult, these petty chapmen were very useful in bringing goods from London and other large cities and towns to the smaller towns and villages in various parts of the kingdom. Necessaries could be procured from these laborious travellers which could hardly be otherwise had, except at certain annual fairs, which moreover the poorer sort of villagers could not visit, nor could they afford to purchase such a supply as would last them till the next annual return. And we may reasonably suppose, what is really the fact, that in countries

tries

tries where towns are distant from each other, and the communication between them unfrequent and irregular, pedlars are considered as very useful members of the community. In Spanish America, for instance, the business was so profitable, that it was thought by no means dishonourable; and many gentlemen in Old Spain, when their circumstances were declining, sent their sons to the Indies to retrieve their fortunes in this way. Almost all the commodities of Europe are distributed through the southern continent of America by means of these pedlars. They come from Panama to Paita by sea; and, in the road from the port last mentioned, they make Peura their first voyage to Lima. Some take the road through Caxamalia; others through Truxillo, along shore from Lima. They take their passage back to Panama by sea, and perhaps take with them a little cargo of brandy. At Panama they again stock themselves with European goods, returning by sea to Paita, where they are put on shore; there they hire mules and load them, the Indians going with them in order to lead them back. Their travelling expenses were next to nothing; for the Indians were brought under such subjection, that they found lodging for them, and provender for their mules, thinking it an honour done them for their guests to accept of such entertainment, gratis, as they could furnish. The above account applies, of course, to a period anterior to the beginning of the revolution which is now in progress.

In Poland, where there are few or no manufactures, almost all the merchandize is carried on by pedlars, who are said to be generally Scotchmen, and who, in the reign of king Charles II. are said to have amounted to no fewer than 53,000.

Mr. Héron, in his "Journey through the Western Counties of Scotland, 1792," has placed the profession of a pedlar in a new and interesting point of view; and, we may say, raised it to a degree of dignity and importance: "I am induced to observe, that chapmen or pedlars are the great civilizers of countries and nations. We learn from Cæsar and other Roman writers, that the travelling merchants who frequented Gaul and other barbarous countries, either newly conquered by the Roman arms, or bordering on the Roman conquests, were ever the first to make the inhabitants of those countries familiarly acquainted with the Roman modes of life, and to inspire them with an inclination to follow Roman fashions, and to enjoy Roman conveniences. In North America, travelling merchants from the settlements, have done and continue to do much more towards civilizing the Indian natives, than all the missionaries, Papist or Protestant, who have ever been sent among them. There is reason to expect, that much may be equally done for the civilization of the natives of New Holland, by chapmen travelling, with suitable wares, from our new-formed settlements at Botany Bay. Nothing can be more natural than that these things should so happen. A rude people will hardly go in search of commodities of which they know not the names, the nature, or the value, and which they have little, if any, money to purchase. Yet, when such commodities are brought among them, exposed to their view, and recommended as fashionable or useful, they seldom fail to take a fancy for them, and will often give in exchange any thing, of however essential utility, that they already possess. They learn to labour, that they may have means with which to purchase those foreign commodities. They learn to disdain the use of those coarse clothes, or rude utensils, with which they were before content; and, with the new conveniences, they insensibly adopt that improved system of manners to which such conveniences properly correspond. In the stage of the progress of society in which this change is begun, no such alteration could possibly take place, without the intervention of chapmen or pedlars."

The following will cause a smile on the face of the London reader: "It is further to be observed, for the credit of this most useful class of men, that they com-

monly contribute, by their personal manners no less than by the sale of their wares, to the refinement of the people among whom they travel. Their dealings form them to great quickness of wit, and acuteness of judgment. Having constant occasion to recommend themselves and their goods, they acquire habits of the most obliging attention, and the most insinuating address. As, in their peregrinations, they have opportunity of contemplating the manners of various men and various cities; they become eminently skilled in the knowledge of the world. As they wander, each alone, through thinly-inhabited districts, they form habits of reflection and of sublime contemplation. With all these qualifications, no wonder that they should often be, in remote parts of the country, the best mirrors of fashion, and censors of manners; and should contribute much to polish the roughness, and soften the rusticity, of our peasantry. It is not more than twenty or thirty years, since a young man going from any part of Scotland to England, on purpose to carry the pack, was considered as going to lead the life, and to acquire the fortune, of a gentleman. When, after twenty years' absence in that honourable line of employment, he returned, with his acquisitions, to his native country, he was regarded as a gentleman to all intents and purposes. When he had purchased a little estate, he commonly made improvements, and set up in a style of living by which the taste of the whole country was mightily corrected and refined. I believe in my conscience, that at least a fifth part of our second-rate gentry, whose gentility is not of ancient military origin, may trace it to the useful industry of this deserved class of citizens.

"But, to trace somewhat farther the progress of that refinement which is begun through the imitation of itinerant merchants. When curiosity, taste, industry, and fancy, have, by their endeavours, been roused; the purchasers of their commodities learn next to meet them at fairs. By assembling upon these occasions, they become more social in their tempers, they are taught to vie with one another in their manners and appearance, they gain some knowledge of traffic, and become acquainted with more of the conveniences of life. The time of the fair becomes a period to which their hopes look forward, and an æra from which every one dates some increase or other of his personal importance. Every one returns home from it, too, with resolutions to earn money or to prepare commodities which may enable him to make greater purchases by the return of next fair. The spirit of industry and of social intercourse which is by these means stirred up, continues to operate, till yet more frequent meetings for the purposes of traffic become requisite. Markets are next established. The chapmen become shopkeepers. And the improvement of the country, if not impeded by the operation of opposite causes, goes rapidly on. This is no fanciful or ludicrous deduction. The progress of industry and of luxury advances by these very steps. Chapmen are undeniably of all that consequence in society which I have ascribed to them. I know not if the Society for Propagating Christian Knowledge in the Highlands and Islands of Scotland, had not better employ chapmen, instead of preaching missionaries, or unite the two characters of the chapman and the preaching missionary in the same person."

PED'LERESS, *f.*—A female pedler.—The companion of his [the tinker's] travels is some foul sun-burnt quean, that since the terrible statute recanted gypsiness, and is turned *pedlerefs*. *Overbury's Character.*

PED'LERY, *adj.* Sold by pedlars.—Images, reliques, and other *pedlarye* wares. *Bale on the Rev.*—The sufferings of those of my rank are trifles in comparison of what all those are who travel with fish, poultry, *pedlery* ware, to sell. *Swift.*

PED'LERY, *f.* The articles sold by pedlars.—Fearing that the quick-sighted protestant's eye may at one time

or other look with good judgement into these their deceitful *pedleries*. *Milton Of Ref. in Eng.*—The employment of selling petty articles.—My next lover was Fungosa, the son of a stock-jobber: I durst not dismiss him; and might perhaps have been doomed for ever to the grossness of *pedlury*, and jargon of usury, had not a fraud been discovered in the settlement. *Johnson's Rambler*, No. 119.

PED'MAN, a town of Hindoostan, in the circar of Guntoor: ten miles south-south-west of Guntoor.

PEDN BOAR POINT, a cape on the south coast of England, and county of Cornwall: six miles south-east of Lizard Point. Lat. 50. 6. N. lon. 5. 8. W.

PEDOBAPTISM. See PÆDO-BAPTISM, vol. xviii.

PEDOM'ANCY, *f.* [from the Gr. *πες*, a foot, and *ματεια*, magic.] Divination by the lines on the soles of the feet.

PEDOMETER, *f.* [from *πες*, foot, and *μετρον*, measure.] A mechanical instrument, in the form of a watch, consisting of various wheels, with teeth catching in one another, all disposed in the same plane; which, by means of a chain or string, fastened to a man's foot, or to the wheel of a chariot, advance a notch each step, or each revolution of the wheel; so that, the number being marked on the edge of each wheel, one may number the paces, or measure exactly the distance from one place to another.

An instrument of this kind has been invented and improved by Mr. Ralph Gout, of Bunhill Row. The pedometers of Mr. Gout have an advantage hitherto unknown, viz. the hour being attached to them, if required, which makes this instrument doubly useful. Thus, on the same dial is exhibited, at one view, time and distance by means of different hands. Their internal construction is so very simple, as not to endanger their being put out of order; and, if required to be cleaned, a person of the smallest capacity may do it, the wheels being all marked for that purpose.

The patentee has been induced to make various trials with his pedometers in public, one in the right, and one in the left, pocket, in order to establish more effectually their high state of perfection, not only in point of accuracy of the machinery, but to show the nicety of man's walking. The same pedometer will, by a proper application to the saddle, ascertain every pace a horse takes, either in walk, trot, or gallop, and may be made to stop performance in a second, should the horse, in the course of measuring, go from one pace to another. In short, we do not feel the least difficulty in recommending this invention, as the best of the kind ever offered to the public.

PEDOMETER is sometimes also used for the common surveying-wheel, an instrument chiefly used in measuring lands and roads; popularly called the *way-wiser*. See PERAMBULATOR, and the article SURVEYING.

PE'DRA, a river of Africa, in the kingdom of Adel, which runs into the Arabian Sea in lat. 11. 25. N.

PE'DRA BRAN'CA, a large white rock in the Chinese sea. Lat. 22. 19. N. lon. 114. 57. E.

PE'DRA DA GA'LE, a small island in the Atlantic, near the coast of Africa. Lat. 21. 48. N.

PE'DRA DA SUREI'RA, a rock or small island in the Atlantic, near the coast of Portugal, at the mouth of the Gopellia: four miles south of the bay of Oporto. Lat. 41. 6. N. lon. 8. 23. W.

PEDRA'ÇA, a town of South America, in the government of Caraccas: twenty-five miles south-south-west of Varinas.

PEDRAGA'O, a town of Portugal, in the province of Estramadura: thirty miles south-east of Coimbra.

PEDRAPALO'RE, a town of Hindoostan, in the Carnatic: twenty miles south of Wandiwash.

PE'DRAS, a river on the north-west side of Punta des Padoras, at the southern extremity of Amazon-river.

PEDRA'ZA, a town of Spain, in Old Castile, with a

castle, in which Francis the dauphin of France, and his brother Henry, children to Francis I. were confined for four years. It was the birth-place of the emperor Trajan: twenty-one miles north-east of Segovia.

PED'RERO. See PEDERERO.

PE'DRICK ISLAND, a township of Plymouth county, in Massachusetts, having seven persons.

PE'DRO, a town on the north-west coast of the island of Ternate. Lat. 0. 50. N. lon. 127. 10. E.

PE'DRO, a small island in the Indian Sea, near the west coast of Madagascar. Lat. 14. 50. S. lon. 47. 48. E.

PE'DRO BA'Y (Great), a bay on the south coast of Jamaica. Lat. 17. 53. N. lon. 77. 41. W.—East of it lies Little Pedro Point.

PE'DRO BLUFF', a cape on the south coast of Jamaica. Lat. 17. 52. N. lon. 77. 39. W.

PE'DRO MU'NOZ, a town of Spain, in New Castile: forty-eight miles south-east of Toledo.

PE'DRO POINT, a cape on the north coast of Jamaica. Lat. 18. 28. N. lon. 78. 12. W.

PE'DRO SHO'ALS, or BERORAS, rocks in the Spanish main: thirty miles south of Jamaica. Lat. 17. 18. N. lon. 77. to 78. 20. W.

PE'DRO (Saint), a river of Africa, on the Ivory coast, which runs into the Atlantic. Lat. 4. 50. N. lon. 6. 50. W.—Also, a town of South America, in the province of Carthagena: fifty miles south of Mompox.—A town of

South America, in the province of Venezuela, on the south coast of lake Maracaybo: 100 miles south of Maracaybo.—A town of Brasil, in the government of Para, on the river Amazons: 440 miles west of Port Rio Negro.—A town of South America, in the province of Moxes, on the Mamora: fifty miles south of Trinidad.—A town of South America, in the audience of Quito: twenty miles north-west of St. Josef de Huales.—A town of Mexico, in the province of Mechoacan: fifteen miles north of St. Luis de Potosi.—A small island in the Pacific Ocean, near the coast of Terra Firma. Lat. 4. 2. N.—A sea-port of Mexico, in the province of Guaxaca: seventy-five miles south of Guaxaca. Lat. 16. N. lon. 99. 1. W.—One of the Marquesas islands, called by the natives *Onateya*, about three leagues in circuit. Lat. 9. 55. S. lon. 138. 55. E.—A town of the bishopric of Truxillo, and jurisdiction of Sana, situated in a fertile soil, near the coast of the Pacific ocean: fifty miles north of Truxillo. Lat. 7. 26. S.—A town of East Florida: forty-four miles east-south-east of St. Mark.—A small island near the coast of Spain, situated south-east of the city of Cadiz, from which it is separated by a narrow strait, called "St. Pedro's Channel."—A town of the island of Cuba: thirty-one miles south-west of Bayamo.—A town of

South America, in the province of Cordova: ninety-six miles north of Cordova.—A town of New Navarre: 180 miles west of Casa Grande.—A town of Mexico, in the province of Honduras: fifteen miles west-north-west of Naco.—Also, a bay of the Pacific Ocean, on the coast of New Albion, between Point Fermin and Point Lafuen.

PE'DRO NOLAS'CO (St.), a town of Brasil on the Urubui: seventy miles north-north-east of Fort Rio Negro.

PE'DRO NO'VO (St.), a town of Brasil, on a river which runs into the bay of All Saints: fifty miles north-west of St. Salvador.

PE'DRO E PA'BLO (St.), a river of Mexico, which rises in Tabasco, and runs into the bay of Campeachy in lat. 18. 20. N. lon. 93. 26. W.—Also, a river of Mexico, which rises near Zacatlan, in the province of Tlascala, and runs into the gulf of Mexico in lat. 10. 52. N. lon. 93. 26. W.

PE'DRO DE SUL' (St.), a town of Portugal, in the province of Beira: nine miles north-west of Viseu.

PE'DRO DE TABER'NA (St.), a town of Spain, in Arragon: twelve miles north of Ainsa.

PEDRO'AS (Os), a town of Portugal in Alentejo: nine miles south-west of Moura.

PEDRO'AS

PEDRO'AS DE PERCEVEIRA, rocks near the west coast of Portugal: two miles south-south-west of Sines. Lat. 37. 40. N. lon. 8. 52. W.

PEDROGA'ON, a town of Portugal, in Estremadura: twenty-one miles north-east of Thomar.

PEDRO'SA, a town of Spain, in Old Castile: five miles south-east of Najera.

PEDRU'SI, or **PEDRUZZI** (Paul), a learned antiquary, was born of a noble family at Mantua in 1646. He entered among the Jesuits, and distinguished himself by his knowledge of history and antiquities. He was chosen by Rannucio duke of Parma, to arrange his rich and curious cabinet of medals, and give explanations of them. In 1694 he began to publish an account of this collection, under the title of "I Cesari in oro raccolti nel Farnese Museo e publicati colle loro congrue interpretazioni, Parma, fol. and he continued his labours till his death in 1721. At that time seven volumes had been published: the eighth was edited by Peter Piovene, a brother Jesuit. The whole forms ten tomes, and bears the name of the "Museo Farnese."

PEDUN'CLE, *f.* [*pedunculus*, Lat.] In botany, the flower-stalk. It springs from the stem, and bears the flowers and fruit, but not the leaves. A flower-stalk originating immediately from the root, has an appropriate name, **SCAPUS**, see that article; though some prefer *pedunculis radicalis*. The flower-stalk is either simple or compound. In the first instance it commonly bears a solitary flower, though it may bear a number of completely sessile ones, constituting a spike, as in Potamogeton. When compound, the ultimate divisions of this part are called *partial* flower-stalks. See **PEDICELLUS**.

To PEE, *v. n.* To look with one eye. In use to this day in Cumberland. "He *pees*, he looks with one eye." *Ray*.

PEE CAIO'NI. See **VERBESINA**.

— **CUPAM'ENI**. See **TRAGIA**.

— **INO'TA INO'DIEN**. See **PHYSALIS**.

— **KAN'DEL**. See **RHIZOPHORA**.

— **MOTTEN'GA**. See **SCHENUS**.

— **TANDALE COT'TI**. See **CROTALARIA**.

— **TIANG'ALE PULPA'NI**. See **RUELLIA**.

PEE'BLES, a town of Scotland, and capital of the county to which it gives name, situated on a small river, also called Peebles, which separates the town into Old and New, and soon after joins the Tweed. It is a royal burgh, and is supposed to owe its name to the *pebbles* with which the environs abound.

Peebles is of great antiquity, and was probably a town even in the time of the Gadeni. At all events there were undoubtedly a considerable village and a church here, before the commencement of the Scoto-Saxon period; "and there was here also as early, perhaps, a royal castle, with a chapel, and other accommodations, which a town only can supply." This opinion derives much support from the fact, that Peebles is mentioned in the earliest Scottish records "as a town of the royal demesne, which yielded a firm into the royal exchequer." According to Dr. Pennycuik, it was occasionally honoured by the residence of the Scottish monarchs, till the death of Alexander III. (1285.) who conferred on it many special marks of his munificence and favour. In the contests for the succession to the throne which ensued, the inhabitants espoused the cause of Baliol, and were afterwards compelled to submit to the usurpation of Edward I. of England. At this period the town appears to have been governed by a bailiff, and a certain number of burghesses, as we find them mentioned to have sworn fealty to the English king at Berwick, on the 28th of August, 1296. In 1304, it was granted by that prince to Adomar de Valence, the warden of Scotland, and his heirs. The editors of the Encyclopædia Britannica are of opinion that it was a royal residence—so late as the time of James I. (1430.) and that here he composed his poem of "Peebles at the Play." When it became a royal burgh, with spe-

cial privileges, is uncertain; but it is known to have sent two representatives to the parliament called in 1357 to ratify and provide the ransom of David II. This monarch afterwards granted Peebles a charter, dated September 20, 1367, in which it is styled a royal burgh; and the same was subsequently confirmed by king James II. and king James VI. with additional privileges. By virtue of these charters, the corporation of the town now consists of seventeen members, a provost, two bailiffs, a dean of guild, a treasurer, eleven counsellors, and one deacon. Its revenue is very considerable, most of the lands in the vicinity being the property of the public. These lands were granted to the borough in the year 1560, in consideration of "the loyalty, fidelity, and good services," of the inhabitants. This burgh, in conjunction with Lanark, Linlithgow, and Selkirk, sends one member to parliament. Patron, or nominee, the duke of Buccleugh.

The town of Peebles was much more extensive formerly than at present, and occupied a somewhat different site, extending from Eddlestone Water westward, to the Meadow-well-strand. Of its buildings at this period little is known; but they were probably of a comparatively superior cast, as many of the houses were occupied by the nobility attending the court, when the monarch resided in the castle. Peebles in fact was to Edinburgh what Windfor now is with respect to London. Previous to the reformation it had three churches, besides several chapels. The High-church, which was dedicated to the Virgin Mary, is supposed to have been erected in the eleventh century, on the site of some more ancient fabric. Its ruins still remain at the western extremity of the old town. This church was destroyed at the time of the reformation; when the Cross-church was converted into the parochial place of worship; and continued to be such till the present handsome structure was erected in 1784. Peebles appears to have been strongly fortified both by nature and by art. Over the Tweed is an ancient bridge of five arches; and there are two smaller ones over the Eddlestone, to connect the new town with the old. The chief support of the town is its manufacture of carpets, serges, and linen and cotton cloths; but it is likewise much indebted to its market which has been long celebrated for oatmeal. The market day is on Tuesday, weekly; and there are besides seven annual fairs.

The chief remains of antiquity in Peebles, are the ruins of the Cross-church, and of that which was dedicated to St. Andrew. The former was part of the conventual church of a monastery founded, according to Boecius, Major, and others, by king Alexander III. Some say it was erected on the spot where the relics of St. Nicholas the Martyr were discovered in 1261, an event which is particularly noticed by Fordun. This convent was filled with Red or Trinitarian friars, which order was instituted for the redemption of Christian slaves from the Turks; a third part of their annual income being appropriated to that purpose. Its buildings constituted a square, having the church on the southern side. This edifice measured 102 feet in length, and 32 in width, and was, as well as the houses and cloisters, entirely built with whin-stone, except the angles, doors, windows, cornices, &c. which were of a white free-stone. After the suppression, the convent was suffered gradually to go to decay; but part of the church, as already mentioned, was fitted up for divine service, and the remainder was walled off and converted into a public school. In this state it remained till the building of the new church, when the interior was stripped of its seats and furniture, but the walls, by a praiseworthy act of council, were ordered to be protected, as a venerable monument of ancient art.

The church of St. Andrew is of greater antiquity than the Cross-church. The exact period of its construction is not recorded; but, as it is stated to have been consecrated by Josceline bishop of Glasgow, who died A. D. 1199, its date may be fixed a few years previous to that

event. Judging from its remains, it seems to have been a large and capacious structure; and is certainly of great age, as all its doors and windows display semi-circular arches, or at least some segment of a circle. This church was the most ancient parish-church in Peebles. After it lost that rank, in favour of the Cross-church, it was allowed to fall into ruin. A party of Cromwell's soldiers used it for some time as a stable, and at their departure demolished the roof. The only portions of this structure now standing are the square tower, and some fragments of the side walls. The church-yard is still used as a burial ground. Of the royal castle of Peebles no vestiges can be traced, but its site yet retains the name of Castle-hill.

In the year 1793, the population amounted to 1480 inhabitants; but, according to the parliamentary returns of 1801, the burgh and parish contained 397 houses, and 2088 inhabitants; in 1811, the returns were, 422 houses, and 2485 persons; in 1821, 2701 souls.

PEEBLES-SHIRE, or TWEEDALE, one of the southern counties of Scotland, is situated between 55.25. and 55.50. of N. latitude, and from 2.58. to 3.34. of W. longitude from Greenwich. It is bounded on the south by Dumfriesshire, on the north and north-east by Edinburghshire, on the west by Lanarkshire, and on the east by the county of Selkirk. According to Armstrong's map, it measures in length from north to south about 28 miles, and varies in breadth from 10 to 18 miles; the mean length being 27 miles, and the average breadth 13½. Of consequence, the superficial area ought to be 364 square miles, and its content 232,960 English acres; but from a minute calculation, made by Mr. Chalmers, the real superficies is estimated at 338 square miles, or 216,320 acres; of which about 20,000 area are arable, or under tillage. According to the parliamentary returns of 1811, this shire contained 1820 houses, and 9935 inhabitants; in 1821, the number was increased to 10,046.

Tweeddale, when viewed from a distance, seems to form one continued chain of mountains, and may perhaps be generally described as a mountainous country. Upon a narrow investigation, however, it is found to possess many rich and fertile valleys, or straths of arable land, lying along the banks of its numerous rivers. Of these the dale of the Tweed is the principal, intersecting the centre of the county throughout its whole extent. Hence many vales branch off, following the channels of the several streams which increase that majestic river. The most considerable and the most fruitful are the valleys of the Lyne and Eddlestone waters. In general, the dales and the dingles are most fertile, and the hills most pleasant, in the north and west divisions of the county; while, in the south and east, the vales are more barren, and the hills more bleak.

The surface of the land rises on both sides of the great central valley of the Tweed, to a very considerable elevation. The highest hills are situated towards the extremities of the county; and, indeed, those bordering on Annandale are the loftiest in southern Scotland. On the boundary with Selkirkshire, Blackhouse-hills measure 2360 feet in height above the level of the German Ocean, and Scamed Law, about two miles further to the north, mounts to 2120 feet above the same level. Minchmoor, on the south-east of Peebles-shire, rises 2285 feet; and Windléstraw Law, on the north-east of the county, 2295 feet above the sea. In the parish of Manor are two very high hills, called Scrape and Dollarburn, the latter of which is calculated to reach an elevation of 2840 feet. Cardon, or Cadow-hill, in the parish of Kilbucko, is about 1400 feet above the level of the Tweed, or 2200 feet above the level of the ocean. This is the highest hill on the western side of the shire, but there are many others very little inferior in altitude. In the parish of Kirkurd is a hill called Hell's Cleugh, the summit of which is distinguished by a small cairn, called the Pykedstone, whence is a view of the country beyond the Forth, and

of a chain of hills stretching from the east part of Fife, as far as Dumbartonshire. South of the Forth, the view extends as far east as North Berwick, likewise to the Eildon hills, near Melrose, and Cheviot hills in Northumberland. Dundreigh, or Druids' hill, in the parish of Eddleston, also commands a most extensive and diversified prospect over Teviotdale, Annandale, Clydesdale, Perthshire, Fifeshire, and the three Lothians. This hill is computed to rise 2100 feet above the level of the ocean. Near the source of the Tweed the hills are in general extremely beautiful, being covered with grass to their very summits: some of them are of a great height, particularly Hartfield and Broadlaw, which are stated to reach the altitude of 2800 feet from the level of the Forth. Between Minchmoor and Hinderland the hills are more black, craggy, and precipitous, than in any other district of the county, and are frequently intersected by deep and tremendous chasms. One of these openings, called Grimscleugh, is upwards of half a mile in length, and not less than 300 feet in depth.

The rivers of this county are numerous; but all of them, with the exception of the Megget and the North and South Elks, discharge their waters into the Tweed as the common receiver. This celebrated river, whence the familiar name of the shire is derived, has its source on the mountainous ridge which separates Tweeddale from Annandale, and can boast of giving rise to the three first rivers in the south of Scotland: the Annan, which flows southwards into the Solway-frith; the Clyde, which runs north-west into the Clyde-frith; and the Tweed, which directs its course to the German ocean at Berwick. The last-mentioned river flows above forty miles within the county, in a curvilinear and serpentine direction, dividing it nearly into two equal parts. Its current, particularly in that part of its course above Peebles, during which it descends from a height of 1550 feet is extremely rapid, as indeed are all the streams in the county. The Tweed is the longest river in Scotland, the distance from its source to its confluence with the ocean being upwards of 100 miles. It abounds with salmon, as well as with trout. Among the rivers which fall into it belonging to Peebles-shire, the most considerable are the Lyne, the Eddleston, and the Leithen, on the north; and the Manor and the Quair on the south. The Lynerises in the northern confines of the county, at a place called Cauldstane-flap; and after a course of twenty-one miles, reaches the Tweed three miles above Peebles. Eddlestone-water has its source from King-Seat-Hill, in Eddlestone parish, and joins the Tweed at the county-town. Leithen water runs a course of twelve miles from Water-Head to about a mile below Inverleithen church, which derives its Celtic name from that influx, or *inver*. Manor-stream originates at Foulbrig, in the southern end of Manor parish, through which it runs a course of twelve miles; and which it drains, as it courses, with other streamlets, to the common channel. The Quair issues from a spring at Glendean banks, and, after watering the magnificent pleasure grounds, falls into the Tweed near the noble seat of Traquair.

The lakes in Peebles-shire are neither numerous nor extensive. The most considerable of them, the Waterloch in Eddlestone parish, scarcely exceeds three quarters of a mile in length, and half a mile in breadth. It is, however, a very beautiful sheet of water, and gives birth to the South Elk, which falls into the river Forth, along with the North Elk, at Muffelburgh, in Mid Lothian. The other lakes within the county are Gameshope-loch, and Slipperfield-loch; the former of which occupies an uninhabited glen in Tweedsmuir parish, and is emptied by Gameshope rivulet, one of the sources of the Tallawater. St. Mary loch, though it bounds this county for more than a mile, and is hence claimed by some Peebles-shire topographers, is, properly speaking, a Selkirkshire lake, as it extends several miles into that county. The Megget pours its waters into this lake, whence they pass

on to the Yarrow and the Ettrick, two of the most celebrated rivers in Scottish song.

Peebles-shire, as the mountainous nature of its surface would promise, is fertile in minerals. If credit may be given to our ancient historians, Boece and Buchanan, gold was formerly found in Glen-Gaber water, which traverses the parish of Megget. In Lead-Law, a hill above Linton, several lead-mines were formerly wrought, which also produced a considerable supply of silver. The sinks of these mines are still apparent, and are distinguished by the appropriate name of Silver-holes. About sixty years ago they were again tried, but the attempt proved unsuccessful; the quantity of ore obtained being scarcely adequate to defray the expences of the work. In Traquair parish several attempts have been made to discover lead-veins, and much ore has been found, but not sufficiently rich in silver to induce any adventurer to open mines. A specimen of galena-ore was discovered, a few years ago, in one of the streams that fall into the Quair. Coal is plentiful, particularly in the north-eastern district of the county, where limestone is also equally abundant. The prevailing under-stratum in the county is whinstone, but there are likewise numerous quarries of white and red freestone in different parishes. The slate-quarries here have long been celebrated. In Tramore hill, within Stobo parish, are two seams of excellent blue slate, which has been manufactured for various purposes during several years. In the lands of Lamanacha there is a vast variety of clays, and in particular a very thick bed of fire clay, like the Stourbridge clay. In the same lands are many veins of iron ore; one of them is entirely grain ore, and the remainder is mixed with the same ore. Manganeſe is also found here, both by itself and incorporated with the iron ores; and there are likewise here some masses or beds of iron-stone, but there are no iron-works yet established. White marble, according to Pennycuick, was formerly dug up at Whitfield, in Linton parish.

Several mineral springs are found within Peebles-shire, but none of them are particularly distinguished. North from the village of Linton is a spring, called "Heaven-aqua water," which bears some affinity to that at Tonbridge. Another spring, similar to the Harrowgate waters, appears in the parish of Inverleithen. There is also a copious sulphureous well in the parish of Kirkurd. At Lamanacha, in Newland parish, is a chalybeate spring, called the "Vertue Well," which contains a large quantity of fixed air, that holds the iron in solution.

Peebles-shire, like every other county in Scotland, is subjected to the jurisdiction of a lord lieutenant, and a sheriff depute, the latter of whom nominates a substitute to hold courts in his absence. When it was first elevated to the rank of a sheriffdom is not precisely fixed by record; but we find mention of two sheriffs in Tweeddale, one in Traquair, and the other at Peebles, about the year 1184. These two sheriffwicks merged into one before the close of the fourteenth century, under the title of the latter, and have remained in the same condition ever since. The earls of March were hereditary sheriffs of Tweeddale, which bestows the title of *marquis* on a branch of the ancient house of Hay, earls of Errol, and hereditary high constables of Scotland. In the shire of Tweeddale there are many ancient and honourable families of the gentry. Among these, Douglas of Cavers, who was hereditary sheriff of the county, still preserves the standard and the iron mace of the gallant lord Douglas, who fell in the battle of Otterburn, just as his troops had defeated and taken Henry Percy, surnamed *Hotspur*.

The parishes within this shire are sixteen in number; and besides the royal burgh of Peebles, there are five very considerable villages that have markets and annual fairs for sheep, horses, and cows: these are, Linton, Eddleston, Skirling, Broughton, and Inverleithen. The improvement in roads within the last fifty years has been very great in this county. The public roads indeed are excellent. One from Edinburgh towards Moffat traverses the whole

length of the shire, from north-east to south-west. Another traverses it in like manner from west to east, from Biggar, by Peebles and Inverleithen, towards Gallashiels and Kelfo. This road affords the means of conveying towards Glasgow all the superfluous grain of this district. A road also runs from Inverleithen towards Middleton, which supplies a great part of Peebles-shire with coal. It was made in 1794, and shortened the line of communication no less than fourteen miles.

Tweeddale cannot be called a manufacturing county; for, though a considerable quantity of linen is made by the inhabitants, none of it comes to sale, the whole being consumed by their own families. Woollen and cotton weavers, however, are said to be increasing about Peebles and its vicinity; where are likewise a few stocking looms. A woollen manufactory has been lately established at Inverleithen, which from its congenial situation is calculated to flourish. It is surprising that no woollen manufactory has hitherto been fixed at Linton, considering its favourable position on the turnpike road to Edinburgh, and the numerous advantages it possesses with respect to coal, lime, freestone, water, and sheep-walks.

The remains of antiquity in Peebles-shire are at once numerous and various. Traces of the ancient Britons can still be discovered here in the names of places; as also in their religious, sepulchral, and military, monuments. At Hairſtanes, in Kirkurd parish, are the remains of a Druid temple, consisting of a number of large stones standing in a circular form. Another curious druidical temple is situated on the remarkable peninsula called Sheriffmuir. From each of two standing stones there run out to the east, in a curvature, two rows of smaller stones, which also stand upright. A third monument of a similar kind is seen near Tweedsmuir church, and a fourth, smaller one, on the borders between Peebles and Selkirk. Several tumuli or barrows are spread over Kirkurd, Glenholm, and Linton, parishes. In a cairn upon King's Muir, in Peebles parish, were lately discovered an inverted urn, containing the ashes of some British warrior, with the blade of his dagger. In Eddleston parish, near the Ship-Law, there is a barrow called the "Ship-horns," because resembling the inverted hull of a ship. A number of sepulchral cairns are also discovered in the vale of the Tweed, and on Sheriffmuir. These, however, all yield in interest to the grave of Merlin, which is pointed out under a thorn-tree, near the influx of the Powfai, or Panſel, with the Tweed. In that sacred spot, according to tradition, lie the remains of the prophet, to whom so many wonderful feats and predictions are attributed in the writings of the ancient bards. There was an old traditional prophecy, that the two kingdoms should be united when the waters of the Tweed and the Panſel should meet at his grave. Accordingly, the country people observe that this meeting happened in consequence of an inundation at the accession of James VI. to the crown of England.

In Peebles-shire there are many hill-forts, undoubtedly of British construction, and several standing stones, supposed to be memorials of battles. The forts are generally of a circular shape, but sometimes deviate from that figure to suit the summit, or the ground whereon they are placed. On the hill called Cademuir are four British encampments, one of which is surrounded by a rampart of stones without cement. This rampart is in some places double; but in other parts it is single, and of prodigious thickness. Janet's Bray, in Peebles parish, is also distinguished by two entrenchments, which are each surrounded by a single ditch and vallum. In the same parish are several other similar works; particularly one on the summit of Meldum, another on the hill above Hutchin field, a third near Hayſton Craig, a fourth on the hill above Wham, and a fifth on the hill called Ewhill-rig. On a height near Inverleithen, are the remains of a British fortress, which appears to have had three ramparts and ditches. The other principal British military works,

works, are at Milkington-Rings, and North-Shield-Rings, in the parish of Eddleston; on Terrace-hill, in Newlands parish; on the rising ground above Linton, and on the top of Lead-Law. Besides these, however, there are numerous others which our limits will not permit us to particularize.

The Romans, who were unquestionably the first people that encroached upon the British aborigines, have left few traces of their residence here, and those few are confined to military posts or encampments. Of these the principal one is situated on the eastern side of the Lyne, about ten miles to the eastward of the Watling-street, which traverses the country within half a mile of the western extremity of the shire. This entrenchment is called by the common people Randal's Walls, from a tradition that Randolph, earl of Murray, had a house within its area. According to Armstrong it contains six acres and two roods of ground, which has been frequently ploughed, when many Roman coins have been turned up. Another Roman encampment is situated on the northern side of Upper Whitfield, in the parish of Linton. It is in the form of a parallelogram, and is surrounded by a single fosse and rampart, which are now nearly obliterated. A third entrenchment, in the parish of Manor, is also generally represented to be of Roman construction.

Amongst the other antiquities of this county, the most prominent are its *terraces* and castles. Respecting the origin and uses of the former, much difficulty prevails; indeed all that has been advanced concerning them is merely conjectural. The opinion of Chalmers, however, that they were intended for the accommodation of large bodies of spectators to witness some sport, carries with it considerable plausibility; and it likewise seems probable that several of them were subsequently appropriated for the administration of justice. Of such works the most considerable are those on a beautiful green mount, called Terrace-hill, above Newlands. Along the whole face of this hill there are eleven or twelve terraces, from fifteen to twenty feet broad, which rise by a regular gradation to the top. About half a mile to the north is another eminence, called Moot-hill, which has likewise several tiers or terraces. Similar terraces are to be seen at Kirkurd, at Skirling, and at Smithfield.

The remains of the *castles* and fortified towers of this county, are principally seated on the banks of the Tweed, and alternately on both sides of that river, and in sight of each other, as happens in Selkirkshire and Berwickshire. The object of this arrangement was the defence of the country from the incursions of the border-chiefs. On the approach of an enemy, a fire was immediately lighted on the top of the nearest castle, and thus notice of the aggression was spread over a district of at least seventy miles in length in the course of a few hours. These castles were built of stone and lime, usually in a turreted form, and for the most part occupied an eminence of difficult access. Those situated within ten miles above and below Peebles were at least twenty-six in number, and much resembled each other, except in the circumstance of greater or less magnitude. At Traquair the Scottish kings had a castle in the twelfth century, where they occasionally resided for the purpose of hunting in the forest. This castle is now completely demolished, as well as that at Peebles, which is likewise said to have been a royal residence. On Woodhill are some remains of an ancient building, which is called Macbeth's Castle; and in Broughton parish is another, bearing the same name, which is traditionally said to have belonged to the celebrated Macbeth. The remains of Oliver-castle, the seat of the Frasers, are seen in Tweedsmuir parish; and on Fruid-water are the remains of Fruid-castle, another baronial mansion, which also belonged to that powerful family. Drummelzier-castle is situated close to the river Tweed, and about a mile from it is Thanes-castle, or Tinnis-castle, formerly occupied as a sort of redoubt by the Tweedies, the lords of Drummelzier. But these,

and indeed almost all the ancient castles in this shire, are completely ruinous, with the exception of that of Niedpath, in the vicinity of Peebles, which, being of vast strength, still continues in tolerable preservation, and consequently affords an excellent specimen of similar building. This castle stands on a rock, projecting over the north bank of the Tweed, which here runs through a deep narrow glen well wooded on both sides. Towards the land it commands an important pass. The walls are eleven feet in thickness, and cemented with lime almost as hard as the strong whinstone of which they are built. Niedpath was anciently the chief residence of the Frasers above mentioned, and was most probably the birth-place of the brave Sir Simon Fraser, the last of the family in the male line, who, in 1303, with only 10,000 men, repulsed and defeated the English, 30,000 strong, in three successive battles, fought in one day on Roslyn-moor. In the reign of Charles I. it was garrisoned for the king, and held out against Cromwell longer than any place in Scotland south of the Forth. The situation of this castle is extremely beautiful and commanding. Pennycuik, who says it was of old called the "Castle of Peebles," celebrated it thus:

The noble Nidpath, Peebles overlooks
With its fair bridge and Tweed's meandering brooks,
Upon a rock it proud and stately stands,
And to the fields about gives forth commands.

PEE/CE, or PIECE, *f.* [*pieça*, Span. a room.] Any work of architecture or machinery. This usage has been partly revived of late in the word *time-piece*. To what other parts of this extensive definition it once applied, the following enumeration will show. *Mafon*.—A capital city:

Yet is Cleopolis for earthly frame
The fairest *peece* that eye beholden can. *Spenser.*

A fortified castle:

And evermore their wicked capitayn
Provoked them the breaches to assay,
Sometimes with threats, sometimes with hope of gain,
Which by the ransack of that *peece* they should attain.—
Spenser.

A ship:

The wondrous Argo, which in venturous *peece*
First through the Euxine seas bore all the flow'r of Greece.
Spenser.

A tower that served for a movable battery:

Such hap befell that tower; for on that side
Gainst which the Pagans force and batt'ry bend
Two wheels were broke, whereon the *peece* should ride;
The maimed engine could no further wend. *Fairfax.*

A building.—He is an ill-designed *piece*, built after the rustic order, and all his parts look too big for their height. *Butler's Characters.*

Yet still he bet and bounst upon the dore,
And thund'ed strokes thereon so hideouslie,
That all the *peece* he shook from the flore,
And filled all the house with fear and great uprore. *Sp.*

PEED, *adj.* Blind of one eye. *Ray.* See To PEE.

PEE'ING-GHIE, a town of the Birman empire, situated on the Irawaddy, from which a great quantity of teak-timber is carried to Rangoon. The forests extend along on the western mountains: the trees are felled in the dry season, and when the monsoon sets in are borne by the torrents to this town and Sahlahdam, a little above it. Peeing-ghie is about twenty miles north-west of Mayadoun.

PEEK'S HILL, a small post-town of America, in West-Chester county, New York, on the east side of Hudson river, and north side of the creek of its name, five miles from its mouth: fifty miles north of New York.

To PEEL, *v. a.* [*peeler*, Fr. from *pellis*, Lat. the skin.] To decorticate; to flay:

The skilful shepherd *peel'd* me certain wands;
And stuck them up before the fulsome ewes. *Shakespeare.*

From *piller*, Fr. to rob.—To plunder. According to analogy this should be written *pill*; and it is usually so written by our old authors.—Go, ye swift messengers, to a nation scattered and *peeled*. *Isaiah xviii. 2.*

Lord-like at ease, with arbitrary pow'r,
To *peel* the chiefs, the people to devour;
These, traitor, are thy talents.

Dryden.

PEEL, *f.* [*péal*, old Fr. *pellis*, Lat.] The skin or thin rind of any thing.

PEEL, *f.* [*pellet*, Fr.] A broad thin board with a long handle, used by bakers to put their bread in and out of the oven.—A notable hot baker 'twas when he plied the *peel*. *B. Jonson's Barthol. Fair.*

PEEL, a small sea-port town, situated on the western coast of the Isle of Man, in the Irish channel, was formerly denominated *Holme-Peel*; and appears, from its remains, to have been a place of considerable importance in the times of Mankish independence. The annexation of Man to the British crown, and the subsequent destruction of the smuggling-trade, however, have reduced it greatly. The harbour, indeed, is now almost entirely neglected, notwithstanding it is an excellent resort for shipping; and the pier is completely destroyed. In short, this town offers to the present traveller an appearance of decayed grandeur; and is consequently more an object of interest and curiosity than inviting as a place of residence, for the man of business or of pleasure. Woods, in his Account of the Isle of Man, computes the population of Peel at about twelve hundred persons. The only church in the town, now used for divine service, is that dedicated to St. Peter; but there are besides the ruins of other two, dedicated to St. Patrick and St. Germain. These stand within the castle, on a small rocky island, which is separated from the western extremity of the town by a narrow channel, scarcely a foot deep at low water. This island and castle are connected with the mainland by a strong wall, shelving to the top, which was built many years ago to secure the harbour. The entrance is on the eastern side, by a flight of steps now so ruinous as to be dangerous of access. The walls of this fortress measure about four feet in thickness, and are flanked with towers; the whole inclosing a space of somewhat more than two acres of ground.

This castle is said to be haunted by several apparitions; among which is that of Eleanor, wife to Humphrey duke of Gloucester, uncle to Henry the Sixth. She was confined and died here, and her ghost has ever since been nightly heard to ascend a stone staircase, leading to a little house upon the wall. Waldron, an old Mankish writer, tells the following curious story of an apparition in the shape of a dog. "They say that an apparition, called in their language the *maüthe doog*, in the shape of a large black spaniel, with curled shaggy hair, was used to haunt Peel-castle; and has been frequently seen in every room, but particularly in the guard-chamber, where, as soon as the candles were lighted, it came and lay down before the fire, in presence of all the soldiers, who at length, by being so much accustomed to the sight of it, lost great part of the terror they were seized with at its first appearance. They still however retained a certain awe, believing it to be an evil spirit which waited to do them hurt; and for that reason forbore swearing and all profane discourse while in its company. But, though they endured the shock of such a guest when all together, none cared to be left alone with it. It being the custom, therefore, for one of the soldiers to lock the gates of the castle at a certain hour, and carry the keys to the captain, to whose apartment the way led through a church, they agreed among themselves, that whoever was to suc-

ceed, the ensuing night, his fellow on this errand, should accompany him that went first, and by this means no man would be exposed singly to the danger; for the *maüthe doog* was always seen to come out from that passage at the close of day, and return to it as soon as the morning dawned, which made them look upon this place as its peculiar residence. One night, a fellow being drunk, and thus rendered more daring than ordinary, laughed at the simplicity of his companions; and, though it was not his turn to go with the keys, would needs take that office to testify his courage. All the soldiers endeavoured to dissuade him; but the more they said the more resolute he seemed, and swore that he desired nothing more than that the *maüthe doog* would follow him as it had done the others; for he would try whether it was dog or devil. After having talked in a very reprobate manner for some time, he snatched up the keys, and went out of the guard-room. In some time after his departure a noise was heard; but nobody had the boldness to see what occasioned it, till, the adventurer returning, they demanded the knowledge of him; but, loud and noisy as he had been at leaving them, he was now become sober and silent enough; for he was never heard to speak more: and though all the time he lived, which was three days, he was entreated by all who came near him either to speak, or, if he could not do that, to make some sign by which they might understand what had happened to him, yet nothing intelligible could be got from him, only that by the distortion of his limbs and features, it might be guessed that he died in agonies, greater than is common in a natural death. The *maüthe doog* was however never seen afterwards, nor would any one attempt to go through that passage; for which reason it was closed up, and another way made. This accident I heard attested by several, but especially by an old soldier who assured me that he had seen the *maüthe doog* oftener than he had hairs on his head." Walter Scott alludes to this tale in the following lines of his Lay of the Last Minstrel:

But none of all the astonish'd train
Were so dismay'd as Doloraine:
His blood did freeze, his brain did burn,
'Twas fear'd his mind would ne'er return:
For he was speechless, ghastly, wan,
Like him of whom the story ran,
That spoke the *spectre-hound* in Man."

Before the sale of the royalty of Man to the British government, a garrison of troops, in the pay of the lord of the island, was stationed here; but since that event the castle has been altogether neglected, and the entire area is occupied by the ruins of various buildings, walls, and dwelling-houses. About the centre of it is a square pyramical mound of earth, terminating obtusely, and having each of its sides directed to one of the cardinal points. This tumulus is surrounded by a ditch five feet and a half broad; and is supposed either to have been an eminence whence an officer might harangue his troops, or the burial-place of some great personage. Near this mound stand the ruined churches above mentioned, both of which are of considerable antiquity. Patrick's, however, is by far the older of the two, and is probably of earlier date than the era of the Norman conquest. St. Germain's was built about the year 1245, and is the cathedral of the island, but has not, for many years, been used for any other purpose than a burying-place. Its dimensions are seventy-six feet by twenty; and beneath one part of it is the ecclesiastical prison or dungeon, where such persons were confined as were so unfortunate as to incur the spiritual censure. The length of this vault is thirty-four feet, and its breadth sixteen. The bottom is of earth, and at one corner are the remains of an uncovered well, which must have rendered the place damp in the extreme. The only light or air is admitted through a small hole in the wall.

Three miles from Peel is Tinwald Mount, where the Manks parliaments and great councils were convened, and where also the superior courts held judicial proceedings at stated periods. It is an artificial eminence of very singular appearance, and of unknown antiquity. According to some etymologists, its name is a compound of the Danish word *tin* or *ting*, signifying an assembly or meeting, and *wald*, a field or fenced place. Modern authors, however, derive it from the British words *tyng* and *val*, signifying "The Juridical Hill." The approach to the summit of this mount is by a flight of turf steps on the eastern side: the diameter at the top is about seven feet, and three feet below it is an annular plot four feet wide, which is succeeded by another six feet broad, and this by a third still wider. The circumference of the outer circle is nearly eighty yards; all the angles are rounded, and almost the whole surface is of turf.

At a short distance from the Tinwald is a small chapel dedicated to St. John, rebuilt about fourteen years ago, after the model of the former chapel, which had fallen completely to ruin. But it has no pews, never being used for divine service except on the day of the promulgation of the laws. *Woods's Isle of Man*, p. 151-162.

PEEL OF FOU'DREY, a little island near the island of Walney and the town of Dalton in Lancashire. Here stand the remains of an ancient castle; concerning the foundation, use, and dissolution, of which, there are no records extant: all is conjecture. It appears to have been a strong fortification, and surrounded by two ditches; the walls are now as firm as the solid rock; it may be seen at many miles distance on the sea, and used to be a good land-mark till a light-house was lately erected on the south end of the island of Walney. The port of Peel of Foudrey is very large and commodious, and would float a large man-of-war at low water. Upon the main land, opposite the island, is situate Rampside, a most delightful village, and excellent place for sea-bathing. *Wilkes's British Directory*, vol. v.

PEELAS, a small island in the Sooloo archipelago. Lat. 6. 32. N. lon. 121. 45. E.

PEELE (George), a dramatic writer who flourished in the reign of queen Elizabeth, was a native of Devonshire. He became a student of Christ-Church college, Oxford, about the year 1573, and was admitted M. A. in 1579. After this he removed to London, where he became the city-poet, and had the ordering of the pageants. He lived on the Bank Side, over against Black Friars; and maintained the estimation in his poetical capacity which he had acquired at the university, and which seems to have been of no inconsiderable rank. He was a good pastoral poet; and Wood informs us, that "his plays were not only often acted with great applause in his lifetime, but did also endure reading, with due commendation, many years after his death." The titles of the plays written by this author, of which five only are known, are, 1. The Arraignment of Paris, 1584. 2. Edward the First, 1593. 3. The Old Wives' Tale, a comedy, 1595. 4. The Love of King David and Fair Bethsabe, a tragedy, 1599. 5. The Turkish Mahomet and Hiren the Faire Greek. Wood and Winstanley, misguided by former catalogues, have attributed to him another tragedy, entitled, Alphonfus, Emperor of Germany. But this, Langbaine assures us, was written by Chapman, he himself having the play in his possession, with that author's name to it.

About the year 1593, Peele seems to have been taken into the patronage of the earl of Northumberland, to whom he dedicated, in that year, "The Honour of the Garter, a Poem Gratulatorie; the Firkling consecrated to his noble name." He was almost as famous for his tricks and merry pranks as Scoggan, Skelton, or Dick Tarleton; and, as there are books of theirs in print, so there is one of his, called "Merrie conceited Jestes of George Peele, Gent. sometime Student in Oxford; where-

in is shewed the Course of his Life, how he lived, &c. 4to. 1627." These jests, as they are called, might with more propriety be termed the tricks of a sharper. Peele died before the year 1598. Meres, in his *Wit's Treasury*, p. 286, says, "As Anacreon died by the pot, so George Peele by the pox." Oldys says, he left behind him a wife and a daughter. He seems to have been a person of a very irregular life; and Mr. Stevens, with great probability, supposes that the character of George Peboard, in *The Puritan*, was designed as a representative of George Peele. An extract, with some remarks on Peele and his Merrie conceited Jestes, will be found in the last number of the *Gent. Mag.* for 1820. and the account there given agrees in the main with what we have extracted above from the *Biographia Dramatica*.

PEE'LER, *f.* One who strips or flays.—A robber; a plunderer.—As 'tis a *peeler* of land, sow it upon lands that are rank. *Mortimer*.

Yet otes with her sucking a *peeler* is found,
Both ill to the maitter and worfe to some ground. *Tusser*.

PEE'LING, *f.* The outward rind, that which is peeled off.

PEE'LING, a town on the north part of New Hampshire: eighty miles north-west of Portsmouth.

PEEM, a town of the duchy of Holstein: nine miles west of Huytyn.

PEEMDAHAT'TA, a town of Hindoostan, in the circar of Ruttunpour: twenty-five miles north-north-east of Dumdah.

PEENANG', PINANG, or PU'LO PINANG. See PRINCE OF WALES'S ISLAND.

PEE'NDA, *f.* A cake presented at the Hindoo temples as an offering on account of the dead: which ceremony is performed on the days of the new and full moon. *Roberts's Indian Glossary*.

PEENE, a river of France, which joins the Yperlee at Fort Kenoque.

PEENE, a river which runs into the Baltic a little to the west of the island of Usedom. This river, for a considerable part of its course, separates Hinder Pomerania from Anterior Pomerania. Lat. 54. 10. N. lon. 13. 50. E.

PEE'NEMUNDE SCHAN'Z, a town and fort in the island of Usedom, which it commands entirely, as it does also the entrance and mouth of the Peene, near which it stands: six miles north of Wolgast. Lat. 54. 10. N. lon. 13. 48. E.

PEE'NPACK, a town of New-York, in Orange county: twenty-five miles west of Newburgh.

To PEEP, *v. n.* [derivation unknown.] To make the first appearance.—Printing and letters had just *peeped* abroad in the world; and the restorers of learning wrote very eagerly against one another. *Atterbury*.

The timorous maiden-blossoms on each bough
Peep forth from their first blushes; so that now
A thousand ruddy hopes smil'd in each bud,
And flatter'd every greedy eye that stood. *Crawshaw*.

Earth, but not at once, her visage rears,
And *peeps* upon the seas from upper grounds. *Dryden*.

Fair as the face of nature did appear,
When flowers first *peep'd*, and trees did blossoms bear,
And winter had not yet deform'd th' inverted year. *Dryden*.

The increasing prospect tires our wand'ring eyes:
Hills *peep* o'er hills, and Alps on Alps arise. *Pope*.

To look slyly, closely, or curiously; to look through any crevice.—Those remote and vast bodies were formed not merely to be *peeped* at through an optick glass. *Bentley's Sermon*.—Who is the same, which at my window *peeps*? *Spenser*.

Come thick night!
That my keen knife see not the wound it makes;
Nor heaven *peep* through the blanket of the dark,
To cry hold. *Shakespeare's Macbeth*.
Nature

Nature had fram'd strange fellows in her time;
Some that will evermore *peep* through their eyes,
And laugh like parrots at a bagpiper. *Shakespeare.*

O my muse, just distance keep;
Thou art a maid, and must not *peep*. *Prior.*

In vain his little children, *peeping* out
Into the mingling storm, demand their fire. *Thomson.*

[From *pipio*, Lat. *piepen*, Teut. *pepier*, Fr.] To chirp; to cry as young birds; to utter in a small voice; to whisper.—By *peeping* and muttering are meant the answers of those who, pretending to have familiar spirits, muttered or spoke imperfectly, as if their voice proceeded out of the caverns of the earth, or spoke inwardly, so that their words seemed to come out of their belly; from whence they were called *εγγασπιμβοι* in Greek. *W. Louth on Isaiah.*—Wizards that *peep*, and that mutter. *Isaiah* viii. 19.—None that moved the wing, or opened the mouth, or *peeped*. *Isaiah* x. 14.—Thy speech shall whisper [in the margin, *peep*, or *chirp*] out of the dust. *Isaiah* xxix. 4.

The only oracle,
That ever *peep'd* or spake out of a doublet. *B. Jonson.*

PEEP, *f.* First appearance: as, At the *peep* and first break of day.—A sly look.—Would not one think the almanack-maker was crept out of his grave to take t'other *peep* at the stars? *Swift.*

PEEP-HOLE, or PEEPING-HOLE, *f.* Hole through which one may look without being discovered.—The fox spied him through a *peeping-hole* he had found out to see what news. *L'Estrange.*

By the *peep-holes* in his cress,
Is it not virtually confest,
That there his eyes took distant aim? *Prior.*

PEEPAROO'L, a town of Bengal: six miles from Nattore.

PEEPAROO'L, a town of Hindoostan, in Rohilcund: fifteen miles west-south-west of Budayoon.

PEEPEC', a township of Ohio, in Ross-county; containing 670 persons.

PEEPER, *f.* One that peeps.—In familiar language, the eye.—A young chicken just breaking the shell:

Dishes I chuse, though little, yet genteel;
Snails the first course, and *peepers* crown the meal.

Bramston.

PEEP'ING, *f.* The act of looking slyly into any thing.

PEEP'PLY, a town of Hindoostan, in Cattack: five miles south of Cattack.

PEER, *f.* [*pair*, Fr.] Equal; one of the same rank.—As every one of the nobility, being a lord of parliament is a *peer*, or equal to all the other lords, though of several degrees; so the commons are *peers* to one another, although distinguished as knights, esquires, gentlemen, &c. *Peers* (*pares*) signify, in law, those who are impanelled in an inquest upon a man, for convicting or clearing him of any offence; the reason is, because the custom of the realm is to try every man in such case by his *peers* or equals. *Jacob.*

His *peers* upon this evidence
Have found him guilty of high treason. *Shakespeare.*
One equal in excellence or endowments.—All these did
wife Ulysses lead, in counsell *peer* to Jove. *Chapman.*
In song he never had his *peer*,
From sweet Cecilia down to chanticleer. *Dryden.*

Companion; fellow.—He all his *peers* in beauty did surpass. *Spenser.*

If you did move to night,
In the dances, with what sight
Of your *peers* you were beheld,
That at every motion swell'd. *B. Jonson.*

Who bear the bows were knights in Arthur's reign,
Twelve they, and twelve the *peers* of Charlemagne. *Dryden.*

A nobleman as distinct from a commoner; of nobility we have five degrees, who are all nevertheless called *peers*, because their essential privileges are the same. For almost every particular concerning the creation, privileges, descent, &c. of the *peers* of Great Britain and Ireland, see the article HERALDRY, vol. ix. p. 416, 487. and PARLIAMENT, vol. xviii.

The HOUSE OF PEERS is the supreme court of the kingdom to rectify any injustice or mistake of the law committed in the courts below. To this authority they succeeded of course upon the dissolution of the *Aula Regia*. For, as the barons of parliament were constituent members of that court, and the rest of its jurisdiction was dealt out to other tribunals, over which the great officers who accompanied those barons were respectively delegated to preside, it followed, that the right of receiving appeals, and superintending all other jurisdictions, still remained in that noble assembly from which every other great court was derived. They are therefore in all cases the last resort, from whose judgment no farther appeal is permitted; but every subordinate tribunal must conform to their determinations: the law reposing an entire confidence in the honour and conscience of the noble persons who compose this important assembly, that they will make themselves masters of those questions upon which they undertake to decide; since upon their decision all property must finally depend. It was towards the latter end of the reign of king Charles I. that the house of *peers* first asserted their jurisdiction of hearing appeals from the Chancery, which they do upon a paper petition, without any writ directed from the king; and for this their foundation is, that they are the great court of the king, and that therefore the chancery is derived out of it, and by consequence that a petition will bring the cause and record before them. This was much controverted by the commons in the reign of Charles II. but is now pretty well submitted to, because it has been thought too much that the chancellor should bind the whole property of the kingdom without appeal.

The *peers* of Scotland or Ireland had no privilege in this kingdom before the union; but, by clauses in the respective articles of union, the elected *peers* have all the privileges of *peers* of parliament; also all the rest of the *peers* of Scotland and Ireland have all the privileges of the peerage of England, excepting only that of sitting and voting in parliament, and of franking letters in England. A Roman-catholic *peer* is not entitled to the privilege of franking letters.

The right of trial by their *peers*, it seems now generally admitted, does not extend to bishops. The bishops may however claim all the privileges of the lords temporal; except that they cannot be tried by their *peers*, and they cannot, in capital cases, pass upon the trial of any other *peers*, they being prohibited by canon to be judges of life and death, &c. They usually therefore withdraw voluntarily; but enter a protest, declaring their right to stay.

The PEERS of France were, anciently, the twelve grand lords of that kingdom. The institution of these *peers* is very uncertain. Some refer it to Charlemagne, but with little probability; since most of the fiefs, which bear the names of duchies, &c. or give titles to the *peers*, were not erected into duchies, &c. till long after: the dukes, &c. in those days, being no more than simple governors of provinces, without any other title or privileges. Others attribute it to Hugh Capet, at the time when the dukes and counts changed the offices they then held of the king into perpetual fiefs: but this also is impossible; Champagne, one of the titles, not being then erected into a county. Of these *peers*, six were dukes, and six counts, *comtes*; of these, again, six were ecclesiastics,

ecclesiastics, and six laymen. The Archbishop of Rheims and the Bishops of Laon and of Langres, were dukes and peers; and the Bishops of Noyons, Chalons on the Marne, and Beauvais, were counts and peers. The Dukes of Burgundy, Normandy, and Aquitaine, were lay-peers and dukes; and the Counts of Flanders, Champagne, and Thoulouse, lay-peers and counts. These peers assisted at the coronation of the kings in ceremony, and by way of representatives; where each performed the functions attached to his respective dignity: but, as the lay-peerships were in reality all, except that of Flanders, united to the crown, six lords of the first quality were chosen to represent them. The ecclesiastical peers usually assisted in person. The most probable opinion is, that peers were first instituted by Philip the Young of France, about the year 1179, and that they first acted in capacity of peers at the coronation of his son.

At a later period, the title peer in France, was bestowed, as in England, on every person whose fee was erected into a lordship or peership. And it is to be observed, that the title and rank descended to all the children, (as in Norway and some other countries,) though the property went to the eldest alone. Hence the vast number of needy nobles depending on the court. And Mr. Nichols, contrasting the French with the English peerage, observes, that "the circumstance which most contributed to the French revolution was the distinction between *noblesse* and *bourgeoisie*. Thirty thousand noble families were supposed to comprehend 150,000 individuals. These claimed exemption from the most burdensome taxes, and exclusive advancement in the army, in the navy, in the church, and in the parliaments. In England no such distinction exists. Our hereditary nobles are few, not exceeding in number two hundred and fifty; they possess no exemption from the payment of any tax; nor are they entitled to exclusive advancement in the army, the navy, the church, or the law: their children are of the order of the commonalty. In truth, British peers are magistrates, hereditary legislators, hereditary judges, and hereditary advisers of the crown: they have as little resemblance to French *noblesse* as they have to the order of mandarins in China." (Nicholls's Recollections, 1820.) And in another place he adds, that after a struggle of twenty-seven years, the French have obtained the grand objects of their revolution, viz. "the abolition of the privileges of the *noblesse*, of feudal services, of the power and wealth of the church, and have secured all their rights by the establishment of national representation."

A class of nobility, such as that which exists in this country, (Great Britain,) we hope will ever continue, because we believe it to be highly beneficial to the whole community, and one of the strongest safeguards which can be devised against the oppression or usurpations of the crown: but a class of beings such as those which existed in France, who at home were the tyrants of their wide domains, and in Paris the jackalls and retainers of a profligate court; who, as they were exempt from paying taxes, in their own short-sightedness fancied themselves merely interested to maintain and extend the abuses of the crown; whose immunities served only to pervert their judgment and to destroy their sense of justice; and whose feignoral rights tended but to reduce the rest of the community to the condition of bondsmen and brutes; we rejoice that such a class of beings has been swept away from the surface of France. Wheresoever else on the continent, also, such privileges still exist, not founded in the general good of society, but which render one part of the community the drones and caterpillars to feed on the vitals of the rest, we trust that such loathsome imposthumes and excrescences will in the course of time be disluffed or lopped off. We are therefore glad to announce, that the present peerage of Norway is to be abolished; to cease at the death of those who now (Aug. 17, 1821) enjoy it, and their existing children. But a new nobility is

to be created, (not till after 1824.) which will be transmissible to the eldest son of each peer only, as with us.

PEER, or PERE, *f.* According to Roberts's Indian Glossary, this word has, in the East Indies, very various and contradictory significations. 1. Monday. 2. A mendicant; a monk; a helper in a tavern. 3. A teacher; founder or chief of a sect; prior of a Christian monastery. *Peer Maghan*, chief priest of the Magi; *Peer Derwijhan*, superior of the Dervises.

PEER, a town of France, in the department of the Lower Meuse: thirty miles north-east of Louvain, and thirty north of Liege.

PEER, a small island in the Eastern Indian Sea. Lat. 5. 18. S. lon. 118. 20. E.

To PEER, *v. n.* [by contraction from *appear*.] To come just in sight.—See how his gorget *peers* above his gown. *B. Jonson*.

As the sun breaketh through the darkest clouds,
So honour *peereth* in the meanest habit. *Shakespeare*.

To look narrowly; to 'peep.—Now for a clod-like hare
in form they *peer*. *Sidney*.

Peering in maps for ports, and piers, and roads,
And every object that might make me fear
Misfortune to my ventures. *Shakespeare's Merch. of Ven.*

PEER'AGE, *f.* The dignity of a peer:

His friendships he to few confin'd;
No fools of rank or mongrel breed,
Who fain would pass for lords indeed;
Where titles give no right or power,
And *peerage* is a wither'd flower. *Swift*.

The body of peers.—Not only the penal laws are in force against papists, and their number is contemptible, but also the *peerage* and commons are excluded from parliament. *Dryden*.

PEER'DOM, *f.* Peerage. *Ainsworth*.

PEERE-WILLIAMS (William), an English law-writer, died 1736.

PEER'ESS, *f.* A woman who is noble by descent, creation, or marriage; for, as we have noblemen of several ranks, so we may have noblewomen. Thus, king Henry VIII. made Anne Bullen marchioness of Pembroke; James I. created the lady Compton, wife to sir Thomas Compton, countess of Buckingham, in the life-time of her husband, without any addition of honour to him; and also the same king made the lady Finch, viscountess of Maidstone, and afterwards countess of Winchelsea, to her and the heirs of her body; and George I. made the lady Schulenberg, duchess of Kendal.

If a peeress by descent or creation marry a person under the degree of nobility, she still continues noble: but, if she obtain that dignity only by marriage, she loses it on her afterwards marrying a commoner, as noticed under the article HERALDRY; yet, by the courtesy of England, she generally retains the title of her nobility. 1 *Inst.* 16. 2 *Inst.* 50.

PEERGA'OW, a town of Hindoostan, in Dowlatabad: thirty-five miles south of Amednagur.

PEERGOT'CHY, a town of Bengal: twenty-eight miles west of Dinagepour.

PEERGUN'GE, a town of Bengal: thirty-nine miles north-east of Purneah.

PEE'RLESS, *adj.* Unequaled; having no peer.—The *peerless* light of her immortal praise. *Milton's Arcades*.

Her *peerless* features joined with her birth
Approve her fit for none but for a king. *Shakespeare*.

PEE'RLESSLY, *adv.* Without an equal; matchlessly.—The gentlewoman is a good, pretty, proud, hard-favour'd, thing; marry, not so *peerlessly* to be doted upon, I must confess. *B. Jonson's Every Man out of his Humour*.

PEE'RLESSNESS, *f.* Universal superiority.

PEERNAGUR,

PEERNAGUR', a town of Hindoostan, in Oude: seventeen miles north of Manickpour.

PEERPAR', a town of Bengal: five miles north of Rajamal.

PEERPUN'CHAL, mountains which form the southern boundary of Cachemire.

PEERWARTH, a town of Austria: thirteen miles south of Ips.

PEE'SKEN, a town of Prussian Pomerania: seventeen miles south-south-west of Marienburg.

PEE'VISH, *adj.* [this word Junius supposes to be formed by corruption from *perverse*; Skinner rather derives it from *beeish*, as we say *waspish*.] Petulant; waspish; easily offended; irritable; irascible; soon angry; perverse; morose; querulous; full of expressions of discontent; hard to please.—Neither will it be satire or *peevish* invective to affirm, that infidelity and vice are not much diminished. *Swift*.

She is *peevish*, sullen, froward,
Proud, disobedient, stubborn, lacking duty. *Shakesp.*

Expressing discontent, or fretfulness.—Those deserve to be doubly laughed at, that are *peevish* and angry for nothing to no purpose. *L'Esrange*.

For what can breed more *peevish* incongruities,
Than man to yield to female lamentations. *Sidney*.

Silly; childish. *Obsolete*.—Never was any so *peevish* to imagine the moon either capable of affection, or shape of a mistress. *Lily's Endym*. 1591.

How now! a madman? Why thou *peevish* sheep,
What ship of Epidamnus stays for me? *Shakespeare*.

PEE'VISHLY, *adv.* Angrily; querulously; morosely.—He was so *peevishly* opinionative and proud, that he would neither ask nor hear the advice of any. *Hayward*.

PEE'VISHNESS, *f.* Irascibility; querulousness; fretfulness; perverseness.—It will be an unpardonable as well as childish *peevishness*, if we undervalue the advantages of our knowledge, and neglect to improve it. *Locke*.

You may find
Nothing but acid left behind:
From passion you may then be freed,
When *peevishness* and spleen succeed. *Swift*.

PEG, *f.* [*pegge*, Teutonic; supposed by some to be from the Greek *πηγνω*, to fasten or join.] A piece of wood driven into a hole, which does the office of an iron nail.—The *pegs* and nails in a great building, though they are but little valued in themselves, are absolutely necessary to keep the whole frame together. *Addison's Spectator*.—A finer petticoat can neither make you richer, more virtuous or wise, than if it hung upon a *peg*. *Swift*.—The pins of an instrument in which the strings are strained:

You are well tuned now; but I'll let down
The *pegs* that make this music. *Shakespeare's Othello*.

To PEG, *v. a.* To fasten with a peg.—Taking the shoots of the past spring, and *pegging* them down in very rich earth, by that time twelvemonth they will be ready to remove. *Evelyn's Kalendar*.

I will rend an oak,
And *peg* thee in his knotty entrails, till
Thou'st howl'd away twelve winters. *Shakespeare*.

To take a PEG lower. To depress; to sink. Evidently, in the following example, from relaxing the cords of musical instruments: but see the next article.—Those only know how to want, that have learned to frame their mind to their estate; like to a skilful musician, that can let down his strings a *peg lower*, when the tune requires it. *Bp. Hall, Of Contentation*.

Remember how in arms and politicks
We still have worked all your holy tricks,

Trepann'd your party with intrigue,
And took your grandees down a *peg*.

Hudibras.

PEG-TANKARD, *f.* A vessel marked so as to regulate the quantity of drink each person should take at a draught.—*Peg-tankards* have in the inside a row of eight pins one above another, at exact distances, from top to bottom; the tankard holds two quarts, so that there is a gill of ale, i. e. half a pint of Winchester measure, between each pin. The first person that drank was to empty the tankard to the first peg; the second was to empty to the next, &c. by which means the pins were so many measures to the comotators, making them all drink alike, or the same quantity. *Pegge's Anonymiana*.

Our Saxon ancestors were remarkable for immoderate drinking; and, when intoxicated with their favourite ale, were guilty of the most outrageous violences. Dunstan endeavoured to check this vicious habit, but durst not totally obstruct their much-loved intemperance; he introduced, therefore, an ingenious custom of marking or pegging their cups at certain distances, to prevent one man taking a greater draught than his companions, which, for a time, lessened the evil, though it proved in the end productive of much greater excesses than were before indulged in: prior to that regulation, some of their parties used to avoid drinking to intoxication; but, when they were obliged to drink to the pegs, they no longer had a choice, but were generally the sooner overcome; for, refining upon Dunstan's plan, each was obliged to drink *precisely* to a peg, whether he could sustain a quantity of liquor equal to others or not: and to that end it became a rule, that, whether they exceeded or fell short of the prescribed bumper, they were alike compelled to drink again until they reached the next mark. In Abp. Anselm's canons, made in the Council at London in 1102, priests are enjoined not to go to drinking-bouts, nor to "drink to pegs." The words are, *Ut presbyteri non eant ad potationes, nec ad pimas bibant*. (Wilkins, Vol. I. p. 382.) This shows the antiquity of this invention, which at least was as old as the Conquest.

Some of these peg cups, or bowls, or tankards, are yet to be found in the cabinets of antiquaries; and we are to trace, from their use, some common terms yet current among us. When a person is much elated, we say he "is in a merry *pin*," which no doubt originally meant, he had reached that mark which had deprived him of his usual sedateness and sobriety: we talk of taking a man "a *peg lower*," when we imply we shall check him in any forwardness, a saying which originated from a regulation that deprived all those of their turn of drinking, or of their *peg*, who had become troublesome in their liquor: from the like rule of society came also the expression of "he is a *peg too low*," i. e. has been restrained too far, when we say that a person is not in equal spirits with his company; while we also remark of an individual that he is getting on "peg by *peg*," or, in other words, he is taking greater freedoms than he ought to do, which formerly meant he was either drinking out of his turn, or, contrary to express regulation, did not confine himself to his proper portion, or *peg*, but drank on to the next, thereby taking a double quantity. *Brady's Clavis Calendaria*.

PEG'ANUM, *f.* [from *πηγνω*, to congeal, or repress; a Greek name adopted by Linnæus for this genus, on account of its affinity to rue; (see RUTA.) *Πηγανον* is the general name for rue in Dioscorides; and this very plant which is the *Harmel* of the Arabians, and thence called *harmala* by some of the earlier modern botanists, is the *Πηγανον αγριον*, or wild rue, of that old Greek writer.] In botany, a genus of the class dodecandria, order monogynia, natural order of multifloræ, (rutaceæ, *Juss.*) Generic characters—Calyx: perianthium five leaved: leaflets linear, often toothed, erect, the length of the corolla, acute, permanent. Corolla: petals five, oblong-ovate, from upright-spreading. Stamina: filaments six-

teen, awl-shaped, shorter by half than the corolla, dilated at the base into a nectary under the germ; antheræ oblong, erect. Pistillum: germ roundish-three-cornered, raised on a receptacle from the base of the flower. Style filiform, round, the length of the antheræ; stigma oblong, three-sided. Pericarpium: capsule roundish-three-cornered, three-celled, three-valved, with contrary partitions. Seeds very many, ovate, acuminate. Linnæus remarks, that *Peganum* differs from *Ruta*, as *Celastrus* from *Euonymus*; for what is taken from the number of the pistil is added to the stamens, and vice versa.—*Essential Character.* Calyx five-leaved or none; corolla five-petalled; capsule three-celled, three-valved, many-seeded. There are four species.

1. *Peganum harmala*, or Syrian rue; (*Ruta sylvestris*, *Bauhin*.) Leaves multifid. Root as large as a man's little finger, by age becoming woody. The stalks decay every autumn, and new ones arise in the spring: they grow about a foot long, and divide into several small branches. Leaves thick, oblong, cut into several narrow segments, dark green, gummy, and of a bitterish taste. The flowers are produced at the ends of the branches, fitting close between the leaves; corolla white. Native of Spain, the county of Nice, Syria, Cappadocia, Galatia, and Siberia. It was cultivated here in 1570, as appears from Lovel; it flowers in July, and in warm summers the seeds will ripen here in the autumn.

2. *Peganum crithmifolium*: leaves many-cleft; stem shrubby. Gathered near the Caspian Sea by Pallas, who sent seeds to Retzius. The latter distinguishes this, as a species, from *P. harmala*, on account of its shrubby perennial stem, which is three or four feet high, whereas the other is scarcely half so tall, and the smaller size of its flowers. As to the calyx, whose leaves he says are divided in the *harmala*, this is but rarely the case, and chiefly, as it seems to us, in garden specimens.

3. *Peganum retusum*: leaves wedge-shaped, abrupt; stem shrubby. Gathered by Forskall in Egypt, near Alexandria. The Arabians call it *gharghed*. This is a shrub, with spinous downy branches, and somewhat fleshy leaves.

4. *Peganum dauricum*: leaves lanceolate, slightly crenate; stem herbaceous. Native of gravelly places in Siberia. Root thick, woody, perennial. Stems numerous, erect, slender, mostly simple, leafy, round, smooth, scarcely a foot high. Leaves scattered, sessile, half an inch long, glaucous, besprinkled with glandular dots. Flowers few, somewhat corymbose, at the summit of each stem, white, not half the size of the first species, and differing widely from that in the form of the calyx-leaves, which are very short and ovate. The capsule is described by Ammann as of three, rarely four, cells, with two or three seeds in each.

Linnæus seems to have been led by Gmelin's plate to suppose this had no calyx, and therefore he says, in the short generic character, "calyx five-leaved, or none," which Willdenow copies. The calyx however, though small, is present, and resembles in shape, though not in hairiness, that of *Ruta fruticulosa*, (*Labill. Syr. t. 4. Willd. Sp. Pl. ii. 545.*) to which *P. dauricum* has a considerable general resemblance. The plants nevertheless are specifically, and as it appears by Labillardiere's figure of the fruit, generically, distinct.

Propagation and Culture. They are propagated by seeds, sown thinly on a bed of light earth, the beginning of April; when the plants come up, keep them clean from weeds: at the end of October or beginning of November, when the stalks decay, cover the bed with tanner's bark, ashes, or sawdust, to keep out the frost, for the roots are somewhat tender when young. In March following transplant them into a warm situation and dry soil, where they will continue several years.

PEGASE'AN, *adj.* Belonging to Pegasus.

PEGASIDES, a name given to the Muses from the

horse Pegasus, or from the fountain which Pegasus had raised from the ground by striking it with his foot.

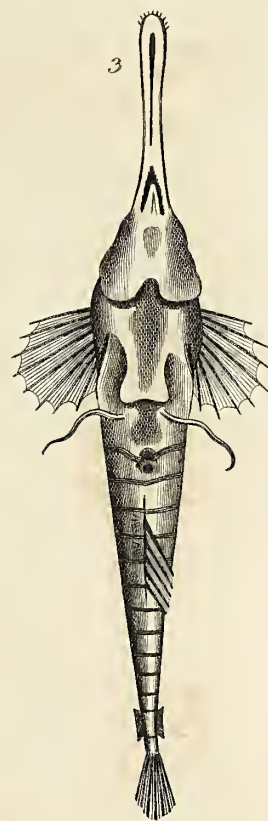
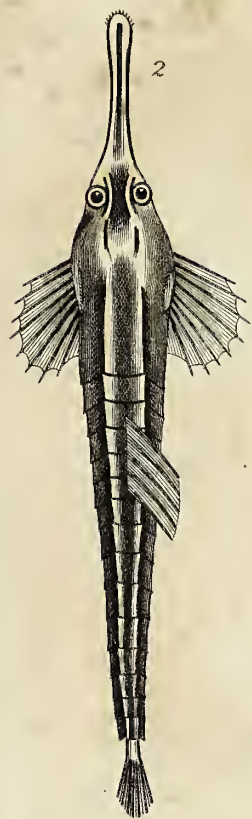
PEG'ASUS, in fabulous history, a winged horse sprung from the blood of Medusa, when Perseus had cut off her head. He received his name from his being born, according to Hesiod, near the sources (*πηγη*) of the ocean. As soon as born, he left the earth, and flew up into heaven; or rather, according to Ovid, he fixed his residence on Mount Helicon, where, by striking the earth with his foot, he instantly raised a fountain, which has been called Hippocrene. He became the favourite of the Muses; and, being afterwards tamed by Neptune or Minerva, he was given to Bellerophon to conquer the Chimæra. No sooner was this fiery monster destroyed, than Pegasus threw down his rider, because he was a mortal, or rather, according to the more received opinion, because he attempted to fly to heaven; for this act of temerity in Bellerophon was punished by Jupiter, who sent an insect to torment Pegasus, which occasioned the melancholy fall of his rider. Pegasus continued his flight up to heaven, and was placed among the constellations by Jupiter. Perseus, according to Ovid, was mounted on the horse Pegasus, when he destroyed the sea-monster which was going to devour Andromache.

PEG'ASUS, in astronomy, the name of a constellation of the northern hemisphere, figured in form of a flying horse. The stars in this constellation, in Ptolemy's Catalogue, are 20, in Tycho's 19, in Hevelius's 38, in the Britannic Catalogue 89.

PEG'ASUS, *f.* in ichthyology, a genus of branchiostegous fishes; so named, it is said, from the shape of the head and pectoral fins giving it the appearance of a flying horse; but this resemblance must probably be referred to the second species, of which we have not been able to procure a figure. Generic characters—Mouth beneath; snout retractile; upper jaw elongated, denticulate, ensiform, and linear; aperture of the gills single, before the pectoral fins; body compressed downwards, articulate with bony incisions, and mailed; ventral fins behind the pectorals. There are three species, which are all natives of the Indian seas, and which are characterized by the shape of the snout. They live upon slime, the spawn or ova of other fish, and upon worms. They were unknown to the old writers on fishes.

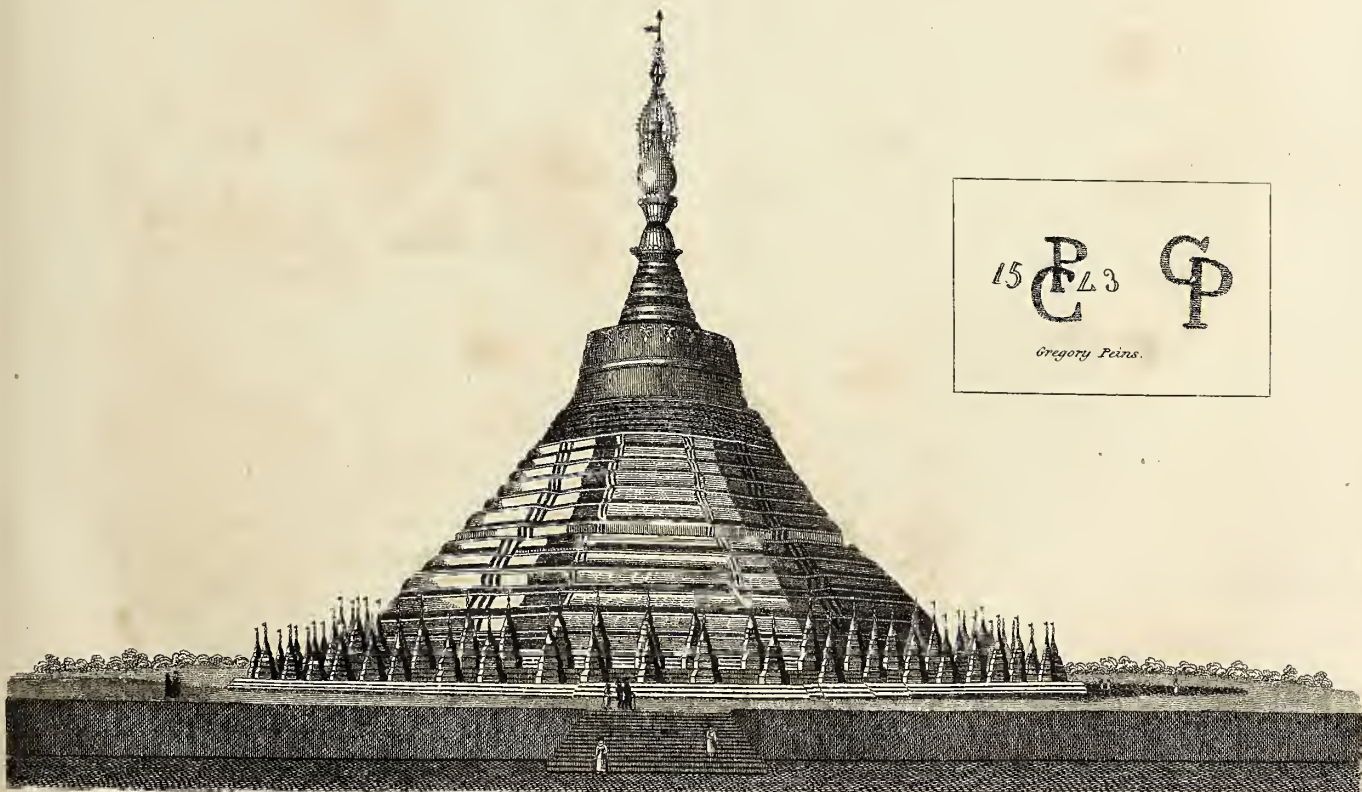
1. *Pegasus draconis*, the sea-dragon: snout conic. This is a small fish, three or four inches in length; and is remarkable for the size of its pectoral fins, which are supposed to enable it, like the *Exocoæti*, and some other fishes, to support itself for a few seconds in the air, while it springs occasionally over the surface of the water. The thorax, or superior part of the body, is of a broad, slightly flattened, squarish form; and is marked, both above and beneath, by several radiated shields, or bony tubercles of considerable size: from each side of the abdomen springs a lengthened cirrus, which may be considered as supplying the place of a ventral fin. From the thorax the body suddenly decreases in diameter, and is marked into several divisions or transverse segments; the tail is small, and slightly rounded. The pectoral fins are, as it has been already observed, large in proportion to the size of the animal, and of a rounder shape, with a kind of scalloped or indented outline. The snout is of a subconical form, but with a slight dilatation towards the tip, so as to appear spatulate-shaped when viewed from above. Both jaws are furnished with exceedingly small teeth, and the mouth opens underneath. The eyes are on the sides of the head; they are protuberant, and have a black pupil inclosed in a yellow iris; and this fish can see perfectly well on each side as well as forwards, the pupil of the eye being very moveable. The nostrils are near the eyes. The principal colour is bluish; but the tubercles are brown. The fins have simple rays; each ventral consists of one long ray; and there is a ray of the same length over each pectoral fin: these single rays it is probable

PEGASUS.



1. The Sea Dragon. 2. The Swimmer; 3. the same flying on its back

PEGU.



15 P L 3 G P
Gregory Peins.

The Temple of Shoemadoo, or the Golden Supreme.



probable are instruments for seizing prey, rather than helps in swimming: the dorsal fin is opposite the anal. This species inhabits the East Indies; it is seldom more than three or four inches long. It lives on the spawn and young of other fish, as may be gathered from the structure of the mouth. It is represented on the annexed Plate, at fig. 1.

2. *Pegasus volans*, the flying horse: snout ensiform, serrated. This species was hitherto little known, and had been generally confounded with the preceding, till it was more fully described by Commerçon. The snout is very long and flattened, but rounded and larger at the tip; it has a longitudinal furrow underneath, with smaller furrows or wrinkles disposed in a radiated form; there is a similar furrow on the upper surface with raised and serrated brims. On the head, behind the eyes, there is a rhomboidal indentation; and behind the skull are two deep holes of a pentagonal shape. The last rings of the tail have a small spine at each corner. The pectoral fins are rounded, very broad, and calculated to impart the faculty of darting into the air, as designated by the appellation. Like the other species, this is found in the Indian Sea; Commerçon was able to obtain only one at the Isle of France, (or Mauritius,) and that was a dried specimen, so that it is probably a rare species.

3. *Pegasus natans*, the swimmer: snout ensiform, not serrated. The body is broad upwards, tapering towards the tail, and covered with armour: it is of a yellow-brown colour on the upper surface, white underneath. The head is flat, and short, ending in a long narrow snout, slightly serrated at the end only. The mouth has the same position and shape as in the first species. The eyes are round and large, standing at the sides, near the corners of the mouth; the pupil is black, iris yellow. The gill-covert is radiated, and the opening at the side. The tail is covered with eleven plates of armour, diminishing towards the end, and terminating in two spines. The fins have simple rays; the dorsal and anal are small, and opposite each other; the tail narrow. The fins are of a brown colour, except the pectorals which are blue, and not so large as in the other species. The size, country, and way of life, of this species, are the same as the first species. It is seldom eaten, having very little flesh. Though never caught alive but in the Indian Sea, it has been found among the petrified fish dug out of Mount Bolca, near Verona, in Italy. It is represented at fig. 2. and lying on its back at fig. 3. The figures are from *Cepede and Bloch*.

PEGAU', a town of Saxony, in the circle of Leipzig, on the Elster. It contains two churches and a convent: ten miles south-south-west of Leipzig, and fifty-eight west of Dresden. Lat. 51. 12. W. lon. 12. 12. E.

PEGAU', a town of Lower Stiria: seven miles north of Gratz.

PEGER'SK, a town of Russia, in the government of Pskov, near the lake Tchudskoe: twenty miles west-north-west of Pskov. Lat. 57. 55. N. lon. 27. 32. E.

PEGGE (Rev. Samuel), an industrious antiquary, was the son of a person in trade, first at Derby, and then at Chesterfield, at which last place Samuel was born in 1704. He received his school-education at his native place; and in 1722 was admitted a pensioner of St. John's College, Cambridge. He became a fellow of his college, took the degree of M. A. in 1729, received priest's orders in the following year, and went to serve a curacy in Kent under Dr. Lynch, dean of Canterbury. Being presented in the following year to a vicarage, and possessing an independent property, he married; and he continued in that county twenty years, well respected by the best families in his neighbourhood. He had laid in a good stock of classical learning, and from an early period indulged a propensity to antiquarian studies, which at length became the principal literary pursuit of his life. The great number of papers he drew up on these subjects appeared chiefly in the *Archæologia*, the *Bibliotheca Topographica*

Britannica, and the *Gentleman's Magazine*. After the death of his wife, he was anxious to settle in his native county; and at length, by means of exchanges, he obtained, in 1751, the rectory of Whittington, near Chesterfield, which was his residence during the remainder of his life. He also possessed, from the gift of the Devonshire family, another rectory; and held a prebend in the church of Lichfield, and another in that of Lincoln.

Mr. Pegge published a few pieces of the professional class; but he is here commemorated merely as an antiquary. In the list of his writings in this capacity, many will probably appear inconsiderable, but many others usefully illustrate points of history or biography; and, though they possessed none of the advantages of style, they displayed diligent and accurate investigation. As a specimen, may be mentioned his refutation of the popular story of king John's death by poison. Several others are curious records of particulars relative to the way of life and manners of our ancestors. His most valuable biographical production is the *Life of Robert Grossetete*, the celebrated Bishop of Lincoln, published separately in 1793. To him also the curious were indebted for a new translation of "*Fitz-Stephens's Description of the City of London*," with a commentary and dissertation on the author. For a catalogue of all his writings we refer to the *Genl. Mag.* for 1796, where they occupy thirteen closely-printed pages.

On the celebration of the centenary of the revolution in 1788, a kind of public procession was made from the parish of Whittington, which possesses the house at which some of the principal leaders in that great event held a consultation, to the town of Chesterfield; on which occasion the venerable rector, then in his 85th year, preached an apposite sermon. In 1791 he received, what may be deemed a singular honour at his age, the degree of LL.D. from the university of Oxford. He survived, free from any distressing infirmity, to Feb. 1796, when he gently sunk under the burden of old age in his 92d year. The manners of Dr. Pegge were those of a man of liberal education accustomed to good company. As he avoided public business, he passed his latter years chiefly in retirement, performing his parochial duties with great punctuality, and devoting the rest of his time to study. He readily communicated the knowledge he possessed to all who applied to him, and was entirely disinterested in his communications to the works in which his writings were published. *Nichols's Lit. Anecd. Genl. Mag.* June, Aug. Oct. &c. 1796.

PEG'GER, *f.* One who fastens with pegs.

PEGM, or PEG'MA, *f.* [Greek.] A sort of moving machine in the old pageants.—In the centre or midst of the *pegm* there was an aback or square, wherein this elogy was written. *B. Jonson's K. James I. Entertainment*.—A written explanation of a pageant.—What presentments are towards; and who penned the *pegmas*; and so forth. *Chapman's Widow's Tears*.

PEGMA'RES, *f.* A name by which certain gladiators were distinguished, who fought upon moveable scaffolds called *pegmata*, which were sometimes unexpectedly raised, and by this means surprised the people with gladiators in hot contention. They were sometimes so suddenly lifted up as to throw the combatants into the air; and sometimes they were let down into dark and deep holes, and then set on fire, thus becoming the funeral-piles of those miserable wretches, who were roasted alive to divert the populace.

PEG'NA CO'VA, a town of Portugal, in the province of Beira: seven miles north-east of Coimbra.

PEG'NA FIR'MA, a town on the west coast of Portugal, at the mouth of the river Mongola: nine miles south of Peniche.

PEG'NA DA FRAN'CIA, a town of Spain, in the province of Leon, anciently called Lancia: twenty-four miles south-south-east of Ciudad Rodrigo, fifty-five south-south-west of Salamanca.

PEG'NA

PEG'NA GAR'CIA, a town of Portugal, in the province of Beira, on the borders of Spain: twenty-six miles east of Castell-Branco. Lat. 39. 50. N. lon. 6. 39. W.

PEG'NA MA'COR, a town of Portugal, in the province of Beira, on the borders of Spain, fortified, and containing three churches, a convent, and hospital, and about 2000 inhabitants: nine miles south-west of Alfayates, thirty north-east of Castell Branca. Lat. 39. 59. N. lon. 6. 40. W.

PEG'NA MAYO'R, a town of Spain, in Galicia: twelve miles east-south-east of Lugo.

PEGNAFEL', a town of Spain, in Old Castile, situated at the foot of a mountain, and defended by a castle: twenty-five miles south-east of Valladolid.

PEGNAFLO'RA, a town of Spain, in Asturia, on the west side of the Pravia: seven miles north-west of Oviedo.

PEGNAFLO'RA, a town of Spain, in the province of Cordova, on the Guadalquivir: thirty-two miles south-west of Cordova.

PEGNARAN'DA, a town of Spain, in Old Castile: eighteen miles west of Osma.

PEGNARAN'DA, a town of Spain, in the province of Leon: thirty miles south-east of Salamanca.

PEG'NITZ, a river of Germany, which runs into the Rednitz at Furth.

PEG'NITZ, a town of Germany, in the principality of Culmbach, on a river of the same name: ten miles south of Bayreuth, twenty-eight north-west of Nuremburg. Lat. 49. 45. N. lon. 11. 33. E.

PEG'NON DE VE'LEZ, a fortress of Africa, situated on the north coast of Morocco, on the coast of the Mediterranean, belonging to Spain. It was built in the year 1508, by Don Pedro of Navarre: forty miles east of Gonaera, sixty-eight west of Melilla.

PEGNONGMEW'. See ПАГАМ, vol. xviii. p. 196.

PEGOM'ANCY, *f.* [from the Greek *πηγη*, a fountain, and *μαγεία*, magic.] Divination drawn from the appearances in a fountain of water, by throwing into it a kind of dice. When they sink to the bottom, they drew happy presages; but, if they remained on the surface of the water, it was a bad omen. See HYDROMANCY.

PEGU', a country of Asia, (the southern part of which was the Golden Chersonese of the ancients,) bounded on the north by Arracan and Ava, on the east and south by Siam and the sea, and on the west by part of Arracan and the bay of Bengal. This country now forms a part of the Birman empire, and occupies the sea-coast as far as Martaban. It is for the most part a level country, surrounded by mountains, which serve as a frontier on the land side, but towards the sea it is liable to invasion, and also in its interior parts by means of the rivers which pass through the mountains. These rivers, the chief of which are that of Pegu (or Syriam); and that of Ava (or Irawaddy), so called from the capitals situated on their banks, still continue to roll down particles of gold; and it is probable that their sands must in ancient time have yielded this precious metal in greater abundance. Hence it is not unlikely that the practice of gilding the roofs and spires of temples and palaces may have been derived from a remote period, more especially as we are informed, that Shoemadoo was built about 500 years before the Christian era; and this splendid appearance might naturally give rise to the classical appellation of the country. We learn from colonel Symes, that gold is discovered in the sandy beds of streams which descend from the mountains. Between the Keen Duam and the Irawaddy to the northward, there is a small river called *Sho Lien Kiamp*, or the Stream of Golden Sand. The air of this kingdom is very healthy; the soil is very rich, and productive of corn, fruit, and roots; and it produces various kinds of timber, particularly the teak. The animals that principally abound in Pegu are elephants. Besides the mines of the richer metals which are found in this country, it abounds with inferior minerals. But the most singular product of Pegu is the ruby, which is found in a mountain between

Syriam and Pegu, and which exceeds in value that of any other country.

The kingdom of Pegu is said to have been founded about 1100 years ago. Its first king was a seaman; concerning whom and his successors we know nothing till the discovery of the East Indies by the Portuguese in the beginning of the sixteenth century. In 1518 the throne of Pegu was possessed by one Breffagukan, with whom Antony Correa the Portuguese ambassador solemnly concluded a peace in 1519. This monarch was possessed of a very large and rich empire, nine kingdoms being in subjection to him, whose revenues amounted to three millions of gold. Among other nations, the Birmans were at this time subject to the king of Pegu; but they revolted about the middle of the sixteenth century, and appear to have acquired a superiority over the Peguers which continued down to about the year 1740. At that period a war took place, which was prosecuted on both sides with savage ferocity; but as the Peguers, living to the southward near the mouth of the navigable rivers already mentioned, had a considerable intercourse with European traders, from whom they could purchase better arms than are manufactured in the east, they gradually obtained a superiority; and gained several victories over the Birmans in 1750 and 1751. These advantages were so vigorously prosecuted, that in the year 1752 the Birman capital Ava was invested. The Birmans, dispirited by repeated defeats, and probably ill commanded, after a short siege, Diveepdee, the last of a long line of kings, was made prisoner with all his family, except two sons who escaped to Siam. Beinga Della, king of Pegu, left his brother Apporaza as governor of Ava, and carried to Pegu the captive Birman king. Thus a complete conquest appeared to be effected. The landholders and principal inhabitants of the country round Ava submitted, and took an oath of allegiance to the king of Pegu, who, in an insolent proclamation, announced the annexation of the Birman country to the Pegu monarchy.

After some time, a Birman of low extraction, Alompra, aspired to become the deliverer of his country. He had submitted like the rest, and was continued by the conqueror in the command of an inconsiderable village, Monchaboo. Here he had no more than one hundred devoted followers, upon whose intrepidity and fidelity he could rely. This village, like most of the Birman towns, was surrounded by a stockade. This he strengthened and repaired, without awakening any suspicion in the Pegu conquerors, who never suspected that so inconsiderable a person would attempt a rebellion. In Alompra's village of Monchaboo there were no more than fifty Pegu soldiers, who treated the Birmans with great arrogance. Taking advantage of the indignation excited by some particular act of oppression, Alompra encouraged his followers to attack the Pegu soldiers, and put every one of them to the sword. Even after this act of rebellion, Alompra disguised his intention with a view to gain time. He wrote to the brother of the Pegu king Apporaza, who had been left governor of Ava, expressing much humility and regret for what had happened, professing his fidelity to the Pegu government, and representing the massacre as the result of an accidental quarrel between the Pegu soldiers and the people of his village. These assurances prevented vigorous measures from being taken with sufficient speed against him. Apporaza, having pressing business at Pegu, left Ava under the government of his nephew Dotachew, with instructions to secure Alompra as a prisoner. Accordingly about a thousand men were sent to occupy Alompra's turbulent village, and to send himself to Ava. They expected no opposition, and came ill prepared for it. They were not a little disconcerted to find the gates of the stockade around the village shut against them on their arrival, which was late in the evening; and at day-break next morning they were suddenly attacked and routed by the Birmans. Alompra, having thus

thus involved a small party of his countryman in rebellion against their conquerors, represented to them that there no longer existed for them any safety but in victory; that they would never be forgiven, and must resolve to conquer or perish. He invited the Birmans of the neighbouring towns to join his standard, and he found a small number who were willing to embrace his apparently desperate fortunes: with these he adopted the sudden resolution of marching towards Ava, before the numerous detachments of Peguers that were scattered over the provinces could be recalled for its defence. As he advanced, fame magnified his numbers. The governor of Ava, who had not more than 3000 men, was disconcerted; and, despairing of success, deserted that city with his troops, and a few of his countrymen who remained behind him were put to death by the populace. Instead of advancing in person, Alompra now sent his second son Shembuan to take possession of Ava. These events occurred in autumn 1753.

In consequence of his first success, Alompra's reputation became unbounded. His countrymen everywhere revolted, and attached themselves to him as their deliverer. The Pegu king was alarmed for the northern districts of his own territory, in which the Birman population exceeded that of the Peguers. A large force was collected under Apporaza, the Pegu king's brother. It consisted of an army, and of a numerous fleet of war-boats, which sailed up the Irawaddy to reduce the insurgents. He laid siege to Ava, where Shembuan held out forty days, till his father Alompra advanced to his aid. Apporaza raised the siege, and went to encounter Alompra. The contest was chiefly confined to the fleet; the armies only skirmishing on-shore. Shembuan having advanced from the fort of Ava to attack the rear of the Peguers, they gave way and fled with precipitation, suffering great slaughter in their retreat. The Peguers, enraged by these misfortunes, put to death the dethroned monarch of the Birmans, together with all the principal men of his nation, to the amount of several hundreds, that were in their power, under pretence that they had been detected in a plot against their conquerors. This only rendered the mutual hatred of the nations more violent; and in several towns the Birmans rose upon the Pegu garrisons, and massacred the whole of them.

In the mean time Alompra continued to improve his fortune, and avowedly endeavoured to establish in his own person the sovereignty of his country. When the son of the late king attempted to return, he drove him back to his asylum among the Siamese. Towards the end of the year 1754, the Pegu king, Beinga Della, with a considerable army, laid siege to Prome, a frontier town defended by a solid wall, a deep ditch, and a strong stockade. The Birmans successfully resisted a general assault, and the Peguers had recourse to a blockade. Alompra sent thirty-six war-boats to the assistance of the town, which stands upon a river; the commander of these threw himself with a considerable supply of men and provisions into the town, and sent back his boats, only a few of which were taken. After a further delay of six weeks, Alompra arrived in person, and attacked the Peguers both by land and water. Instead of keeping up a fire of musquetry as usual, the boats closed, and, after a desperate engagement, the Peguers abandoned the siege.

The tide of success was now so completely turned, that the war was become defensive on the part of the king of Pegu. He retired to his capital, which being near the sea-coast, the contest became a kind of maritime warfare in the mouths and creeks of the rivers; which last are extremely numerous in the low delta-land near their mouth. At this time both the French and English were in possession of factories in the Pegu country; and both the Peguers and Birmans solicited the assistance of the strangers, being abundantly sensible that a few ships of burden furnished with guns would give a vast advantage to either party, in a contest against the war-boats used in

their country. In the course of the year 1755 both the French and English appear to have entered secretly into separate negotiations with each of the parties, and to have promised aid to each of them. Both of them ultimately broke faith with Alompra, and joined the people of Pegu. Notwithstanding this assistance, the Birman leader continued to enjoy a career of success. He was victorious on land, and the aid of the foreigners by water only produced a slight degree of embarrassment. At one time three English ships and one French ship assisted the Pegu force, consisting of 200 armed boats, while 10,000 men marched along with them as a land-force; but the Birmans disconcerted the attack by a stratagem. With considerable ingenuity they constructed fire-rafts, consisting of a number of boats fastened together, and filled with combustibles. These rafts were floated with a strong spring-tide to where the European ships lay at anchor, and directed with such skill and effect as to oblige them to slip their cables and remove, the French ship narrowly escaping destruction. Alompra at last succeeded in cutting off the communication between Pegu and the sea. A French ship, coming to the assistance of the Peguers, was taken by surprise; and, as her papers proved the object of her voyage, her officers were put to death by the order of Alompra: other foreigners, however, particularly the English, taken in the important Pegu-town of Syriam, were suffered to depart unmolested, though he had sufficient reason to complain of their countrymen.

Alompra was at last, in consequence of his success in every quarter, enabled to lay siege to Pegu itself, the capital of his enemies. It was situated on an extensive plain, surrounded with a high solid wall, flanked by small towers, and strengthened on each face by demibastions equidistant. A broad ditch contained about three feet depth of water; and the pagoda of Shoemadoo, which will be afterwards described, served as a citadel. Circumvallation is a favourite mode of warfare with the Birmans, as they are almost destitute of cannon, and therefore trust rather to famine than to force. Having invested Pegu, and erected numerous stockades both to hem in the town, and to secure his own army against external attack, Alompra, in the month of January 1757, resolved to wait patiently till the want of supplies should bring the city into his power. After a siege of two months the numerous population of Pegu became mutinous in consequence of want. The king summoned a council of his family and chiefs, and proposed to sue for peace, on condition of being allowed to govern his country, consenting to do homage for it to the Birman monarch. The proposal was accepted by Alompra; but, as a preliminary, the Pegu king was under the necessity of surrendering to the conqueror his only unmarried daughter. For some days the peace seemed restored, and the besiegers and the besieged mingled with each other in amity; but Alompra, probably with a treacherous intention, having introduced some soldiers in disguise into the town, they were seized and put to death by order of the king of Pegu's nephew Choupavea. Hostilities recommenced; and at last the king of Pegu, who appears to have been a timid man, privately admitted the Birmans into the city, on condition that his own life should be spared. And from that time the whole kingdom of Pegu has continued united to the Birman empire.

One attempt was, however, made by the Peguers, about ten or twelve years after, to recover their independence; and the occasion was this. Shembuan, who had now ascended the Birman throne, had waged successful war against the Siamese in 1766, and had reduced the city of Siam to pay tribute. But, being soon after engaged in a war with the Chinese, he found that, as soon as his armies were recalled from Siam, his authority was disregarded there. He therefore sent one of his generals once more into their country; but he met with such opposition as compelled him to retreat and to demand reinforcements. This last request was complied with, in a

manner that produced a serious danger. One of the viceroys of the southern parts of the empire was commanded to raise the necessary forces; but, as his jurisdiction was inhabited chiefly by families of Peguers, he had no sooner assembled his recruits and placed arms in their hands, than they became conscious of their own strength, and were seized with a desire to regain their empire. They rose upon their Birman officers and companions, and commenced an indiscriminate slaughter. It was not till after an army of 20,000 men was assembled, with twenty-four pieces of cannon, besides a great number of war-boats, that they could be subdued. Some time after, Shembuan thought fit to visit his Pegu territories, which had so recently been involved in civil war. On this occasion he pretended to discover that the old king of Pegu, who had been taken by Alompra, and had remained all this while in prison, had engaged in some kind of conspiracy. In consequence of an accusation to this effect, the dethroned monarch underwent the form of a trial, was condemned and put to death. Many persons of rank, of the race of the Peguers, were also put to death on this occasion, under pretence that they had given countenance or aid to the late rebellion.

PEGU', a city of Asia, and formerly capital of the kingdom of the same name. This city, in the year 1600, was one of the most splendid, large, and populous, in the whole of Asia; and is described by those who saw it in its prosperity as spacious, beautiful, and strong, surrounded with stone walls and very wide ditches. The extent of the ancient city may still be accurately traced by the ruins of the ditch and wall that encompassed it; from these it appears to have been a quadrangle, each side measuring nearly one mile and a half; the ditch, which was once no contemptible defence, is about sixty yards, and its depth ten or twelve feet. The fragments of the wall evince that it was a large and laborious structure, about thirty feet high, and at the base not less than forty feet broad, composed of brick, cemented with clay-mortar. Small equi-distant bastions, about 300 yards asunder, are still discoverable, and there had been a parapet of masonry; but, in its present ruinous state, it is so covered with weeds and briars, as to exhibit very imperfect vestiges of its former strength. In the centre of each face of the fort, there was a gateway about thirty feet wide; and these gateways were the principal entrances. The passage across the ditch is over a causeway raised on a mound of earth, that serves as a bridge, and was formerly defended by a retrenchment, of which there are now no traces. That part of the city inhabited by the king, the nobility, and the people of fashion, was very extensive and populous; its figure, square; and in each side of the wall were five gates of stone, with many gilded towers along it for posting sentries; it was encompassed with broad ditches, in which were bred crocodiles, to deter people from wading over them. The streets were regular, running in a line from gate to gate, and so wide, that twelve men might go abreast. Each house had a palm-tree growing at the door, which formed a shade for passengers. The king's palace stood in the midst of this city, built like a fortress, with walls and ditches. The houses and apartments within were of wood, all over gilded, and adorned with battlements, covered with plates of gold; within the gate was a spacious court, with lodgings on the sides for the king's choicest elephants, amongst which were four of a white colour. That prince would not suffer any other to have white elephants; it was on this account only that he made war on the king of Siam, in 1567, from whom he took the famous white elephant; and afterwards assumed the title of King of the White Elephant. Near the palace was a large court, surrounded with stone walls; and its two gates were always open, seemingly regardless of the immense treasure within. In the year 1596, the king of Siam besieged the king of Pegu in his capital for three months; but, for this time, he was relieved by the assistance of a body of Turks, in

conjunction with some Portuguese; however, most of those whom war spared, famine destroyed; for, out of 150,000 men, numbered in the city before the siege, only 30,000 were left. The kings of Aracan and Tangu, taking advantage of this distressed condition of Pegu, marched to besiege it again; and the king being at length obliged to submit for want of provisions, some time in the year 1592, yielded himself and the city into the hands of the king of Tangu; whose wife, though sister to the unfortunate prince, caused him and his family to be put to death.

From that time Pegu ceased to be the royal seat, and fell to decay; so that it is impossible to conceive, says colonel Symes, a more striking picture of fallen grandeur, and the desolating hand of war, than the inside of these walls displays. Alompra, king of Birmah, when he got possession of the city in the year 1757, (see the preceding article,) razed every dwelling to the ground, and dispersed or led into captivity all the inhabitants. The temples, or *praws*, which are very numerous, were the only buildings that escaped the fury of the conqueror; and of these the great pyramid of Shoemadoo has alone been revered and kept in repair. The present king of the Birmans (1807) has abrogated some severe penal laws imposed by his predecessors upon the native Peguers; and the only distinction subsisting at present consists in the exclusion of the latter from places of public trust and power. Nothing has contributed more to reconcile the Peguers to the Birman yoke, than the restoration of their ancient place of abode, and the preservation and embellishment of the temple of Shoemadoo. Accordingly the king some time ago issued orders to rebuild Pegu, encouraged settlers by grants of ground, and invited the scattered families of former inhabitants to return and re-people their deserted city. His Birman majesty, on the death of the late Maywoon, or viceroy, directed his successor, the present governor, to quit Rangoon, and to make Pegu the place of his future residence, and the seat of provincial government of the thirty-two districts of *Henzawuddy*, the Sanscrit name given by the Birmans to the province of Pegu. The success of these measures has been such, that a new town has been built within the site of the ancient city; but Rangoon possesses so many advantages over Pegu, in a commercial point of view, that persons of property in business will not easily be prevailed upon to leave one of the finest sea-ports in the world, to encounter the difficulties of a new settlement, where commerce, if any can subsist, must be very confined for the want of commodious navigation. The present inhabitants who have been induced to return, consist chiefly of priests, and poor families, who were glad to gain a settlement in their once-magnificent metropolis. Their number, all together, does not, perhaps, exceed six or seven thousand: those who dwell in Pegu, during its former days of splendour, are now nearly extinct, and their descendants and relatives scattered over the provinces of Tonglio, Martaban, and Talowmeou; and many also live under the protection of the Siamese.

Pegu, in its renovated and contracted state, seems to be built on the plan of the former city, and occupies about one half of its area. It is fenced round by a stockade from ten to twelve feet high; on the north and east sides it borders on the old wall. The plane of the town is not yet filled with houses, but a number of new ones are building. There is one main street running east and west, crossed at right angles by two smaller streets not yet finished. At each extremity of the principal street, there is a gate in the stockade, which is shut early in the evening; and after that time entrance during the night is confined to a wicket. Each of these gates is defended by a wretched piece of ordnance, and a few musqueteers, who never post sentinels, and are usually asleep in an adjoining shed. There are two inferior gates on the north and south side of the stockade. The streets of Pegu are spacious, and well paved with brick, which the ruins of the old

old plentifully supply; and on each side of the way there is a drain to carry off the water. The houses are raised from the ground either on wooden posts or bamboos, according to the size of the building. The *kioums*, or monasteries, and the habitations of the higher ranks, are usually elevated six or eight, those of the lower classes from two to four, feet. There are no brick buildings either in Pegu or Rangoon, except such as belong to the king, or are dedicated to their divinity Gaudma: his majesty having prohibited the use of brick or stone in private buildings, from the apprehension, as we were informed, (says Col. Symes,) that, if people got leave to build brick houses, they might erect brick fortifications, dangerous to the security of the state. The houses, therefore, are all made of mats, or sheathing-boards, supported on bamboos or posts; but, from their being composed of such combustible materials, the inhabitants are under continual dread of fire, against which they take every precaution. The roofs are lightly covered, and at each door stands a long bamboo, with an iron hook at the end, to pull down the thatch: there is also another pole, with a grating of iron at the extremity, about three feet square, to suppress flame by pressure. Almost every house has earthen pots, filled with water, on the roof; and a particular class of people, whose business it is to prevent and extinguish fires, perambulate the streets during the night. These people are called *Pagwaat*; they are slaves of government; men who have been found guilty of theft, and, through mercy, had their lives spared. They are distinguished by a black circle on each cheek, caused by gunpowder and punctuation; as well as by having on their breast, in Birman characters, the word *thief*, and the name of the article stolen, as, on one that we asked to be explained to us, *Putchoo Khoo, cloth-thief*. These men patrol the streets at night, to put out all fires and lights after a certain hour. They act as constables, and are the public executioners.

The viceroy's habitation, though not at all a magnificent mansion for the representative of royalty, is notwithstanding a building of much respectability, compared to the other houses of Pegu. It possesses, however, but few ornaments: gilding is forbidden to all subjects of the Birman empire; liberty even to lacker and paint the pillars of their houses is granted to very few.

The object in Pegu that most attracts and most merits notice, is the noble edifice of *Shoemadoo*, or the Golden Supreme, of which we have given a representation in the lower part of the preceding Engraving, from the 2d Vol. of Symes's *Ava*. This extraordinary pile of building is erected on a double terrace, one raised upon another. The lower and greater terrace is about ten feet above the natural level of the ground, forming an exact parallelogram: the upper and smaller terrace is similar in shape, and rises about twenty feet above the lower terrace, or thirty above the level of the country. Col. Symes, from whom this account is taken, judged a side of the lower terrace to be 1391 feet; of the upper, 684. The walls that sustained the sides of the terrace, both upper and lower, are in a ruinous state; they were formerly covered with plaster, wrought into various figures; the area of the lower is strewed with the fragments of small decayed buildings, but the upper is kept free from filth, and is in tolerably good order. There is reason to conclude that this building and the fortresses are coeval, as the earth of which the terraces are composed appears to have been taken from the ditch; there being no other excavation in the city, or in its neighbourhood; that could have afforded a tenth part of the quantity. The terraces are ascended by flights of stone steps, which are now broken and neglected. On each side are dwellings of the priests, raised on timbers four or five feet from the ground; these houses consist only of a large hall; the wooden pillars that support them are turned with neatness; the roofs are covered with tiles, and the sides are made of boards; and there is a number of bare benches in every

house, on which the priests sleep; but we saw no other furniture. The building itself is pyramidal, composed of brick and mortar, without excavation or aperture of any sort; octagonal at the base, and spiral at top; each side of the base measures 162 feet; this immense breadth diminishes abruptly, and a similar binding has not unaptly been compared in shape to a large speaking-trumpet. Six feet from the ground there is a wide projection that surrounds the base, on the plane of which are fifty-seven small spires of equal size, and equi-distant; one of them measured twenty-seven feet in height, and forty in circumference at the bottom. On a higher ledge there is another row, consisting of fifty-three spires of similar shape and measurement. A great variety of mouldings encircle the building; and ornaments somewhat resembling the fleur-de-lis surround the lower part of the spire; circular mouldings likewise girt it to a considerable height, above which there are ornaments in stucco not unlike the leaves of a Corinthian capital; and the whole is crowned by a *tee*, or umbrella, of open iron-work, from which rises a rod with a gilded pennant.

The *tee*, or umbrella, is to be seen on every sacred building that is of a spiral form: the raising and consecration of this last and indispensable appendage, is an act of high religious solemnity, and a season of festivity and relaxation. The present king bestowed the *tee* that covers Shoemadoo. It was made at the capital; and many of the principal nobility came down from Unimerapoor to be present at the ceremony of its elevation. The circumference of the *tee* is fifty-six feet; it rests on an iron axis fixed in the building, and is farther secured by large chains strongly rivetted to the spire. Round the lower rim of the *tee* are appended a number of bells, which, agitated by the wind, make a continual jingling. The *tee* is gilt; and all the minor pagodas are ornamented with proportionable umbrellas of similar workmanship, which are likewise encircled by small bells.

The extreme height of the edifice, from the level of the country, is 361 feet, and above the interior terrace 331 feet. At each angle of the interior and higher terrace there is a temple sixty-seven feet high, resembling, in miniature, the great temple: in front of that, in the fourth-west corner, are four gigantic representations, in masonry, of *Palloo*, or the Evil Genius, half beast, half human, seated on their hams, each with a large club on the right shoulder. These are guardians of the temple. Nearly in the centre of the east face of the area are two human figures in stucco, beneath a gilded umbrella; one, standing, represents a man with a book before him and a pen in his hand; he is called *Thafamee*, the recorder of mortal merits and mortal misdeeds; the other, a female figure kneeling, is *Mahafumdera*, the protectress of the universe, so long as the universe is doomed to last; but, when the time of general dissolution arrives, by her hand the world is to be overwhelmed and everlastingly destroyed.

Along the whole extent of the north face of the upper terrace there is a wooden shed for the convenience of devotees who come from a distant part of the country. On the north side of the temple are three large bells of good workmanship, suspended high the ground, between pillars; several deer's horns lie strewed around; those who come to pay their devotions first take up one of the horns, and strike the bell three times, giving an alternate stroke to the ground: this act, we are told, is to announce to the spirit of Gaudma the approach of a suppliant. There are several low benches near the foot of the temple, on which the person who comes to pray places his offering, commonly consisting of boiled rice, a plate of sweetmeats, or cocoa-nut fried in oil; when it is given, the devotee cares not what becomes of it; the crows and wild dogs often devour it in presence of the donor, who never attempts to disturb them.

There are many small temples on the areas of both terraces, which are neglected and suffered to fall into decay.

cay. Numberless images of Gaudma lie indiscriminately scattered. A pious Birman who purchases an idol, first procures the ceremony of consecration to be performed by the *rahaans*, or priests; he then takes his purchase to whatever sacred building is most convenient, and there places it within the shelter of a kioum, or on the open ground before the temple; nor does he ever again seem to have any anxiety about its preservation, but leaves the divinity to shift for itself. Some of those idols are made of marble that is found in the neighbourhood of the capital of the Birman dominions, and admits of a very fine polish; many are formed of wood, and gilded; and a few are of silver; the latter, however, are not usually exposed and neglected like the others. Silver and gold are rarely used, except in the composition of household gods.

On both the terraces are a number of white cylindrical flags, raised on bamboo poles; these flags are peculiar to the *rahaans*, or priests, and are considered as emblematic of purity, and of their sacred function. On the top of the staff there is a *henza*, or goose, the symbol both of the Birman and Pegu nations.

The *rahaans*, or priests, are a kind of monks who profess celibacy, and abstain from every sensual indulgence. The prescribed punishment for a rahaan detected in an act of incontinence, is expulsion and public disgrace. The delinquent is seated on an ass, and his face daubed with black paint, interspersed with spots of white. He is thus led through the streets, with a drum beating before him, and afterwards turned out of the city. The juniors only go abroad by the permission of the superior or prior of the convent. They are dressed in a long loose cloak, and yellow is the only colour worn by them. The *rahaans* never dress their own victuals, holding it an abuse of time to perform any of the common functions of life, which, so long as they occupy, must divert them from the abstract contemplation of the divine essence. They receive the contributions of the laity ready cooked, and prefer cold food to hot. At the dawn of the morning they begin to perambulate the town, to collect supplies for the day: each convent sends forth a certain number of its members, who walk at a quick pace through the streets, supporting with the right arm a blue lacerated box, in which the donations are deposited; these usually consist of boiled rice mixed with oil, dried and pickled fish, sweetmeats, fruits, &c. During their walk they never cast their eyes to the right nor to the left, but keep them fixed on the ground; they do not stop to solicit, and seldom even look at the donors, who appear more desirous to bestow than the others to receive. A much larger quantity of provisions being commonly procured than suffices for the members of the convent, the surplus is disposed of as charitably as it was given, to the needy stranger, or the poor scholars who daily attend them to be instructed in letters, and taught their moral and religious duties.

From the upper projection that surrounds the base of Shoemadoo, the prospect of the circumjacent country is extensive and picturesque; but it is a prospect of nature in her rudest state; there are few inhabitants, and scarcely any cultivation. The hills of Martaban rise to the eastward, and the Sitang river, winding along the plains, gives an interrupted view of its waters. To the northward about forty miles are the Galadzet hills, whence the Pegu river takes its rise; hills remarkable only for the noisome effects of their atmosphere. In every other direction the eye looks over a boundless plain, chequered by a wild intermixture of wood and water.

The temple of Shoemadoo appears to be the largest in the province of Pegu. At the same time they have many others formed upon a similar plan and of great extent. Of one of these we shall take notice, on account of the coincidence between its name and the name of a pagan temple mentioned in the sacred Scriptures. It is to be observed, that in the Birman tongue the word *shoe*, signi-

fies golden; and the name of the temple to which we allude, is called *Shoedagon*, or the Temple of the golden Dagon. It is thus described: "The temple of Shoedagon, about two miles and a half north of Rangoon, is a very grand building, although not so high by 25 or 30 feet as that of Shoemadoo at Pegu. It is much more ornamented; the terrace on which it stands is raised on a rocky eminence, considerably higher than the circumjacent country. It is ascended by above one hundred stone steps that have been suffered to fall into decay. The situation renders Shoedagon a conspicuous object at the distance of many miles. The tee and the whole of the spire are richly gilded, which, when the sun shines, exhibit a singularly splendid appearance. The small auxiliary buildings are yet more numerous than those that surround the base of the Pegu temple. Perceiving that several of these were in a ruinous state, whilst the foundations of others were just laid, and some half finished, I asked why they did not repair the damages of the old before they erected new ones; and was told, that to mend a decayed *prau*, or temple, though an act of piety, was not so meritorious as to erect a new one: and that sometimes the old ones were repaired by those who were unwilling or unable to be at the expense of a complete building. The borders of the terrace on which the temple is raised are planted with shady trees in regular rows; from this eminence there is a beautiful and extensive prospect; the Pegu and Rangoon rivers are seen winding through a level woody country; and the Temple of Syriam, little inferior to those that have been described, stands near the junction of the streams."

The language of Pegu is called by Dr. Leyden a distinct original language; but it is written in the Burmanish character, and Adelung's specimen differs scarcely at all from the Burmanish. We may not improperly mention in this place, that the emperor of Burmah and Pegu has employed an Englishman, Mr. Felix Carey, to establish, at his expense, a printing-press at Ava, the metropolis, for printing a version of the Scriptures in the Burmanish tongue.

Pegu is ninety miles from Rangoon by water, mostly in a northern direction; but, on account of the windings of the river, it would be by land, in a straight line, much less. Lat. 17. 40. N. lon. 96. 11. 15. E. *Symes's Ava*, vol. ii. *Asiatic Researches*, vol. v. p. 111.

PEGU', a river of Asia, in the vicinity of the city of the same name. It is called by the natives "Bagoo Kioup," or Pegue Rivulet, to distinguish it from "Mioup," or the River. This river is navigable but a very few miles to the northward of the city of Pegu, and for this it is indebted wholly to the action of the tide. It has no communication with the sea, except by the Rangoon river; and, in the fair season, at low water, is almost dry. This stream has been sometimes mistaken for the Sitang river, about fifteen miles east of Pegu, which is a large and independent body of water, that partly describes the course that in the map is given to what is called the Pegu river.

PEGUN'NOCK, a branch of the Passaic river, in New Jersey.

PEGUN'TIUM, or PEGUN'TIÆ, in ancient geography, a town or citadel of Dalmatia, on the Adriatic, opposite to the island Brattia, scarcely five miles off, and forty miles to the east of Salonæ. According to Fortis, a mountain, a large hollow, and submarine springs, are seen here. "This hollow (says he) seems to have been excavated by some ancient river. The springs which bubble up from under the sea are so considerable, that they might pass for the rising-again of a river sunk under ground. Vrullia has the same derivation as the word *Vril*, which in Slavonian signifies a fountain, and this etymology, rendering the name of Vrullia the *Berullia* of Porphyrogenitus analogous to that of Peguntium, since Πηγυ and Vril are synonymous, induces me to believe, that the castle named Peguntium by ancient geographers

graphers was situated at this place, and not at the mouth of the Cettina. No remarkable vestiges of antiquity now exist on the spot; yet it is evident, by the quantity of fragments of vases, tiles, and sepulchral inscriptions now and then dug up, that this tract of coast was well inhabited in the Roman times. The principal cause why the tracks of ancient habitations cannot be discovered about Vrullia, is the steepness of the hill above it, and the quantity of stones brought down from thence by the waters. The mouth of the hollow of Vrullia is dreaded by seamen, on account of the sudden impetuous gusts of wind that blow from thence, and in a moment raise a kind of hurricane in the channel between the Primorie and the island of Brazza, to the great danger of barks surpris'd by it." *Fortis's Travels in Dalmatia.*

PEGYPSENT, a town of Maine, in the county of Cumberland, N. A. having 805 inhabitants.

PEHL, a town of Austria: six miles west of Wells.

PE'I, a city of China, of the second rank, in Se-tchuen, on the Kincha river: 720 miles south-south-west of Peking. Lat. 29. 50. N. lon. 107. E.

PE'I, a town of China, of the third rank, in Kiangnan: forty miles north-north-west of Pefu.

PEI-CHAN', a town of China, of the third rank, in Se-tchuen: twenty miles west of Tchong-king.

PEI-HO', or the WHITE RIVER, a river of China, formed by several streams, in the province of Pe-tche-li, and runs into the Gulf of Pe-tche-li. The mouth of the river is traversed by a bar stretching north-north-east and south-south-west, over which, at low water, the depth is not more than three or four feet, and in many places it is almost dry. The tides rise and fall six or seven feet at the mouth of the river: the time of high water at the full and change of the moon, is about half after three; and five or six miles outside of the mouth of the river a large bamboo beam is placed upon the bar, together with some of a smaller size, continued nearly in a straight line to the shore, intended as marks to direct vessels entering into the river. The town of Ta-coo lies within the Pei-ho, and is the first place of any note in this part of the north-east frontier of China. Yachts, or large covered barges, and boats of burden, calculated to pass over the shallows of the Pei-ho, may be obtained here, in order to enable persons to proceed as far as this river leads, towards Peking, the capital of the empire.

The progress upon the Pei-ho is necessarily very slow, as the course of the river is remarkably serpentine. The fields on each side exhibit a high state of cultivation, and are generally covered with the *Holcus sorghum*, or the tallest of the vegetables producing esculent grain, commonly called Barbadoes millet: it grows to ten or twelve feet high, and the lowest calculation of its increase is one hundred-fold. The houses in the villages near the river are constructed of bricks ill-burnt, or baked in the sun, which, as well as the tiled roofs, are plastered over with a muddy-coloured substance, unmixed with lime. Near some of the towns and villages are pyramids about fifteen feet high, but of different dimensions as to both length and thickness. They consist of bags of salt, heaped together in that form, and covered merely with common matting. As soon as night comes on, the banks of this river are illuminated with variegated lights, from lanterns whose transparent sides are made of different coloured paper. The different numbers of lanterns hoisted on the masts' head of the various vessels in the river denote the rank of the passengers they hold; all which, together with the lights from the cabins of the junks, reflected from the water, produce a moving and parti-coloured illumination. The salt, already mentioned, brought from Quan-tong and Fo-chien into the Pei-ho, is sufficient to load annually nearly 2000 vessels of 200 tons burden each.

At Tien-sing two rivers unite; one of which retains the name of Pei-ho; and the other is called *Yun-leang-ho*, or "Grain-bearing River," from the quantities of wheat

conveyed upon it from the province of Shen-fee, and sent up by the Pei-ho to the neighbourhood of Peking. About thirty miles beyond Tien-sing, towards Peking, the tide of the Pei-ho ceases, and the progress of the yachts, &c. is effected by rowing with oars or towing with ropes; and their advance is very slow against the current of the river. Large junks, to the number of 1000, each of which contains not less than fifty persons, and therefore in the whole amount to 50,000, are passing between Tong-choo-foo and Tien-sing, and as many more of other kinds of craft; so that upon a branch of a single river, the population of its moveable habitations amounts to 100,000 persons. Tong-choo-foo, where the water becomes too shallow for the navigation of yachts of any burden, is ninety miles distant from Tien-sing, and twelve miles from the city of Peking. The mouth of the river Pei-ho, in the gulf of Pe-tche-li, is in lat. 39. N.

PEI'CHELSTEIN, a town of the country of Tyrol: five miles south-south-west of Reuten.

PEJEN'D, or PAJA'NA, the most considerable lake of Finland, about eighty miles in length by fifteen in breadth, which gives source to the river Kymmen.

PE'JEPSCOT, a town of Massachusetts, in the province of Maine: thirty miles north of Portland.

PEIL'LAC, a town of France, in the department of the Morbihan: six miles east of Rochefort.

PEIL'STEIN, a town of Austria: four miles south of Aigen.

PEI'NA, a town of Westphalia, in the bishopric of Hildesheim, situated in a marshy country on the Fufe, and formerly reckoned among the fortresses. The greatest part of the inhabitants here are Lutherans. In a corner of the town stands the episcopal palace, with a capuchin convent; and near them is a suburb called the *Damm*, which is chiefly inhabited by shopkeepers and Jews. It is fifteen miles north-north-east of Hildesheim, and twenty-one east of Hanover. Lat. 52. 10. N. lon. 10. 18. E.

PEINE FORTE ET DU'RE, or PRESSING TO DEATH. See MUTE, vol. xvi.

PEING-GHE'E, a town of Birmah, on the Irawaddy, from whence teak-wood is sent to Rangoon: twenty miles north-west of Mayahoun.

PEINS, or PENTZ (Gregory), a German engraver of some eminence, was born at Nuremberg in the year 1500. He first studied in the school of Albert Durer, and profited much by the instructions of that distinguished master; but it was in Italy, and under Marc Antonio, that he finished his taste, formed his style of engraving, and acquired that correctness of drawing which we regard with so much admiration in his best works. His plates are executed entirely with the graver, which he handled with much skill, uniting with great precision a degree of freedom which was unexampled. He appears to have worked on some of the best plates that pass under the name of Marc Antonio. The far greater number of the engravings of Peins are of small dimensions; wherefore he is usually classed among "the little masters;" but he has produced some few large prints; one especially of great merit, of An Army passing a Ditch and Scaling the Walls of a fortified City, after Julio Romano; which, as Strutt has said, is "an admirable specimen of the artist's superior abilities." Peins died at the age of fifty-six, but where his biographers have not mentioned. His monogram will be found on the preceding plate.

The best of the historical works of Peins are, a pair of Esther before Ahasuerus, and The Temptation of Job; another small pair of Judith in the Tent of Holofernes, and Judith appearing afterwards with his Head; another pair, finely executed, of Solomon's Idolatry, and The Judgment of Solomon. Peins appears to have possessed some judgment, at least some humour, in pairing his prints; witness Susannah solicited by the two Old Men, and Lot intoxicated by the two Young Women, his daughters.

PEINT, a town of Hindoostan, in Baglana: twenty-eight miles north-west of Nassuck.

PEINT, a town of Hindoostan, in Guzerat: twenty miles south of Dungeppour.

PEIPUS LA'KE, or Tschud'skoe, a lake of Russia, which lies between the governments of Pscove, Reval, Riga, and St. Petersburg, extending in length to about 80 and in breadth to 60 versts. By means of a very broad strait it is connected with the Pscove-lake, the length of which is stated to be 50, and the breadth, which is always decreasing, 40 versts. This latter receives the river Velikaia. Out of the Peipus comes the Narova, which through the Embach has communication with the Vertz-erb lake; out of this, on the other hand, flows the Fellin into the gulf of Riga; and consequently a very beneficial water-passage might be made between Riga and some of the inland provinces, by way of the Peipus-lake. In this lake there are a few small islands, none of which are sufficiently important to deserve notice except Perka or Bork, called by the Esthonians *Porkasaar*, which is not only inhabited, but furnished with forests, and has no less than three villages upon it. Among the several brooks and rivers that flow into the Peipus, the Embach is the most considerable. The exit is through the Narva river into the gulf of Finland. The multitude of fish that breed in this lake afford a lucrative occupation to the boors of these parts, and increase the revenues of the adjoining estates, the owners of which let out the parts on which their lands abut at a certain rent. The fish are principally *reh/e*, a species of herring, and barbel: besides these, here are pike, perch, a species of carp, whiting, quebb, korushki, gudgeons, &c. Lat. 58. to 59. 10. N. lon. 27. to 27. 28. E.

PEI'RAH, a town of Malacca, situated on the west coast: 100 miles north-west of Malacca. Lat. 3. 40. N.

PEIRCE (James), a learned English dissenting divine, was the son of reputable parents, and born at London in the year 1673. Having had the misfortune to lose both his father and mother while yet a child, he was taken under the care of his guardian, Mr. Matthew Mead, a celebrated minister at Stepney, in whose house he was instructed in the first rudiments of learning by a private tutor. Afterwards he was placed in different grammar-schools, till he was prepared for entering upon a course of academical studies, when he was sent to the university of Utrecht. Here he constantly attended the lectures of Witfius, Leydecker, Grævius, Leusden, and other eminent professors; and cultivated a friendship with some of the most distinguished of his fellow students, particularly with Adrian Reland, who continued to be his correspondent after he attained to considerable celebrity as a professor. From Utrecht Mr. Peirce removed to Leyden, where he had the opportunity of hearing Gronovius, Spanheim, and other professors of the highest character in the republic of letters. Having spent between five and six years in these seminaries, he returned to England, and lived for some time with his relations in London; and then took private apartments at Oxford, where he procured access to the Bodleian Library. After this, at the request of his friends, he preached a Sunday-evening lecture at Miles's lane in London, and occasionally in other places, without interesting himself with the disputes then existing between the Presbyterians and Independents. With the ministers of the former denomination he became well acquainted, and at their earnest solicitations settled at Cambridge, where he acquired the respect and esteem of many members of the University. From Cambridge he removed to Newbury in Berkshire, where he appeared to advantage, in the year 1707, in a controversy with Dr. Wells, a clergyman of Leicester-shire. That gentleman, out of his zeal for the interests of the Church of England, had published and circulated with great activity, "A Letter to Mr. Peter Dowley," a dissenting minister, by which he laid himself open to animadversion, in consequence of the account which he

gave in it of the the principles and practices of the dissenters. This Mr. Peirce undertook to controvert, and published in succession eight "Letters" to the author, in which he convicted him, not only of various mistakes, but of unjust and calumnious misrepresentations. After the termination of this controversy, Mr. Peirce published, at different periods, various able polemical tracts, relating to the rites imposed under the establishment, the validity of the dissenting ministry and presbyterian ordination, and the imputed sin of schism.

Mr. Peirce's next publication, was a work of much greater importance, and was called for by the appearance of "A Defence of the Doctrine and Discipline of the Church of England," written in the Latin tongue, and submitted to the judgment of foreign divines, by Dr. Nichols, Latin secretary to the Society for the Propagation of the Gospel. In this work the author had given such a view of the controversy between the Church and the Dissenters, as was intended to expose the latter to the censure and condemnation of their foreign brethren; on which account Mr. Peirce was earnestly solicited to undertake their vindication in the same language, for the purpose of counteracting the effects of Dr. Nichols's performance. He accordingly published his "*Vindiciæ Fratrum Dissidentium*," in which he gave a full and very satisfactory answer to his antagonist. This work was published in 1717 in the English language, with large additions, under the title of "A Vindication of the Dissenters, &c." It consisted of three parts: the first contains the history of nonconformity; the second treats of the doctrine of the church of England; and the third contains all the heads relating to discipline and worship. It, in fact, presents the reader with a view of almost the whole controversy between the established church and the dissenters.

In 1718, Mr. Peirce took part in the controversy relating to the Test Act, and published "Letters" on the subject to a friend, and to Dr. Snape. He had previously to this removed from Newbury to Exeter, having had a general and most unanimous invitation from the three united congregations of the dissenters in that city. In this situation he gave the greatest satisfaction in the discharge of the pastoral duties, till there arose a controversy concerning the explication of the Trinity, which was productive of very disgraceful consequences. He had been educated in the trammels of orthodoxy as it was called, but had, during his ministry, learnt to shake off all those unscriptural phrases which then, as well as now, were looked on as a kind of test of a man's religious opinions. He considered the Scriptures as the only rule of faith, and from a very early period he took care to use their language in his sermons, when he introduced any doctrinal topic; and as he advanced in years he grew more careful in his adherence to this practice. The doctrine of the Trinity he looked upon as a *mystery*, and was averse from speaking or even thinking upon it. But his attention was unavoidably drawn to it by the clamour which was raised concerning his friend Mr. Whiston, for whom he had a high esteem; and at first he was exceedingly hurt to learn that Mr. Whiston had declared against the current doctrines of the day. He expostulated with his friend; but, instead of convincing him of his error, he himself became a convert to the heresy that he had been ready to condemn. "The reader," says Mr. Peirce, "will easily imagine that this must have been a terrible shock to me; and that I must have had a great concern upon my mind, when I found myself at a loss about a doctrine of which I had been all along fond, to a degree of uncharitableness. However, this caused me to read the Bible with more care, and make it more my prayer to God, that I might be led into the truth." It was not long before he was fully satisfied that the common opinion was not accordant with the doctrines held forth in Scripture. Being suspected of holding heretical opinions, he was attacked in the most hostile manner; and

and there can be no doubt that, had his opponents possessed the power, they would most cheerfully have burnt him at the stake. They required him to subscribe a test; he refused, because he believed that the worst mischief had been done to the church of God by imposing unscriptural creeds and tests upon men; and he said he would never tamely surrender the liberty with which he had been made free. They turned him out of his meeting, and excited the clamour of the mob against him, by stigmatizing him and his colleague Mr. Hallet with the then opprobrious epithet of *Arians*. Under these circumstances, Mr. Peirce found it necessary, for the vindication of his own character, and that of his friends, to lay a true state of the affair before the public; and accordingly published "The Case of the Ministers ejected at Exon." In 1720 he gave the world a much larger work, entitled "The Western Inquisition, or a Relation of the Controversy which has been lately among the Dissenters in the West of England," which contains a full account of the origin, progress, and issue, of the persecution with which our author was harassed. To this a reply was published, entitled "An Answer to Mr. Peirce's Western Inquisition, &c." Mr. Peirce now took leave of the controversy by a very able and satisfactory piece, entitled "Inquisition Honestly displayed, or the Western Inquisition defended against the pretended Answer, &c."

From this period Mr. Peirce applied himself to the diligent discharge of his pastoral duties among a respectable flock, by whom he was highly honoured and beloved, and to the completion of some explanations of the sacred writings, in which he had made considerable progress. The first fruits of his learned studies were given to the world in 1725, but without his name, in "A Paraphrase and Notes on the Epistle of St. Paul to the Colossians," 4to. in which he endeavoured to follow the admirable rules and example of Mr. Locke, whom he considered as having done more than any other writer towards rendering St. Paul's Epistles easy and intelligible. This publication was well received; and in the same year he gave the world "A Paraphrase and Notes on the Epistle of St. Paul to the Philippians." He intended to proceed with similar commentaries on all the other Epistles attributed to this apostle, excepting those that had been before paraphrased by Mr. Locke. His next attempt was on "The Epistle to the Hebrews," which he did not live to finish; for, while he was engaged in it, he was attacked by a disorder which put an end to his life, on the 30th of March, 1726, in the 53d year of his age.

The persecution which he had met with during his life pursued him even to the grave: for, his relations having directed that a Latin inscription, containing an encomium on his learning and virtues, should be cut on a tomb-stone, the rector of the church in which his remains were deposited would not permit it be placed in his church-yard; stating that he could not, in conscience, suffer a person so notorious for heresy to be warmly recommended to posterity in any place under his care and inspection. When it was afterwards requested that these words might be inscribed on his tomb, "Here lies the reverend, learned, and pious, Mr. JAMES PEIRCE," still it was refused; the rector assuming that Mr. Peirce could not be *reverend*, because he was not lawfully ordained; and that he was not *pious*, because he taught errors; so that the only inscription allowed, was "Mr. JAMES PEIRCE's Tomb, 1726." On a monument erected to his memory in the *meeting-house* in which he latterly officiated, he is held out to the veneration of posterity, as "a rational, judicious, and affectionate, preacher; a very laborious and sagacious interpreter of the Holy Scriptures; a sincere lover and strenuous defender of the truth; and a courageous sufferer for maintaining the doctrines of the gospel of Christ, and for asserting the liberties of Christians." After his death, his "Paraphrase and Notes on the Epistle of St. Paul to the Hebrews, with Dissertations on several Texts of Scripture," were published in 1727,

though evidently left in an unfinished state. The work was afterwards completed by Mr. Joseph Hallet. From Mr. Peirce's MSS. were also published "An Essay in favour of the ancient Practice of giving the Eucharist to Children;" and other tracts. *Gen. Biog.*

PEIRESC (Nicolas Claude Fabri), a man of multifarious erudition, born in 1580, was descended from an ancient and noble family, seated originally at Pifa in Italy. At ten years of age, he was sent to Avignon, where he spent five years in the Jesuits' college, in the study of what in Scotland and on the continent is called *humanity*. From Avignon he was, in 1595, removed to Aix, and entered into the study of philosophy. In the interim he attended the proper matters for dancing, riding, and handling arms; in all which, though he performed the lessons regularly, it was with reluctance; for, this being done only to please an uncle, whose heir he was to be, he esteemed all the time lost that was not spent in the pursuits of literature. During this period, his father being presented with a medal of the emperor Arcadius, which was found at Belgenfer, Peiresc begged the favour of it; and, charmed with deciphering the characters in the exergue, and reading the emperor's name, he carried the medal with a transport of joy to his uncle; who for his encouragement gave him two more, together with some books upon the subject. This is the epoch of his application to antiquities, for which he became afterwards so famous. In 1596 he was sent to finish his course of philosophy under the Jesuits at Tournon, where he turned his attention particularly to cosmography, as being necessary to the understanding of history, abating, however, nothing of his application to antiquity, in which he was assisted by Petrus Rogerus, one of the professors, and a skilful medalist: nor did he omit the study of humanity in general, wherein he was the master and instructor of a brother who was with him. But to do all this he was obliged to sit up late at nights; and so much labour and attention, as he was naturally of a tender constitution, increased the weakness of his stomach formerly contracted, and for which he had used a kind of digestive powder.

Being recalled by his uncle in 1597, he returned to Aix, and entered there upon the study of the law; which he prosecuted, however, so as to find leisure to visit and converse frequently with Peter A. R. Bagarr, a most skilful antiquary, who was afterwards made master of the jewels to Henry IV. The following year he went again to Avignon, to carry on his course of law under one Peter David; who, being well skilled likewise in antiquities, was pleased to see Peiresc join this study to that of the law. But Ghibertus of Naples, auditor to cardinal Aquaviva, fed his curiosity the most, in showing him some rarities, such as he had never seen before. Ghibertus also lent him Goltzius's Treatise upon Coins, and advised him to go into Italy, especially to Rome, where he would meet with curiosities to satisfy his most ardent wishes. Accordingly, his uncle having procured a proper governor, he and his brother set out upon that tour in September 1599; and, passing through Florence, Bononia, and Ferrara, when he had staid a few days at Venice, he fixed his residence at Padua, in order to complete his course of law. But once a quarter, going to Venice to get cash for bills of exchange, he took these opportunities of introducing himself to the most distinguished literati there; and was particularly cared for by F. Contarini procurator of St. Mark, who was possessed of a curious cabinet of medals, and other antiquities, without knowing the value of them: this was fully shown to him by Peiresc, who likewise explained the Greek inscriptions upon his medals, and the monumental stones. After a year's stay at Padua, he set out for Rome, and arrived there October 1600, in order to be in time for seeing the jubilee; to celebrate which, the Porta Sancta would be opened in the beginning of the next year. He passed six months in this city, viewing the numberless curiosities there,

there, and in cultivating the friendship of Galileo, by whom he was much beloved. This friendship led him to carry his researches into astronomy and natural philosophy; and he was present when Fabricius ab Aquapendente, out of a parcel of eggs upon which a hen was sitting, took one every day, to observe the gradual formation of the chick from first to last. From this time it was generally acknowledged, that he had taken the helm of learning into his hand, and began to guide the commonwealth of letters.

Having now spent almost three years in Italy, he began to prepare for his departure; and in the end of 1602, having packed up all the rarities, gems, &c. which he had procured, and put them into the road to Marseilles, he left Padua, and, crossing the Alps to Geneva, went to Lyons; where he made a handsome present to his governor, who took the route of Paris. From Lyons he went to Montpellier, to improve himself in the law under Julius Parius. From Montpellier he dispatched more rarities to his uncle; who sending for him home, he arrived at Aix in November; but, bringing Parius along with him, he obtained leave to return to Montpellier in a few days. He waited upon Parius back again, under whom he continued pursuing his law-studies till the end of 1603, when he returned to Aix at the earnest request of his uncle, who, having resigned to him his senatorial dignity, had ever since the beginning of the year laboured to get the king's patent. The degree of doctor of law was a necessary qualification for that dignity. Peiresc, therefore, having kept the usual exercise, took that degree Jan. 18, 1604, when the aforesaid patent was given to the senate, and ordered to be recorded; yet Peiresc procured leave not to be presently entered into the list of senators. The bent of his inclination was not so much to business as to advance arts and sciences, and to assist all the promoters of learning. For this purpose, he resolved to lead a single life; so that, when his father had concluded a match for him with a respectable lady, he begged to be excused.

In 1605, he accompanied G. Varius, first president of the senate at Aix, who was very fond of him, to Paris; whence, having visited every thing curious, he crossed the water, in company with the king's ambassador, 1606, to England. Here he was very graciously received by king James I. and having seen Oxford, and visited Camden, sir Robert Cotton, sir Henry Saville, and other learned men, he passed over to Holland; and, after visiting the several towns and universities, with the literati in each, he went through Antwerp to Brussels, and thence back to Paris, to see the ceremony of the Dauphin's baptism; which being solemnized August 24, he returned home in September 1606, being expected for the ordering of the family affairs.

Presently after this, he purchased the barony of Rians; and at the solicitation of his uncle, having approved himself before that assembly, he was received a senator on the 1st of July, 1607. January 1608, he lost his uncle; and the following year, falling himself into a dangerous fever, recovered by eating musk-melons. He was ordered by his physician to eat them before his meals without bread, and to drink a glass of pure wine upon them. He continued this method all his life afterwards; and frequently experienced, that in the musk-melon season he was never troubled with the gravel. In 1618, having procured a faithful copy of "The Acts of the Monastery of Maren in Switzerland," he published a second edition of that work. As it was written in defence of the royal line of France against Theodoric Piesporidius, who had attempted to prove the title of the Austrian family to the French crown by right of succession, he was, upon this publication, nominated the same year, by Louis XIII. abbot of Sancta Maria Aquilensis. He stayed in France till 1623; when, upon a message from his father, now grown old and sickly, he left Paris, where he had spent seven years and some months. He arrived at Aix in Oc-

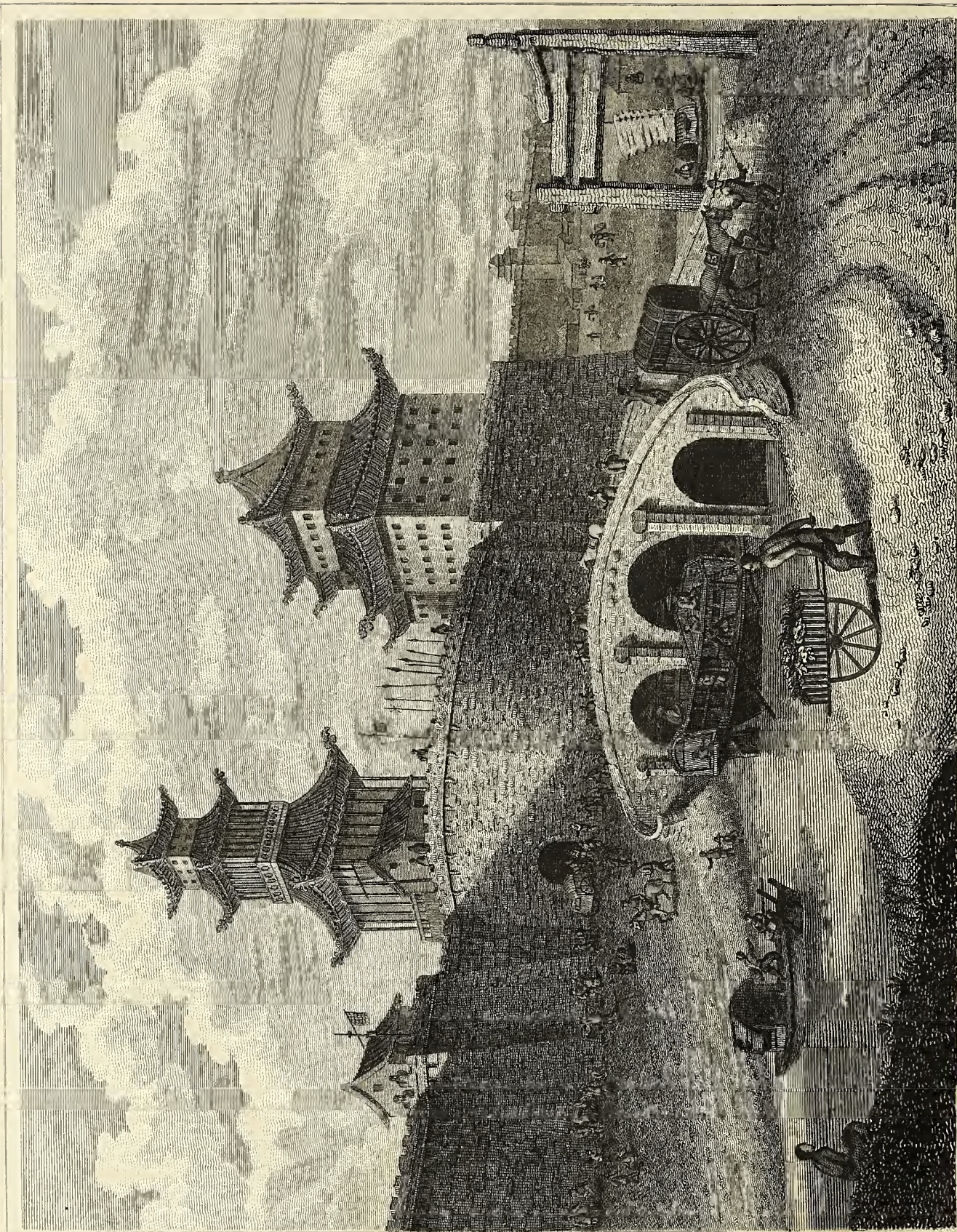
tober; and not long after presented to the court a patent from the king, permitting him to continue in the function of his ancient dignity, and to exercise the office of a secular or lay person, notwithstanding that, being an abbot, he had assumed the character of a churchman. To this the court of parliament not assenting, decreed unanimously, that, being already admitted into the first rank, he should abide perpetually therein; not returning, as the custom of the court was, to the inferior auditory, wherein trials are usually had of criminal cases. In 1625, he buried his father, who had been long afflicted with the gout. In 1627, he prevailed with the archbishop of Aix to establish a post thence to Lyons, and so to Paris and all Europe; by which the correspondence constantly held with the literati every-where was much facilitated. In 1629, he began to be much tormented with the strangury and piles; and in 1631, having completed the marriage of his nephew Claudius with Margaret Alresia, a noblewoman of the county of Avignon, he bestowed upon him the barony of Rians, together with a grant of his senatorial dignity, only reserving the function to himself for three years. But, the parliament not waiting his surrender of it, he resented that affront so heinously, that he procured, in 1635, letters patent (from the king) to be restored, and to exercise the office for five years longer, which happened to be till his death: for being seized, June 1647, with a fever that brought on a stoppage of urine, this put an end to his life on the 24th of that month, in his 57th year.

Peiresc was of a middle size, and of a thin habit: his forehead large, and his eyes grey; his cheeks tempered with red; the hair of his head yellow, as also his beard, which he used to wear long; his whole countenance bearing the marks of uncommon and rare courtesy and affability. In his diet he affected cleanliness, and in all things about him; but nothing superfluous or costly. His clothes were suitable to his dignity; yet he never wore silk. In like manner the rest of his house was adorned according to his condition, and very well furnished; but he neglected his own chamber. His bed was exceedingly plain; and his table continually loaded and covered with papers, books, letters, and other things; as also all the seats round about, and the greatest part of the floor. These were so many evidences of the turn of his mind; in respect to which, the writer of his euloge compares him to the Roman Atticus; and Bayle, considering his universal correspondence and general assistance to all the literati in Europe, dashed it out luckily enough, when he called him "the attorney-general of the literary republic." The works which he published are, 1. *Historia provinciae Galliae Narbonensis*. 2. *Nobilium ejusdem provinciae familiarum Origines, et separatim Fabriciae*. 3. *Commentarii rerum omnium Memoria dignarum sua aetate gestarum*. 4. *Liber de ludicris naturae operibus*. 5. *Mathematica et Astronomica varia*. 6. *Observationes Mathematicae*. 7. *Epistolæ ad S. P. Urbanum VIII. cardinales Barberinos, &c.* 7. *Authores antiqui Graeci et Latini de Ponderibus et Mensuris*. 8. *Elogia et Epitaphia*. 9. *Inscriptiones antiquæ et novæ*. 10. *Genealogia Domus Austriacæ*. 11. *Catalogus Librorum Bibliothecæ Reg.* 12. *Poemata varia*. 13. *Nummi Gallici, Soxonici, Britannici, &c.* 14. *Linguae Orientales, Hebraea, Samaritana, Arabica, Egyptiaca, et Indices librorum harum linguarum*. 15. *Observationes in varios auctores*. It is remarkable, that, though Peiresc bought more books than any man of his time, yet his collection left was not large. The reason was, that, as fast as he purchased, he kept continually making presents of them to such learned men as he knew they would be useful to. *Gassendi's Life of Peiresc, in English, Lond. 1657.*

PEISDORF, a town of Bohemia, in the circle of Königgratz: fourteen miles north-east of Gitsclin.

To PEISE, *v. a.* [*peiser, Fr.*] To poise; to balance; to weigh. *Obsolete.* See To PAYSE.—Not speaking words as they changeably fall from the mouth, but *peysing*

P E K I N .



A view near one of the western Gates of the City of Peking.

J. Chapman sc.

Engraved for the Encyclopaedia Londinensis, 1833.

peyzing each syllable. *Sidney's Def. of Poesy*.—Left leaden slumber peize me down. *Shakespeare's Rich. III.*

All the wrongs that he therein could lay,
Might not it peize. *Spenser.*

Again I view the parts so peized,
And these in number so, and measure, raised. *B. Jonson.*

PEISE, *f.* [*pefa*, Span.] A weight, or poise; a blow; a stroke. *Obsolete*.—With a great *peisse* they let the crosse and the body fall down togyder in to the mortesse. *Lib. Fest.*

Great Ptolemè it for his leman's sake
Ybuilted all of glasse by magicke powre,
And also it impregnable did make;
Yet, when his love was false, he with a *peaze* it brake. *Spenser.*

PEISKREIT'SCHAM, or PYSKO'WICE, a town of Silesia, in the principality of Oppeln: twelve miles west-north-west of Beuthen, thirty fourth-east of Oppeln.

PEIT'SCHENDORF, a town of Prussia, in Barténland: twenty-two miles south of Rastenburgh.

PEITZ, a town of Brandenburg, in the Ucker Mark, on a small river which runs into the Spreue. In the neighbourhood are iron-mines, and manufactures of pitch and turpentine: twenty miles east-fourth-east of Luben, thirty fourth-fourth-west of Frankfort on the Oder. Lat. 51. 53. N. lon. 14. 40. E.

PE'KAH, *f.* [Heb. one that opens.] A man's name. Pekah, the son of Remaliah, was general of Pekahiah king of Israel's army. Together with Argob and Arich, and fifty Gileadites, he murdered his master in the second year of his reign, and reigned twenty years in his stead. Entering into a league with Rezin king of Syria, they intended to dethrone Ahaz, and the whole family of David; and set up the son of one Tabeel to govern Judea, as their tributary. Pekah's army cut off 120,000 of Judah, and took 200,000 prisoners, but they soon returned the latter with great humanity. Instigated by Ahaz, Tiglath Pileser king of Assyria invaded the kingdom of Pekah, and murdered and carried off into captivity a great part of the Naphtalites, eastern Manassites, Reubenites, and Gadites. At last Hoheza murdered Pekah, and reigned in his stead. *Isaiah vii. i. 2 Kings xv. 25. 2 Chron. xxviii. 6.*

PEKAHIAH, [Heb. the Lord opens.] A man's name. See the preceding article.

PEKE'A, *f.* in botany. See RHIZOBOLUS.

PEKENEN, a town of Africa, on the Grain Coast: fifteen miles south of Sanguin.

PE'KET, a town on the north coast of the island of Cumbava. Lat. 8. 15. S. lon. 117. 36. E.

PE'KIN, a city of China, and capital of the empire, situated in a very fertile plain, twenty leagues distant from the Great Wall. This name, which signifies the Northern Court, is given to distinguish it from *Nankin*, or the Southern Court. The emperor formerly resided in the latter; but the Tartars, a restless and warlike people, obliged the prince to remove his court to the northern provinces, that he might more effectually repel the incursions of those barbarians, by opposing to them the numerous militia that he generally keeps around his person.

This capital forms an exact square, and is divided into two cities; the first is inhabited by Chinese, the second by Tartars. These two cities, without including the suburbs, are six leagues in circumference, according to the most accurate measurement made by the express order of the emperor. The walls of the Tartar city are very lofty, and so thick, that twelve horsemen might easily ride abreast upon them; with spacious towers at intervals, a bow-shot distant from one another, and large enough to contain bodies of troops. The city has nine gates, which are lofty, and well arched; over them are large pavilion-roofed towers, divided into nine stories,

each having several apertures or port-holes; the lower story forms a large hall, for the use of the soldiers and officers who quit guard, and those appointed to relieve them. Before each gate a space is left of more than 350 feet; this is a kind of place of arms, inclosed by a semi-circular wall, equal in height and thickness to that surrounding the city. The great road which ends here, is commanded by a pavilion-roofed tower, like the first, in such manner that, as the cannon of the former can batter the houses of the city, those of the latter can sweep the adjacent country.

The streets of Pekin are straight, about 120 feet wide, a full league in length, and bordered with shops. It is astonishing to see the immense concourse of people that continually fills them, and the confusion caused by the prodigious number of horses, camels, mules, and carriages, which cross or meet each other. Besides this inconvenience, one is every now and then stopped by crowds, who stand listening to fortune-tellers, jugglers, ballad-singers, and a thousand other mountebanks and buffoons, who read and relate stories calculated to promote mirth and laughter, or distribute medicines, the wonderful effects of which they explain with all the eloquence peculiar to them. People of distinction oblige all their dependents to follow them. A mandarin of the first rank is always accompanied in his walks by his whole tribunal; and to augment his equipage, each of the inferior mandarins in his suite is generally attended by several domestics. The nobility of the court, and princes of the blood, never appear in public without being surrounded by a large body of cavalry; and, as their presence is required at the palace every day, their train alone would be sufficient to create confusion in the city.

As there is a continual influx of the riches and merchandise of the whole empire into this city, the number of strangers that resort hither is immense; they are carried in chairs or ride on horseback; the latter is more common: but they are always attended by a guide, acquainted with the streets, and who knows the houses of the nobility and principal people of the city. They are also provided with a book, containing an account of the different quarters, squares, remarkable places, and of the residence of those in public offices. In summer, there are to be seen small temporary shops, where people are served with water, cooled by means of ice; and one finds every-where eating-houses, with refreshments of tea and fruits. "I observed," says Mr. Anderson, "a great number of butcher's shops, whose mode of cutting up their meat resembles our own; nor can the markets of London boast a better supply of flesh than is to be found in Pekin. But they sell it cooked as well as raw; and, on my entering the shop, I saw on a stall before it an earthen stove, with a gridiron placed upon it; and on my employing a variety of signs to obtain the information I wanted, the butcher instantly began to cut off small thin slices of meat, about the size of a crown piece, which he broiled as fast as I could eat them. I took about a dozen of these slices, which might all together weigh seven or eight ounces; and when I paid him, which I did by giving him a string of *caxee*, or small coin, he pulled off, as I suppose, the amount of his demand, which was one conderon, or ten *caxee*, the only current money in the empire. I saw numbers of people in other butcher's shops, as I passed along, regaling themselves with beef and mutton in the same manner.

"The houses for porcelain utensils and ornaments are peculiarly attractive, having a row of broad shelves, ranged above each other, on the front of their shops, on which they dispose the most beautiful specimens of their trade in a manner full of fancy and effect.

"Besides the variety of trades which are stationary in this great city, there are many thousands of its inhabitants who cry their goods about, as we see in our own metropolis. They generally have a bamboo placed across their shoulders, and a basket at each end of it, in which

they carry fish, vegetables, eggs, and other similar articles. There are also great numbers of hawkers and pedlars, who go about with bags strapped on their shoulders like a knapsack, which contain various kinds of stuffs, the folds of which are exposed to view. In selling these stuffs, they use the cubic measure of sixteen inches. Barbers also are seen running about the streets in great plenty, with every instrument known in this country for shaving the head and cleansing the ears: they carry with them for this purpose a portable chair, a portable stove, and a small vessel of water; and whoever wishes to undergo either of these operations, sits down in the street, while the operator performs his office, for which he receives a mace. To distinguish their profession, they carry a pair of large steel tweezers, which they open with their fingers, and let them close again with some degree of violence, which produces a shrill sound that is heard at a considerable distance; and such is their mode of seeking employment. That this trade in China is a very profitable one may be pronounced, because every man must be shaved on a part of the head where it is impossible to shave himself.

"In several of the streets I saw persons engaged in selling off goods by auction: the auctioneer stood on a platform surrounded with the various articles he had to sell: he delivered himself in a loud and bawling manner; but the smiling countenances of the audience, which was the only language I could interpret, seemed to express the entertainment they received from his harangue.

"There are no carriages standing in the streets for the convenience of the inhabitants, like our hackney-coaches in London: the higher classes of people keep palanquins, and others of less distinction have covered carts drawn by a horse or mule.

"The opinion, that the Chinese women are excluded from the view of strangers, has very little, if any, foundation, as among the immense crowd assembled to see the cavalcade of the English embassy, one-fourth of the whole at least were women; a far greater proportion of that sex than is to be seen in any concourse of people whom curiosity assembles in our own country: and, if the idea is founded in truth, that curiosity is a peculiar characteristic of the female disposition in Europe, I shall presume to say, from the eagerness which we observed in the looks of the Chinese women as we passed by them, that the quality which has just been mentioned is equally prevalent among the fair ones of Asia. The women we saw on our passage through Peking possessed, in general, great delicacy of feature, and fair skins by nature, with which, however, they are not content, and therefore whiten them with cosmetics; they likewise employ vermilion, but in a manner wholly different from the application of rouge among our European ladies, for they mark the middle of their lips with it by a stripe of its deepest colour, which, without pretending to reason upon it, certainly heightened the effect of their features. Their eyes are very small, but powerfully brilliant, and their arms extremely long and slender. The only difference between the women of Peking, and those we had already seen, as it appeared to us, was that the former wear a sharp peak of black velvet or silk, which is ornamented with stones, and descends from the forehead almost between their eyes; and that their feet, free from the bandages which have already been mentioned, were suffered to attain their natural growth."

Peking is merely the seat of government of the empire. It is not a port, nor a place of inland trade or manufacture. No representative diet, nor general states, with numerous retainers, assemble there to assist, or check, or examine, the measures of the crown. It forms no rendezvous for pleasure and dissipation. Peking owes little of its extent and populousness to the various circumstances that contribute to aggrandize and enlarge European cities. Most men there have stations regularly allotted them, or are occupied in attending or providing for those

who have. The governor of Peking, who is a Manchoo Tartar, is styled Governor of the Nine Gates; his jurisdiction extends not only over the soldiers, but also over the people in every thing that concerns the police. No police can be more active. It is rare in a number of years to hear of houses being robbed, or people being assassinated; all the principal streets have guard-rooms, and the soldiers patrol night and day, each having a sabre hanging from his girdle, and a whip in his hand, to correct, without distinction, those who excite quarrels or cause disorder. The lanes are guarded in the same manner, and have latticed gates, which do not prevent those from being seen who walk in them; they are always kept shut during the night, and seldom opened even to those who are known: if they are, the person to whom this indulgence is granted must carry a lanthorn, and give sufficient reason for his going out.

The emperor's palace stands in the middle of the Tartar city. It presents a prodigious assemblage of vast buildings, extensive courts, and magnificent gardens, and is shut up on all sides by a double wall; the intervening space being occupied by houses belonging to the officers of the court, eunuchs, and by different tribunals. To some of these is assigned the care of providing necessaries for the use of the emperor; others are for determining disputes, and punishing faults committed by the domestics of the imperial family. The exterior circumference of this immense palace is reckoned a league and a half. Although the Chinese architecture has no resemblance to that of Europe, the imperial palace of Peking does not fail to strike beholders by its extent, grandeur, and the regular disposition of its apartments. The royal hall, called *Tai-hoien*, or the Hall of the Grand Union, is built upon a terrace about eighteen feet in height, incrufted with white marble, and ornamented with balustrades of excellent workmanship. Before this hall, all the mandarins range themselves, when they go on certain days to renew their homage, and perform those ceremonies that are appointed by the laws of the empire. This hall is almost square, and about 130 feet in length. The ceiling is carved, varnished green, and loaded with gilt dragons, covered with coarse carpets, after the Turkish manner; but the walls have no kind of ornament, neither tapestry, lustres, nor paintings. The throne, which is in the middle of the hall, consists of a pretty high alcove, exceedingly neat. It has no inscription but the character *Ching*, which signifies holy, perfect, excellent. It was here that the famous British embassy, conducted by lord Macartney in 1793, had its audience of Ttchien Lung, then emperor of China. For the particulars, see the article CHINA, vol. iv. p. 478-486.

The estimated population of Peking, says sir G. Staunton, was carried in the last century, by the Jesuit Grimaldi, as quoted by Gemelli Carreri, to sixteen millions. Another missionary reduces, at least that of the Tartar city, to one million and a quarter; according to the best information given to the embassy, the whole was about three millions. The low houses of Peking seem scarcely sufficient for so vast a population; but very little room is occupied by a Chinese family, at least in the middling and lower classes of life. In their houses there are no superfluous apartments. A Chinese dwelling is generally surrounded by a wall six or seven feet high; within this inclosure a whole family, of three generations, with all their respective wives and children, will frequently be found. One small room is made to serve for the individuals of its branch of the family, sleeping in different beds, divided only by mats hanging from the ceiling. One common room is used for eating.

The temples and the towers of this city are so numerous, that it is difficult to count them. We have already, under the article OBSERVATORY, mentioned the famous observatory in this city, of which we shall give this further account from the Universal History. "The Chinese had thought nothing in the universe could equal in magnificence

magnificence this famous place; and one of the most celebrated mathematicians of the Royal Academy of Paris hath made no scruple to represent it as one of the greatest prodigies of art and ingenuity, of beauty and magnificence; and yet, when this celebrated structure came to be viewed by more proper and unbiassed judges, it appears to have been of little worth as to its ancient machines, and less as to its situation; and that all that is now valuable in it is owing to the improvements made by father Verbiest, a Flemish Jesuit, who caused a new set of instruments to be made, with extraordinary care, neatness, and precision. This fabric stands in a court of moderate extent, and is built in the form of a square tower, contiguous to the city-wall on the inside, and raised but ten or twelve feet above its bulwark. The ascent up to the top is by a very narrow staircase; and on the platform above were placed all the old instruments, which, though but few, took up the whole room, till Verbiest introduced his new apparatus, which he disposed in a more convenient order. These are large, well cast and embellished; and, were the neatness of the divisions answerable to the work, and the telescopes fastened to them according to the new method, they would be equal to those of Europe; but the Chinese artificers were, it seems, either too negligent, or incapable of following his directions. As to the old instruments, they were, by order of the emperor Kang-hi, set aside as useless, and laid in the hall near the tower, where they may be seen through a cross-barred window, all covered with rust, and buried in oblivion. In this famed observatory there are five mathematicians employed night and day, each in a proper apartment on the top of the tower, to observe all that passes over their heads: one of them is gazing towards the zenith, and the others towards the four points of the compass, that nothing may escape their notice. Their observations extend not only to the motions of the heavenly bodies, but to fires, meteors, winds, rain, thunder, hail-storms, and other phenomena of the atmosphere; and these are carefully entered in their journals, and an account of them is brought every morning to the surveyor of the mathematics, and registered in his office." Lat. 39. 55. N. lon. 116. 28. E. *Earl of Macartney's Embassy, by Sir G. Staunton*, vol. ii. *Anderson's Narrative*. *Barrow's China*. *Grosier's China*, vol. i.

PE'LA, *f.* in botany. See PSIDIUM.

PELA'GIA (St.), a town of Naples, in the province of Otranto: three miles north of Tarento.

PELA'GIAN, *f.* One of the followers of PELAGIUS. See that article.—Original sin standeth not in the following of Adam, as the *Pelagians* do vainly talk; but is the fault and corruption of every man that naturally is ingendered of the offspring of Adam, whereby man is very far gone from original righteousness, and is of his own nature inclined to evil, so that the flesh lusteth always contrary to the spirit. *Art. 9th of Religion*.

PELA'GIAN, *adj.* Belonging to the notions of the Pelagians.—Throughout all this *Pelagian* scheme, we have not so much as one word of man's natural impotency to spiritual things. *South*.

PELA'GIANISM, *f.* The doctrine of Pelagius and his followers.—This persuasion of man's being able to merit of God, is the source and foundation of two of the greatest corruptions of religion that have infested the Christian church; and those are *pelagianism* and popery. *South*.

PELAG'IC, *adj.* [from the Lat. *pelagus*, the sea.] Belonging to the sea. *Cole*.

PELAG'IE, a river of Louisiana, which runs into the Mississippi in lat. 38. 30. N. lon. 91. 30. W.

PELA'GIUS, after whom a Christian sect has been distinguished by the name of *Pelagians*, was a native of Wales, where he was born on the 13th of November, 354, on the same day with his great antagonist St. Augustine. His vernacular name was *Morgan*, or *Marigena*, signifying "Sea-born," which he changed into *Pelagius*,

a Greek word of the same meaning. He embraced the religious life, and probably in the celebrated monastery of Bangor in Wales; but that he was ever abbot of that house, and expelled by the fraternity on account of his obnoxious opinions, though asserted by various writers, is a tale which is not supported by any evidence. From the accounts of him which have been transmitted to us by his enemies as well as friends, it appears that he was distinguished by great strength and acuteness of mind, extensive learning, ardent piety, irreproachable and exemplary morals. About the year 400, accompanied by his intimate friend Cælestius, who was an Irish (or Scotch) monk, he went to Rome; and in that city these associates lived for some years in the greatest reputation, and were universally esteemed on account of their extraordinary piety and virtue. At this time a superstitious notion respecting the efficacy of baptism was spreading in the Christian world, the advocates for it maintaining, that the mere act of baptizing washed away sin. This notion Pelagius firmly opposed; maintaining, that the washing away of sin was to be effected by good works, and not by water. As one principal argument in favour of his doctrine, he alleged that the design of baptism could not be to wash away sin, since it was applied to infants who had not sinned. This doctrine, according to the representations of some ecclesiastical historians, gave no offence, and was even generally admitted at Rome; but, according to others, Pelagius and his friend were too cautious to preach it in public, contenting themselves with propagating it in a private manner, by which means they gained numerous disciples. About the year 409 or 410, upon the approach of the Goths towards that city, Pelagius and Cælestius removed into Sicily, where they continued till the year 411, when they passed over into Africa, desirous of being present at a conference which was to be held between the Catholics and Donatists.

In Africa, the superstitious notion respecting the efficacy of baptism was very generally prevalent, and was opposed with great freedom by our two monks. On the other hand, it was zealously maintained by several of the African clergy, and particularly by the famous Augustine bishop of Hippo. While arguing in defence of it, he insisted on the doctrine of original sin, or, a natural proneness to sin, which was derived from Adam to all his posterity; not the modification of it adopted by his followers in after-ages, that the guilt of Adam's particular transgression was transferred and imputed to his whole race. Augustine also maintained, that until this proneness to sin, which might be called defilement, was done away by the *special grace* of God imparted at baptism, men had no power to do the will of God; and that, consequently, every good thought, word, and work, must be ascribed to supernatural grace, or the influence and assistance of the Spirit of God. Against these doctrines, Pelagius and Cælestius strenuously contended, maintaining that they were as false as they were pernicious; that we derive no corruption from the fall of our first parents, but are born as pure and unspotted as Adam came out of the forming hand of his Creator; that mankind, therefore, are capable of repentance and amendment, and of arriving at the highest degrees of piety and virtue by the use of their natural faculties and powers: that, indeed, *external grace*, meaning by the term divine revelation, or the gospel, was necessary to excite and direct their endeavours, but that they have no need of *internal* preternatural succours from the Divine Spirit.

Pelagius made no considerable stay in Africa, but, after leaving Cælestius in that country, proceeded by way of Egypt to Palestine, where he was favourably received by John bishop of Jerusalem. In the mean time, Cælestius continued to maintain the opinions of Pelagius in Africa, till the bishops of that country, who adopted the doctrines of Augustine, preferred the charge of heresy against them, and procured their condemnation in a council held at Carthage in the year 412; upon which Cælestius

tius left that city, and went to join Pelagius in the east. In Palestine our monks met with more favourable treatment, supported as they were by the bishop of Jerusalem, who, from his attachment to the principles of Origen, was naturally led to countenance those of Pelagius, on account of the conformity that there was in some leading points between the two systems. Under his powerful protection, Pelagius made a public profession of his opinions, and gained numerous adherents. In the year 415, Augustine sent Orosius, a Spanish presbyter, into Palestine, with letters in which Pelagius was accused of heresy. This charge was immediately taken into consideration by a council of bishops at Jerusalem, who, after hearing Augustine's letter read, as well as the defence of Pelagius, broke up without passing any censure on the latter, after deliberating about referring the matter to the judgment of Innocent I. bishop of Rome. Towards the close of the year, another council, consisting of fourteen bishops, was held at Diospolis; before which Pelagius was summoned, tried, and fully acquitted of all errors. Among his powerful friends in these councils, was the learned and illustrious Theodore bishop of Mopsuestia.

The acquittal of Pelagius highly incensed his enemies, who reflected on the bishop of Jerusalem, imputing it to his improper influence; and Jerome reviled the council that pronounced in his favour, styling it, "the pitiful synod of Diospolis." Augustine also wrote to John, endeavouring, though in vain, to excite his prejudices against the persecuted monks. What he could not effect in the east, however, he succeeded in carrying according to his wishes in Africa. In a council held at Carthage in the year 416, he and his friends procured the opinions of Pelagius to be condemned; and their judgment was soon afterwards confirmed by the bishops of Numidia, assembled at Milevum. They then wrote letters to Innocent bishop of Rome, to persuade him to accede to their sentence. In these circumstances, Pelagius was advised to appeal to Rome, and he sent a confession of his faith to the pontiff, which was accompanied with a letter from Praxylus, successor to John in the see of Jerusalem, which recommended the case of the persecuted monks to him, in very affectionate terms. These letters and confession did not reach Rome before the death of Innocent, who was succeeded by Zosimus in the year 417. The new pontiff, fully satisfied with these letters and confession, declared the monks sound in the faith; unjustly persecuted by their adversaries; and received them under his protection at Rome.

The African bishops, with Augustine at their head, little affected by this declaration, continued obstinately to maintain the judgment which they had formed in this matter, and to strengthen it by their exhortations, their letters, and their writings. They also succeeded in gaining the emperor Honorius to their side; and their remonstrances, supported by his authority, produced a wonderful conversion in the mind of Zosimus, who condemned, with the utmost severity, the men whose principles he had publicly approved, and whom he had covered with his protection. From this time our two monks and those who adopted their opinions were persecuted with the utmost rigour and cruelty, and condemned by no less than twenty-four councils in different parts of the world. Thus proscribed in Asia, Africa, and on the continent of Europe, Pelagius and Cælestius took refuge in Britain, where they met with a supporter in Agricola, the son of Severian, who was a favourer of their opinions, as were also multitudes, if not the great mass of the inhabitants of the island. This country, therefore, being considered as the principal remaining asylum of Pelagianism, Germanus bishop of Auxerre, and Lupus bishop of Troyes, were deputed by a synod in Gaul to pass over into it, and establish the inhabitants in the faith of Rome and of St. Augustine. Accordingly, they undertook this mission in the year 420, and succeeded in gaining the British prelates, who condemned the opinions of their

countrymen, and, by so doing, contributed to promote the aspiring views of the papal see. However, after the return of the missionary bishops to Gaul, Pelagianism prevailed so much again, that, in the year 427, it was judged expedient that Germanus should visit Britain once more, accompanied by Severus bishop of Treves, and the disciple of Lupus of Troyes. So successfully did these prelates exert themselves during this mission, that they procured a more solemn condemnation of Pelagianism, by the decrees of a council assembled at Verulam, or St. Alban's; and, it is said, obtained the consent of the inhabitants to the banishment from the island of all who would not renounce the proscribed principles.

Of the personal history of Pelagius, or of his associate Cælestius, after their return to Britain, we are not furnished with any particulars. The following summary of their doctrines is given in the Encyclopædia Britannica. 1. That Adam was by nature mortal; and, whether he had sinned or not, would certainly have died. 2. That the consequences of Adam's sin were confined to his own person. 3. That new-born infants are in the same situation with Adam before the fall. 4. That the law qualified men for the kingdom of heaven, and was founded upon equal promises with the gospel. 5. That the general resurrection of the dead does not follow in virtue of our Saviour's resurrection. 6. That the grace of God is given according to our merits. 7. That this grace is not granted for the performance of every moral act; the liberty of the will, and information in points of duty, being sufficient, &c.

Dr. Henry observes, that both Pelagius and Cælestius were esteemed by St. Augustine and Jerome, and maintained a friendly correspondence with them. But Pelagius, after he had discovered his opinions on the subject of grace and of baptism, is represented by these good fathers, in the heat of their zeal, as a very ugly fellow; "broad-shouldered, thick-necked, fat-headed, lame of a leg, and blind of an eye." And Cælestius, the indefatigable and undaunted champion of these heresies, brought upon himself many very bad names. St. Jerome, whose Commentaries on the Ephesians he had presumed to criticise, calls him "an ignorant stupid fool, having his belly swelled and distended with Scots pottage; a great corpulent barking dog, who was fitter to kick with heels than to bite with his teeth; a Cerberus, who, with his master Pluto (Pelagius), deserved to be knocked on the head, that they might be put to eternal silence." Such were the flowers of rhetoric which these good fathers employed against the enemies of the orthodox faith! Both Pelagius and Cælestius were very great travellers; having visited many different countries of Asia and Africa, as well as Europe, with a view to elude the persecutions of their enemies, and to propagate their opinions. It is no inconsiderable evidence of their superior learning and abilities, that their opinions gained great ground in all the provinces both of the eastern and western empire, in spite of the writings of many learned fathers, and the decrees of many councils against them. "The Pelagian and Cælestian heresy (says Photius) not only flourished in great vigour in the west, but was also propagated into the east."

The works of Pelagius still extant, consist of, 1. Expositionum in Epistolas Paulinas, lib. xiv. which are inserted in the works of St. Jerome, and were for a long time attributed to that father. 2. Epistola ad Demetriadem de Virginitate; which is preserved in the works of St. Jerome and St. Augustine, and has been by turns ascribed to each of them. 3. Explanationis Symboli ad Damasum. 4. Epistolæ ad Viduam duæ. 5. De Libero Arbitrio. 6. Libellus Fidei ad Innocentium Papam; annexed to the Letter of Pope Zosimus to the African Bishops, in the 2d vol. of the Collect. Concil. For an account of his other pieces which are lost, and the works in which fragments of them may be found, we refer our readers to Cave's Hist. Lit. vol. i. Moshi. Hist. Eccl. sæc. v. and Priestley's

Hist. Christ. Church. Per. xii. The history of the Pelagian controversy, and of the Pelagians, has been written by Archbishop Usher, in his *Antiq. Eccles. Britan.* by Gerard Vossius; Le Clerc; Cardinal Noris; Father Garnier, in his *Supplem. Oper. Theodoretii*; Janfenius, in his *Augustino*; and by Longueval, a French Jesuit, in the preface to the 9th vol. of his *Hist. Eccl. Gallic.* and others. *Gen. Biog.*

PELAGIUS I. (Pope), was a native of Rome. He became a deacon of the Roman church, and was employed in the capacity of nuncio at the court of Constantinople by several of the popes in succession. About the year 539 he was commissioned, together with Ephraim patriarch of Antioch, and Peter patriarch of Jerusalem, to decide on the case of Paul, who had been banished to Gaza, on account of a deacon's death, to which he was said to have been privy. Having repaired to Gaza after the trial of the African prelate, sentence of deposition was pronounced upon him. While Pelagius was returning to Constantinople, he met with some Palestine monks on their journey to that city, in order to prefer complaints to the emperor against the followers of Origen; and, having promised them his interest at court, he succeeded in obtaining an edict from Justinian in 541, by which sentence of condemnation was passed upon the Origenists. In the mean time, he had betrayed the interests of pope Silverius at Constantinople; and, to ingratiate himself with the empress, became privy to the measures for securing the popedom to Vigilius, the usurper of the see. About the year 545 he returned to Rome, being either recalled by Vigilius, or, according to others, sent by Justinian with a large sum of money for the relief of that city, which was reduced to great distress by the incursions of the Goths. In 547 he was deputed by the citizens of Rome on an embassy to Totila, king of the Goths, for the purpose of dissuading that prince from besieging that city, when, though he failed in the object of his mission, by his intercession he was the means of preserving the lives and liberties of numbers of the conquered Romans. In the same year Totila sent him in the character of ambassador to Constantinople, to negotiate a peace between the Goths and Romans. He adhered to Vigilius in all his disputes; in all his changes, condemning or approving those articles which the pope condemned or approved. With him he was banished for rejecting the fifth council; but, recanting when that pope recanted, he was with him released from his exile and recalled to Constantinople. He attended Vigilius on his return from the east; and, upon the death of the pope in the island of Sicily, in the year 555, he hastened to Rome, the emperor having promised to raise him to that see if he survived Vigilius, upon his engaging to cause the fifth council to be universally received in the west. When Pelagius arrived at Rome, he found the people and clergy so highly enraged against him, that, instead of electing him their bishop, they all with one consent separated themselves from his communion. What induced many to concur in this measure, was a strong report, that, in order to secure the object of his ambition, he had been accessory to the death of his predecessor. But Pelagius, relying on the support of the emperor, resolved to have himself ordained in defiance of the canons, as well as the electors. No sooner was he settled in the quiet possession of his see, than he endeavoured to perform his engagement to the emperor, by persuading the western bishops to receive the fifth council. With this view he addressed letters to them, in which he attempted to prove, that the constitution of Vigilius was in no respect derogatory to the decrees of Chalcedon, and consequently that such as did not receive it ought to be deemed schismatics. So far, however, were his letters from producing the desired effect, that the bishops of Tuscany, Liguria, Venetia, Illyricum, Gaul, Spain, and Ireland, declared loudly against that constitution; and the fifth council, and the Italian bishops, as well as the Irish, besides censuring the pope in

the strongest terms, separated themselves from his communion.

Thus abandoned by almost all the bishops in the west, and finding his endeavours to satisfy them of his orthodoxy were ineffectual, he wrote to the emperor's chief general Narfes, exhorting him to restrain, by his authority and power, those whom a reverence for St. Peter and his see could not restrain, or bring to a sense of duty. Narfes, being of a mild and humane disposition, instead of acting as the pope desired, endeavoured by entreaties and persuasion to gain over those Italian bishops who were the subjects of the empire; and, though he was at first not successful, by steadily adhering to the system of pacification, he in the end prevailed upon some of the bishops of Tuscany and Liguria to renew their communion with the see of Rome.

About the year 557, a report was spread in Gaul, that the pope had departed from the genuine Catholic doctrine. Childebert, king of the Franks, sent an ambassador to Rome, for the purpose of examining into its truth, and of demanding of Pelagius a confession of his faith. In compliance with the king's demand, the pope transmitted to the monarch his confession, accompanied with solemn declarations, that he not only received, but was ready to defend, at the expense of his life, the holy faith of Chalcedon; yet maintaining, that nothing had been defined in the fifth council, but what was entirely agreeable to that faith and doctrine. Pelagius died in 560, after a pontificate of nearly five years, during which he had the mortification to see his authority almost universally disregarded by the western bishops, who persevered in condemning and rejecting a council which he had approved and received, and even suspected the orthodoxy of his creed because he received it. Sixteen Letters, which have been attributed to him, may be found in the fifth vol. of the *Collect. Concil.* of which, however, the first is admitted by the editors of that work to be spurious.

PELAGIUS II. (Pope), was of Gothic extraction, but a native of Rome. Upon the death of pope Benedict in 578, the see continued vacant four months, at the expiration of which Pelagius was chosen to fill that dignity. His election having taken place at a time when the Lombards were masters of the greatest part of Italy, and kept Rome itself closely besieged, it was judged expedient that he should be ordained before the emperor's confirmation could be received; but, as soon as the siege was raised, he sent Gregory, then deacon in the Roman church, and afterwards his successor in the popedom, to excuse the informality, and to entreat the emperor's acquiescence in a proceeding which had been rendered necessary by the calamitous circumstances of the times. The Lombards, by their ravages, had now spread such devastation and terror in every part of Italy, that persons who had the character of holy men regarded them as the instruments of the divine vengeance to depopulate the country; and some of them fancied that they had revelations, which foretold them that "the Lombards were the forerunners of the last day, and that the end of the world was at hand." By the report of their visions, the credulous multitude was terrified to such a degree, that, instead of uniting against the common enemy, they abandoned themselves to despair, and suffered the barbarians to plunder and destroy without opposition. In this state of the empire in the west, the church continued to be divided by the schism which had been occasioned by the constitution of pope Vigilius, and not terminated by his successors. The task of healing that schism, Pelagius considered to be one of the first objects that merited his attention, and he determined to apply to it with the utmost zeal. The Lombards, however, occasioned the most serious alarms to the church, and obliged his holiness to pay more attention to the secular concerns of the state than to its spiritualities. They had conquered the important city of Pavia; and, having made it the metropolis of their new kingdom, extended their conquests from thence over the ad-

jacent provinces, threatening to advance a second time against Rome. This threat they were enabled to carry into execution without delay, since the exarch Longinus had not sufficient forces to meet them in the field. Under constant apprehensions, therefore, that they would speedily make their appearance at the gates of the city, Pelagius sent new legates to the emperor Tiberius, in the year 580, to lay before him an account of the defenceless state of Italy, and to solicit a supply of men and money, that the city of Rome itself might not fall into the hands of the barbarians. But the emperor, though wishing well to the cause, had it not in his power to send them any relief. Finding Italy thus abandoned by the emperor, in 581 the pope applied to Guntram, king of Burgundy, who was distinguished for his attachment to the bishops of Rome, and their see, exhorting and entreating him to renounce the alliance which he had lately concluded with the Lombards, and, by turning his arms against them, prevent the entire subjugation of Italy. In this application, however, he appears to have met with no better success, than in his legation to Constantinople. During the following year, upon receiving intelligence of the death of the emperor Tiberius, and the succession of Mauricius, Pelagius lost no time in charging his nuncio Gregory to renew his application for imperial aid; which Mauricius promised to grant; and immediately issued an order to discharge the exarch Longinus, who was not thought equal to so great a trust, and to appoint Zamaragdus, a person well skilled in military affairs, to command in his room.

In the year 583, the new exarch took with him into Italy a considerable reinforcement of chosen troops, and a large supply of money to defray the expenses of the war. Mauricius, however, sensible that with those troops alone he would not be in a condition to withstand the numerous forces of the enemy, entered into a treaty with Childibert king of the Franks, who engaged, for a considerable sum, which was paid beforehand, to fall upon the Lombards on one side, while the exarch attacked them on the other. But this faithless prince, upon receiving a similar sum from the Lombards, agreed to disband his army, and observe a strict neutrality. He had even the baseness, when ambassadors from the emperor urged him either to perform his promise, or to refund the money which he had received, to dismiss them without any answer. This treacherous conduct proved a great disappointment to the exarch, who, finding himself unable to prosecute hostilities with his present forces, resolved to try whether he could not amuse the enemy with a pretence of negotiation, till further supplies could be sent to him. Accordingly, he proposed a cessation of arms, which was agreed to by the king of the Lombards, who was desirous of settling the affairs of his kingdom, and of establishing peace and good order in the conquered countries.

From this time we meet with no particulars relating to Pelagius before the year 588, when a council was held at Constantinople, for the trial of Gregory, patriarch of Antioch, who had been accused of incest, and several other crimes. After the trial had lasted nearly a whole day, and the patriarch had been honourably acquitted, the council confirmed to John of Constantinople, furnished the *Papst*, on his own application, the title of œcumenical or universal bishop, to be enjoyed by him and his successors in that see. Though it does not appear that this title was attended with any accession of power, much less with such pretensions to universal jurisdiction over the church as were afterwards claimed by the bishops of Rome, yet, when intelligence of what had passed was brought to Pelagius, his jealousy was alarmed lest the dignity of his bishopric should be eclipsed; and he endeavoured to alarm the whole Christian world against John, as if he intended to engross all ecclesiastical power to himself and his see. As much disturbed and concerned as if the council had condemned some

fundamental article of the Christian religion, he immediately, by the authority and in the name of St. Peter, declared all the acts of that assembly null and void, excepting their acquittal of Gregory. He also dispatched, without delay, messengers to Constantinople, with letters to the patriarch, and to his nuncio at the imperial court. In his letter to the patriarch, Pelagius reproached him, in very severe terms, with pride and ambition; pronouncing his wish for such a distinction above his brethren, as the name of œcumenical bishop imported, to be wicked, detestable, and diabolical; and threatening to separate himself from his communion, if he did not immediately relinquish the antichristian title which he had assumed. In his letter to his nuncio, he strictly enjoined him not to communicate, or to assist in divine service on any occasion, with the bishop of Constantinople, till he had renounced that distinction. However, as the patriarch Syriacus, who succeeded John, assumed the same title, it is probable that John continued the use of it as long as he lived, though Pelagius was prevented by death from proceeding further in this affair.

In the year 589, the Catholic cause received an accession of strength by the conversion of the Goths in Spain, who, after having professed the doctrine of Arius during more than two centuries, were persuaded by their king Recaredus to renounce it, and to embrace the Catholic faith. This event gave great satisfaction to the Catholic party, though Pelagius survived but a short time to enjoy it. In consequence of an inundation of the Tiber, which laid under water a considerable part of the city of Rome, and the adjacent country, a very mortal pestilential distemper broke out, which proved fatal to Pelagius in February 590, after he had presided over the Roman see eleven years and between two and three months. Ten Letters and six Decrees, under his name, are inserted in the fifth vol. of the Collect. Concil. though the editors of that work acknowledge the first, second, eighth, and ninth, letters, to be supposititious. *Cuvè's Hist. Lit.* vol. i.

PELAGNI'SI, an island in the Grecian Archipelago, about eight miles in circumference. Lat. 39. 30. N. lon. 24. 8. E.

PELAGO'NIA, in ancient geography, a country of Macedonia, called also *Tripolitis*, on account of its three cities, according to Strabo.—Also, a town of the same country.—Also, a town of the island of Sicily.

PELAGO'SA, an island in the Adriatic, near the coast of Dalmatia. This island, together with several rocks that appear above water near it, are the remains of an ancient volcano. The lava which forms the substance of this island appears like the ordinary lava of Vesuvius. The Lissan fishermen say, that Pelagosa is subject to frequent and violent earthquakes; and the aspect of the island proves at first sight that it has suffered many revolutions; for it is rugged, ruinous, and subverted: sixteen miles south-west of Agosta. Lat. 42. 45. N. lon. 16. 10. E.

PELAI'AH, a Levite; (Nehem. viii. 7. x. 10.) He was one of the principal Levites that returned from captivity, and was one of those that signed the covenant that Nehemiah renewed with the Lord.

PELALI'AH, son of Amazi and father of Jeroham, of the family of Pashur son of Malchiah: he was of the race of the priests. *Nehem.* xi. 12.

PELANG', a town of Birmah: eight miles north-east of Pegongmew.

PELARGO'NIUM, *f.* [so called from *πελαγγος*, a stork, in allusion to the beak of the fruit, which resembles the bill of that bird; as well as to preserve an analogy with the *Geranium*, or crane's-bill, and *Erodium*, which might properly be called heron's-bill.] STORK'S-BILL, or AFRICAN GERANIUM; in botany, a genus of the class monadelphica, order heptandria, natural order of gruinales, (gerania, *Juss.*) Generic characters—Calyx: perianthium one-leaved, five-parted; segments ovate, acute, concave,

concave, permanent; upper segment, ending in a capillary nectariferous tube, decurrent along the peduncle. Corolla: petals five, obcordate or ovate, spreading, large, irregular. Stamina: filaments ten, awl-shaped, united at the base, spreading at top, unequal in length, all shorter than the corolla, three of them (seldom five) castrated; antheræ seven, oblong, versatile. Pistillum: germ five cornered, beaked; style awl-shaped, longer than the stamens, permanent; stigmas five, reflex. Pericarpium: capsule five-grained, beaked, the cells opening inwards; the beak spiral, bearded on the inside. Seeds solitary, ovate-oblong. — *Essential Character.* Calyx five-parted, the upper segment ending in a capillary nectariferous tube running along the peduncle; corolla five petalled, filaments ten, unequal, three of which (seldom five) are castrated; fruit five-grained, beaked; beak spiral, bearded within.

This vast and favourite genus, for which we are almost entirely indebted to the Cape of Good Hope, consists of a great number of well-marked species. But that number is greatly augmented, in almost every book, by the admission of spurious hybrid species or varieties; which continually start up from seed wherever many of the primary ones are cultivated, and are for a while propagated by cuttings, or even by seed. Sooner or later, however, they for the most part vanish, even before the eyes of those who witnessed their origin. Willdenow defines 120 species, several of which we know to have been the production of European gardens; of these Mr. Professor Martyn, in his edition of Miller's Gardener's Dictionary, has admitted 82, which are divided into five distinct sections, with about eight-and-twenty miscellaneous species at the end. All these plants have rather a fleshy habit, and more or less of a peculiar scent, in some instances exquisitely agreeable. Some are herbaceous, with a tuberous root, that supplies the place of the shrubby stem observable in most of the others. Their foliage is mostly downy, sometimes glaucous. Flowers more or less umbellate, rarely endowed with any scent, except what arises from the herbage; though some, whose colours are of the yellowish-green or lurid kind, are deliciously fragrant at night. The prevailing colour, throughout the greater part of the genus, is crimson, scarlet, or light purple, in various beautiful shades and combinations, often intermingled with white; yellow and blue are both equally rare in this natural order, and the latter scarcely occurs at all in the genus of which we are treating. Every known species, except perhaps one or two, is perennial. They are greenhouse plants in England, flowering at various seasons, and conducing greatly to the ornament of a collection. In some few instances the number of petals, as well as of the stamens, differs a little from the generic description.

The distinctions between this genus and those of *Erodium* and *Geranium*, into which the natural genus or family of *Geranium* is now divided, may be seen under the essential characters of the respective genera; and the reasons for the modern division, together with the circumstances of agreement in the several branches of this natural family, are given under GERANIUM, vol. vii.

I. Stemless; root turnip-like; umbels compound.

1. *Pelargonium hirsutum*, or various leaved stork's-bill: leaves obovate or lanceolate, quite entire or pinnatifid, rough-haired, ciliate. Root turbinate, perpendicular, at the upper part thickened and imbricate as it were with red stipules. Stem none, except peduncles or scapes, on which there is one leaf near the origin of the umbels. Root-leaves numerous, some ovate almost entire, others lacinate and as it were pinnate, and all petioled. Stipules oblong, fastened to the base of the petiole, bifid. Flowers umbelled; scape radical, two inches high, and divided into three or more pedicels; corolla small, papilionaceous, pale in dried specimens, but, according to Burman, dark purple. Capsules five, short, tomentose:

the beak scarcely half an inch in length, Introduced in 1788, by Mr. Francis Masson. It flowers in March.

2. *Pelargonium pinnatum*, or pinnated stork's-bill: umbel subcompound; leaves pinnate; leaflets roundish-ovate, undivided, hirsute on both sides. Root thick, yellowish, descending, having few fibres. Stem scarcely any, except the scapes, which have sometimes leaves, sometimes none. Leaves long, often with an odd leaflet: leaflets about sixteen, subsessile, ovate-acute, ash-coloured. Corolla papilionaceous, reddish-white, with deeper-coloured veins. Introduced in 1788 by Masson. It flowers in April.

3. *Pelargonium rapaceum*, or caraway-leaved stork's-bill: leaves decomposedly lacinate, villose. Root fleshy, two inches thick and more, consisting of several irregular tubers, and frequently half a foot in width, white within, purple on the outside, covered with a brownish bark, and perennial. Root-leaves very many, hairy all over, from six inches to a foot and more in length, but scarcely two inches wide. Flowers without scent; calyx filky and ciliate, green; petals at first whitish, but afterwards rose-coloured; the two upper ones having blood-red spots at their base; filaments pale; antheræ and stigma purple. Introduced in 1788 by Masson. It flowers here in April.

II. Almost stemless; root tuberous.

4. *Pelargonium lobatum*, or vine-leaved stork's-bill: stemless; umbel compound; leaves ternate or quinate, lobed, tomentose. This has tuberous roots, from which come out three or four broad leaves, divided into several lobes like a vine-leaf, spreading flat on the ground, crenated, on short foot-stalks. Peduncles immediately from the root, about a foot high, naked, terminated by a bunch of dark-purple flowers, with long tubes, sessile, and having a very agreeable odour in the evening. Cultivated in 1739, in the botanic garden at Chelsea. It flowers in July and August.

5. *Pelargonium triste*, or night-smelling stork's-bill: subcaulescent; umbel simple; leaves multifid-lacinate, villose; segments lanceolate. Root thick, roundish, tuberous, with several hairy leaves springing from it, which are finely divided, almost like those of the garden-carrot; they spread near the ground, and among them come out the stalks, about a foot high, having two or three leaves of the same sort, but smaller and sitting close; from the stalks arise two or three naked peduncles, terminated by a bunch of yellowish flowers, marked with dark purple spots, which smell very sweet after the sun has left them. It was introduced before 1632, by Mr. John Tradescant, sen. Johnson saw it in flower about the end of July 1632, being the first time that it flowered with the owner.

6. *Pelargonium flavum*, or carrot-leaved stork's-bill: subcaulescent; umbels simple; leaves decomposedly lacinate, hirsute; segments linear. This is a rough-haired plant. The leaves are multifid, like those of carrot, often a span long, petioled, pale green, smelling sweet when handled, covered with very-spreading long distant hairs on both sides. Peduncle obliquely ascending, gibbous at the base, covered with longer thicker hairs than the other parts, sustaining nine or ten flowers. Corolla straw-white; petals wedge-shaped, the two upper ones wider, with an oblong purple spot; the three lower narrower, with two purple diverging streaks. Cultivated in the Apothecaries' garden at Chelsea in 1724; it flowers from July to September.

III. Herbaceous or suffruticose.

7. *Pelargonium tabulare*, or rough-stalked stork's-bill: peduncles few-flowered; leaves roundish-cordate, five-lobed, blunt; stems decumbent, hairy. Resembles *Geranium zonale*, but the greatest part of the stem perishes above the root. Cavanilles describes it under the name of *G. elongatum*: it varies with a biennial stem, unspotted

spotted leaves, more deeply lobed, and the common peduncles more than a foot long. Introduced in 1775 by Masson; flowers during the greater part of the summer.

8. *Pelargonium alchemilloides*, or lady's-mantle-leaved stork's-bill: peduncles four-flowered or thereabouts; leaves orbiculate, palmate-gashed, very hairy; stem herbaceous, decumbent; stigmas sessile. This sends out several herbaceous stalks about a foot and a half in length. Flowers pale bluish-colour, several together upon very long peduncles. There is a succession of them during all the summer-months; and the seeds ripen about a month after the flowers are fallen. There is a variety of it, with a dark circle in the middle of the leaves. Cultivated in 1693 by Mr. Jacob Bobart.

9. *Pelargonium odoratissimum*, or sweet-scented stork's-bill: peduncles five-flowered, or thereabouts: leaves roundish-cordate, very soft. This has a very short fleshy stalk, dividing near the ground into several heads, each having many leaves on separate footstalks: they are soft and downy, and have a strong scent like aniseed. From these heads come out several slender stalks, near a foot in length, prostrate, with rounder leaves than those near the root, but of the same texture and odour. The flowers are produced from the side of these stalks, three, four, or five, standing together upon slender peduncles; they are white, but make little appearance. It was cultivated in 1724, in the garden belonging to the Apothecaries' Company at Chelsea, and flowers during most part of the summer.

10. *Pelargonium grossularioides*, or gooseberry-leaved stork's-bill: peduncles subtriflorous, filiform; leaves cordate, roundish, gashed, toothed; stems very smooth. Stem prostrate, four-cornered, smooth; as is also the whole plant. Leaves marked with lines. Peduncles capillary, with two or three small flowers, of a pale flesh-colour. They continue in succession all the summer; and the seeds ripen in about five weeks after the flowers decay. Cultivated in 1731, by Mr. Miller.

11. *Pelargonium anceps*, or angular-stalked stork's-bill: umbels many-flowered; flowers in a sort of head; leaves cordate-roundish, obsoletely lobed; stem three-sided-ancipital. Introduced by Mr. Francis Masson in 1788. It flowers here in May.

12. *Pelargonium althæoides*, or althæa-leaved stork's-bill: peduncles many-flowered; leaves cordate-ovate, sinuate, toothed, the uppermost pinnatifid; petals equal to the calyx. Plant depressed, wholly subtomentose. Petals the length of the calyx, dark purple on the outside with a white edge, red within; the two upper ones with blood-red dotted streaks at the base. Cultivated in the botanic garden at Chelsea in 1724.

13. *Pelargonium fenecioides*, or small white-flowered stork's-bill: peduncles three-flowered; involucre and calyxes blunt; leaves bipinnatifid-laciniate; stem herbaceous. This is an annual plant; introduced in 1775 by Mr. Fr. Masson. It flowers in June and July.

14. *Pelargonium coriandrifolium*, or coriander-leaved stork's-bill: peduncles subtriflorous; corollas subtetrapetalous; leaves bipinnate, linear; stem herbaceous, smoothish. This is an annual (or rather biennial) plant, with branching stalks near a foot high. The lower leaves stand upon long footstalks, but those on the upper part sit close to the stalks. The flowers stand upon naked peduncles, which proceed from the side of the stalks, on the side opposite to the leaves: they are of a pale flesh-colour: appear in July; and the seeds ripen in September; soon after which the plants decay. Linnæus remarks, that the disk of the leaf becomes brownish, as in the next species; and that the antheræ are five or seven. It was cultivated in the Chelsea garden in 1724, and flowers from March to September.

15. *Pelargonium myrrhifolium*, or myrrh-leaved stork's-bill: peduncle subtriflorous; corollas subtetrapetalous; leaves bipinnatifid, the lower ones cordate, lobed; stem somewhat strigose. Root knobbed, tuberous, like P.

triste, from which come out several pretty-large leaves, composed of many lobes, set along the midrib. The peduncles arise immediately from the root, and terminate in a bunch of pale reddish flowers, which smell sweet at night. Cultivated by Mr. Miller in 1731. It flowers from May to August, and is somewhat shrubby.

IV. Shrubby, with a fleshy or thick stem.

16. *Pelargonium tenuifolium*, or fine-leaved stork's-bill: umbels many-flowered; leaves decomposedly pinnate, multifid, linear, hirsute; stem fleshy; flowering-branches slender. Introduced in 1768, by Mr. William Malcolm. It flowers most part of the summer.

17. *Pelargonium carnosum*, or fleshy-stalked stork's-bill: umbels many-flowered; leaves pinnatifid, lacinate; petals linear; joints fleshy-gibbose. This has a thick fleshy knotted stalk, rising about two feet high, sending out a few slender fleshy branches, thinly set with leaves, which on the lower part of the stalk are petioled, but above are sessile. The flowers are produced in small clusters at the ends of the branches: the petals are narrow and white, making no great appearance, but they continue in succession most part of the summer. Cultivated in Chelsea garden in 1724.

18. *Pelargonium ceratophyllum*, or horn-leaved stork's-bill: umbels many-flowered, leaves remotely-pinnate, fleshy, round; segments channelled, obsoletely trifid. Native of the south-west coast of Africa. Introduced in 1786, by Mr. Anthony Hove. It flowers in May, and continues to do so during most of the summer-months; the seeds ripen here.

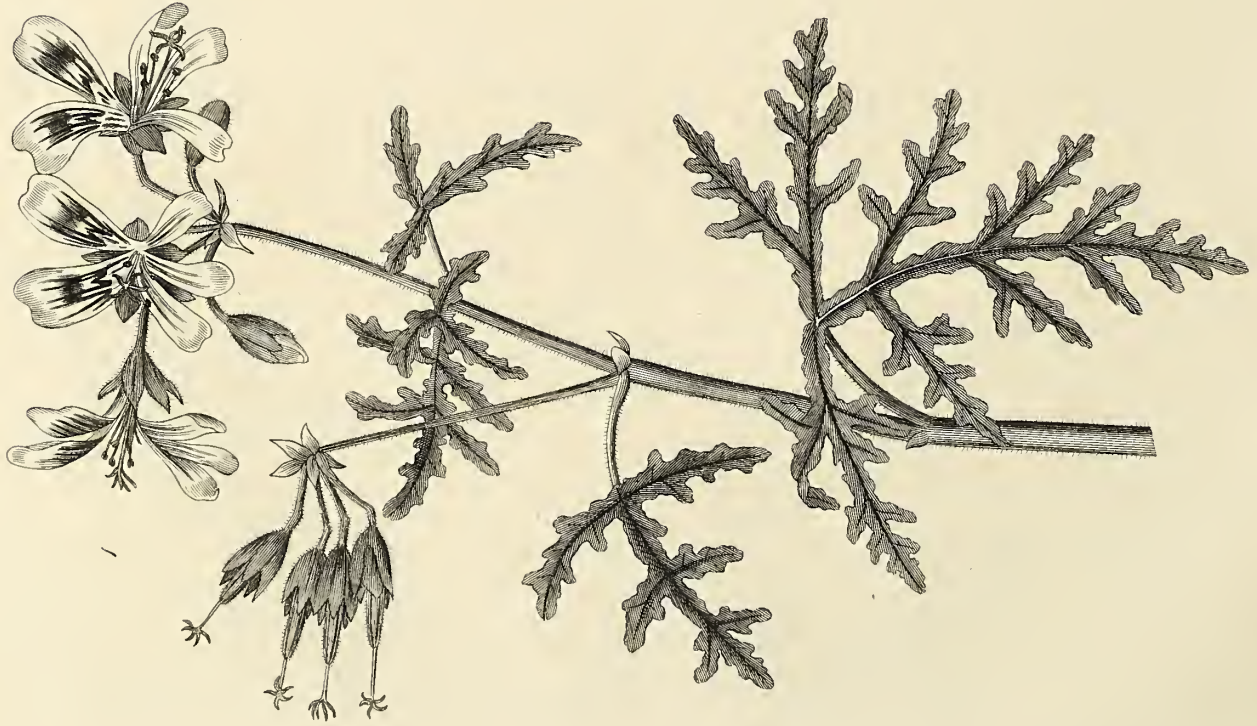
19. *Pelargonium crithmifolium*, or samper-leaved stork's-bill: umbels many-flowered, paniced; leaves bipinnate, fleshy, dilated, and jagged at the tips; petals obtuse, the upper ones crisped at the base. Root perennial. Stem a foot or two in height, nearly erect, simple, swelled, round, glaucous, smooth, leafy, flowering at the top. Flowers very numerous, inodorous, rather elegant than splendid. This species is allied to the preceding; but appears to be distinct, on account of the dilated, pointed, and not-obtuse, divisions of the leaves; more especially from the crisping and waving of the upper petals, and all of them being obtuse; not to mention its paniced (not solitary) umbels. It flowered in April 1792, at the marchioness of Rockingham's; to whom the seeds, brought by captain Riou of the Guardian, were given by the Rev. Mr. Spragg.

20. *Pelargonium gibbosum*, or gouty stork's-bill: umbels many-flowered; leaves pinnate, pinnatifid-confluent at the tip; joints fleshy, gibbose. This has a round fleshy stalk with swelling knots at the joints, rising about three feet high, and sending out several irregular smooth branches. Flowers four or five on a peduncle; petals dark-purple, broader than in *P. carnosum*, and having a very agreeable scent in the evening. Cultivated in the Chelsea garden in 1712; it flowers most part of the summer.

21. *Pelargonium fulgidum*, or celandine-leaved stork's-bill: umbel twin; leaves three-parted, pinnatifid-gashed; middle segment very large. This has a fleshy stalk, which seldom rises a foot high, and puts out very few branches. Leaves smooth, light green. Cultivated in 1732, in the garden of James Sherard, M.D. at Eltham. It flowers during most part of the summer.

22. *Pelargonium quercifolium*, or oak-leaved stork's-bill: umbels submultiflorous; leaves cordate, pinnatifid, crenate, sinuses rounded, filaments ascending at the tip. Stem shrubby, twitted, branched, more than four feet high. Leaves opposite, often shorter than the petioles, oblong, with deep rounded sinuses; lobes oblique, wider above; roundish, crenate. There are two varieties, larger and smaller. Introduced in 1774 by Masson: it flowers from March to August.

23. *Pelargonium radula*, or multifid-leaved stork's-bill: umbels few-flowered; leaves pinnatifid-laciniate, rugged,



Muligrid-leaved Stocks-bill



Clammy Stocks-bill

rugged, revolute; segments linear. Stem shrubby, covered with an ash-coloured bark, branched, two feet high. Leaves numerous, alternate, nearly equal to the petioles, very deeply five-cleft; the segments pinnate and bipinnate, linear. Stipules wide, acuminate and shrivelling. Peduncles axillary, solitary, with one, two, or three, flowers; involucre generally five-cleft, shrivelling. Calyx ovate-oblong, pubescent, cut deeply into five ovate segments; corolla papilionaceous, rose-coloured with red lines; the claws white; the two upper petals reflex and wider; antheræ deep flesh-coloured. Germ very small, ovate-pentagon; stigmas villose, purple, revolute. Capsules villose, acute at the base: awn or tail bearded, twisted, near four lines in length. The whole plant has a strong smell of turpentine. The leaves in young plants are often three inches long; but in old ones only one-third of the size, and more numerous. It takes the name *radula*, from the rough rasp-like surface of its leaves. There are two varieties of this, as of the preceding, a larger and a smaller: and, as it is readily raised from seeds, it affords many seminal varieties. The case is the same in other sorts; inasmuch that we may hereafter find it difficult to reduce these plants to their proper species. It was introduced by Masson in 1774; and flowers from March to July. It is represented on the annexed Plate, at fig. 1.

24. *Pelargonium graveolens*, or strong-scented stork's-bill: umbels many-flowered, subcapitate; leaves palmate seven-lobed, segments oblong, blunt, revolute at the edge. Stem arborescent, a fathom in height, branched; the tender branches pubescent. The whole plant has a strong smell; which varies, and resembles turpentine, or lemon, or roses. It was introduced by Masson in 1774; and flowers from March to July.

25. *Pelargonium papilionaceum*, or butterfly stork's-bill: umbels many-flowered; leaves roundish-cordate, angular; corollas papilionaceous; wings and keel minute. This rises with an upright shrubby stalk seven or eight feet high, sending out several side-branches, with large angular rough leaves, on short footstalks. The flowers are produced in large panicles (umbels) at the end of the branches. Cultivated in the botanic garden at Chelsea in 1724; and flowers from April to July.

26. *Pelargonium inquinans*, or scarlet-flowered stork's-bill: umbels many-flowered; leaves orbiculate-reniform, scarcely divided, crenate, tomentose, and clammy. This rises with a soft shrubby stem to the height of eight or ten feet, sending out several branches, which are generally erect. Flowers in loose bunches (umbels), on long stiff axillary peduncles; corolla bright scarlet. The flowers make a fine appearance, and there is a succession of them during all the summer months. The leaves, when bruised, stain the fingers of a ferruginous colour; hence Linnæus's trivial name, *inquinans*, defiling. It was cultivated in 1714, by Bishop Compton; and flowers from May to September.

27. *Pelargonium hybridum*, or bastard stork's-bill: umbels many-flowered; leaves obovate, crenate, smooth, fleshy; petals linear. In the flowers this perfectly resembles the preceding; but the herb is smaller; the leaves are not tomentose, but are very like those of *P. acetosum*, yet they are neither wedge-shaped at the base nor kidney-form; they are also less four. Cultivated in 1732, by James Sherard, M. D. It flowers with the other.

28. *Pelargonium zonale*, or common horse-shoe stork's-bill: umbels many-flowered; leaves cordate-orbiculate, scarcely lobed, toothed, zoned. This rises with a shrubby stalk four or five feet high, and divides into a great number of irregular branches, so as to form a large bush, frequently eight or ten feet in height. Leaves indented on the edge in several obtuse segments, cut into short teeth: there is a purplish curved zone in form of a horse-shoe, from one side of the base to the other, corresponding with the border: when gently rubbed, the leaves have a scent like scalded apples. The flowers are produced in pretty

close bunches, on axillary peduncles, five or six inches in length, coming out towards the ends of the branches: they are of a reddish purple colour, and continue in succession great part of the summer. There is a variety with fine variegated leaves; and the flowers vary much in colour, from purple through the different shades of red to high scarlet. Cultivated in 1710, by the dukes of Beaufort.

29. *Pelargonium heterogamum*, or red-flowered stork's-bill: umbels many-flowered; leaves suborbiculate, gash-lobed, toothed; stem erect, shrubby. Cultivated in 1786, by Messrs. Lee and Kennedy.

30. *Pelargonium monstrum*, or cluster-leaved stork's-bill: leaves orbiculate-reniform, obsolete lobed, complicated, curled. Cultivated in 1784, by Mrs. Norman.

31. *Pelargonium bicolor*, or two-coloured stork's-bill: umbels many-flowered; leaves ternatifid, lobed, toothed, waved, villose. Stem shrubby, twisted, covered with an ash-coloured bark; branches round, villose, subherbaceous, a foot long. Jacquin observes, that the whole has a very strong smell; and Curtis, that it obviously differs from all the other species, in the particular shape of its leaves, and the colour of the flowers, which are usually of a rich and very dark purple edged with white. Introduced in 1778, by John earl of Bute. It flowers from June to August.

32. *Pelargonium vitifolium*, or balm-scented stork's-bill: flowers in heads; leaves cordate, three-lobed, somewhat rugged; stems upright. This rises with an upright shrubby stalk to the height of seven or eight feet, sending out many pretty strong branches. Leaves somewhat like those of the vine; the lower on long petioles, the upper on short ones; when rubbed, they have a scent of balm. The flowers grow in compact clusters, on the top of long naked axillary peduncles, rising much higher than the branches: being small, and of a pale-blue colour, they make no great figure; but there is a succession of them most part of the summer. It was cultivated in 1724, in Chelsea garden. L'Heritier has figured a variety of it.

33. *Pelargonium capitatum*, or rose-scented stork's-bill: flowers in heads; leaves cordate, lobed, waved, soft; stems diffusid. This rises with a shrubby stalk, four or five feet high, dividing into several weak irregular branches. The flowers grow in close roundish heads, forming a sort of corymb; they are of a purplish-blue colour, and continue in succession great part of the summer. The leaves, when rubbed, have an odour like dried roses.

34. *Pelargonium glutinosum*, or clammy stork's-bill: umbels few-flowered; leaves cordate, hastate-quinquangular, clammy. Stem shrubby, covered with a grey bark, three feet high and more; branches declining and decumbent, green, clammy, as is the whole plant. Leaves alternate, the uppermost sometimes opposite, often shorter than the petioles, large, acute, sinuate. Stipules wide-acuminate, shrivelling. Common peduncles axillary, lateral, or opposite to a leaf, erect, solitary, longer than the leaves; involucre five-leaved, the leaflets ovate-acute, shrivelling; rays from three to eight, half an inch long. Calyx ovate, villose, deeply five-parted; the segments reflex. Corolla much larger than the calyx, papilionaceous, pale purple, variegated with red streaks; the two upper petals wider, reflex. Seven of the filaments long, purple, villose, with oblong antheræ; the other three very small and barren. Germ small, five-cornered, villose: style pyramidal, villose, white; stigmas purple. Capsule tomentose, sharp at the base; awn an inch long, bearded, white, spiral. The middle of the leaf is generally stained with purple. It was introduced about the year 1777, by Messrs. Kennedy and Lee; and flowers in May and June, even to September. It is represented at fig. 2.

35. *Pelargonium cucullatum*, or hooded stork's-bill: umbels submultiflorous; leaves kidney-form, cowed, toothed. This rises with a shrubby stalk eight or ten

feet high, sending out several irregular branches. Leaves roundish, with the sides erect, so as to form a hollow or hood; whence Linnæus calls them *encullatum*, or cowed; they are heart-shaped at the base, or kidney-shaped according to Linnæus; and from the footstalk run many nerves arising from a point, but diverging towards the sides. The flowers are produced in large panicles (or umbels) on the tops of the branches; calyx deeply cut, and closely covered with soft hairs; petals large, entire, purple. It flowers from June to September; and the seeds have short hairy beaks. The whole plant is pubescent, higher than most of the other species, stiffer, and more upright. Introduced in 1690, by Mr. Bentick.

36. *Pelargonium angulosum*, or marsh-mallow-leaved fork's-bill: umbels many-flowered; leaves rounded, cowed, angular, toothed. This bears much resemblance to the preceding, and has been confounded with it; but the leaves are of a thicker substance, divided into many acute angles, having purple edges, which are acutely indented. The stalks and leaves are very hairy. The branches are not so irregular as those of the former, nor are the bunches of flowers near so large. It was cultivated in the Chelsea garden in 1724; and flowers in July and August.

37. *Pelargonium acerifolium*, or maple-leaved fork's-bill: umbels five-flowered, or thereabouts; leaves palmate-five-lobed, serrate, wedge-shaped, at bottom undivided. Cultivated in 1784, by Mr. Archibald Thompson. It flowers in April and May.

38. *Pelargonium cordatum*, or heart-leaved fork's-bill: umbels many-flowered; leaves cordate, acute, toothed; lower petals linear, acute. Stem shrubby, branched: when young red, when very-young green and villose, when old covered with an ash-coloured bark. Flowers at the ends of the stem and branches in numerous umbels; corolla papilionaceous, large, pale purple, the two upper petals wider, longer, marked with deeper-coloured lines, red from the claws to the middle; the three lower whitish, linear; antheræ ovate-oblong, yellow. Introduced in 1774, by Mr. Masson; flowers from March to July. There are several varieties.

39. *Pelargonium echinatum*, or prickly-stalked fork's-bill: stem fleshy; stipules spinescent; leaves cordate-roundish, from three to five lobed; flowers umbelled; umbels seven or eight flowered. Stalk green; surface smooth, and somewhat glossy, beset with spines which bend back and terminate in brownish weakish points; these appear to have been primarily the stipules, which become thus fleshy and rigid. The flowering stem proceeds from the summit of the stalk, and is a foot or more in height; flowers in an umbel of seven or eight together; the three lowermost petals are pure white, with a little gibbosity at the base of each; the two uppermost are marked with three irregular spots, of a rich purple colour, inclining to carmine, the two lower spots narrowest, and of the deepest colour; stigma red, divided into five parts, and a little longer than the fertile filaments. In its habit this plant somewhat resembles the preceding. It flowers from May to September, and in favourable seasons produces seeds here. It varies with petals of a rich purple colour, in which the spots are similar, but not so conspicuous.

40. *Pelargonium tetragonum*, or square-stalked fork's-bill: peduncles two flowered; branches four-cornered, fleshy; corollas four-petalled. Stems angular; angles four, sometimes three, succulent, as is the whole plant; procumbent when they shoot out into length, at first hairy, afterwards very smooth, much branched, and three feet high. Leaves alternate, almost equal to the petioles, orbiculate, five-lobed; the younger villose, tooth-crenate, violet-coloured underneath, and above having a dark red zone; the older crenate, fleshy, dark green, with a few villose hairs, and frequently with a zone. Stipules short semicircular, spreading, shrivelling. Peduncles axillary, erect, rugged; with four subovate stipules at

the forks. Calyx tubular, long, segments acute, spreading; the uppermost wider. Corolla very handsome, papilionaceous; the two upper petals an inch and a half in diameter, semi-tubular at the base, upright, reflex at the tip, purple on the outside, white within, having two oblong feathered spots, of a deep purple colour; the two others lateral, sickle-shaped, parallel, with narrow claws; between these come out the stamens and pistil, which are long, perpendicular to the upper petals, and thence from bowed upright; seven of the filaments very long, deep red, with dark-purple ovate antheræ; the other three shorter and barren. Germ five-cornered, pubescent; style pyramidal, at first green, then purple. Capsules oblong, villose, sharp at the base: awn an inch long, bearded, spiral. Seeds smooth, resembling a grain of wheat.

"A vein of singularity," says Mr. Curtis, "runs through the whole of this plant; its stalks are unequally and obtusely quadrangular, sometimes more evidently triangular; its leaves few, and remarkably small; its flowers, on the contrary, are uncommonly large, and, what is more extraordinary, have only four petals; previous to their expansion the body of filaments is bent so as to form a kind of bow, in which state we have represented one of the blossoms in our figure. It flowers from June to September. When it flowers in perfection, which it is not apt to do in all places, the largeness of its blossoms renders it one of the most ornamental of the genus. There is a variety of it with beautifully coloured leaves of which we have availed ourselves in its representation." See Plate II. fig. 3.

41. *Pelargonium peltatum*, or peltated fork's-bill: umbels few-flowered; leaves five-lobed, quite entire, fleshy, peltated; branches angular. This has many weak shrubby stalks, which require support, and extend to the length of two or three feet. Leaves on slender footstalks, fastened into the disk; they are smooth, of a lucid green, with a circular purple mark in the middle; have an acid flavour, and are placed alternate on the branches. A leaf, having its footstalk inserted into the disk or middle part of it, or near it, is called by Linnæus *peltatum*, targeted; hence the name of this species: it may be observed, however, that some of the leaves have this character more perfectly than others. The flowers are on pretty long axillary peduncles, each sustaining four or five purple flowers, coming out in succession during most of the summer months, and the seeds frequently ripen here. It was cultivated in 1701, by the duchess of Beaufort. See fig. 4.

42. *Pelargonium lateripes*, or ivy-leaved fork's-bill: umbels many-flowered; leaves cordate, five-lobed, somewhat toothed, fleshy; branches round. Cultivated in 1787, by Messrs. Grimwood and Barret at Kennington. It flowers most part of the summer.

43. *Pelargonium cortusifolium*, or cortusa-leaved fork's-bill: umbels many-flowered; leaves cordate, gash-lobed, waved, bluntly toothed; stipules awl-shaped. Native of the south-west coast of Africa. Introduced in 1786 by Mr. Anthony Hove; it flowers in July. Jacquin gives *Geranium tabulare* of Burman and Cavanilles, with Herm. Afr. p. 11. and Raii Suppl. 514. 36. as synonyms of this. See No. 7.

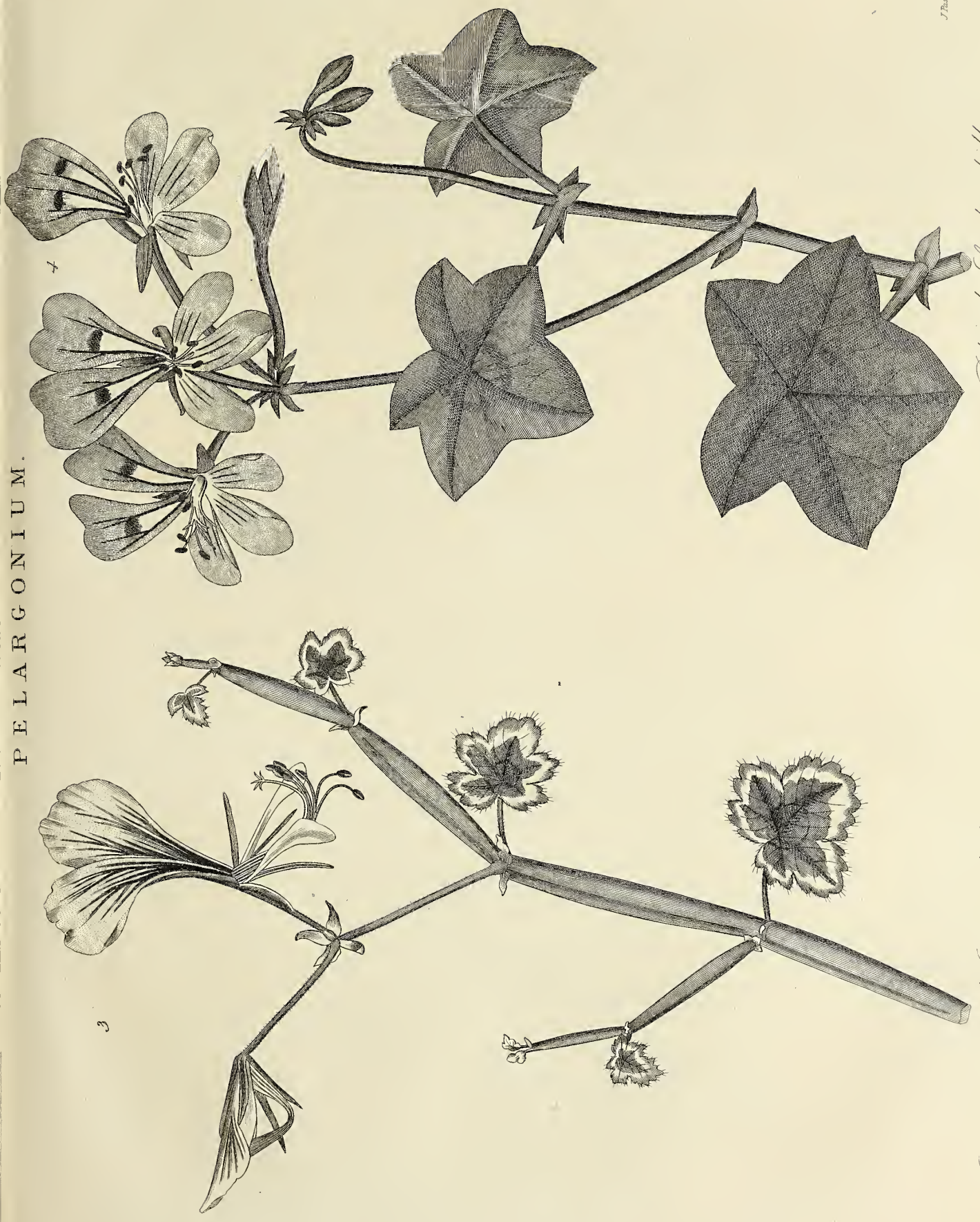
44. *Pelargonium crassaule*, or thick-stalked fork's-bill: umbels many-flowered; leaves kidney-form, obacuminate; stem fleshy, branched, even. Native of the south-west coast of Africa. Introduced in 1786, by Mr. Anthony Hove. It flowers in July.

45. *Pelargonium cotyledonis*, or hollyhock-leaved fork's-bill: umbels compound; leaves cordate, peltate, wrinkled; stem fleshy. Native of the island of St. Helena. Introduced in 1765, by Mr. John Bush. It flowers from May to July.

V. Shrubby, with a woody stem.

46. *Pelargonium ovale*, or oval-leaved fork's-bill: umbels

PELARGONIUM.



Peltated Stokes's - bell.

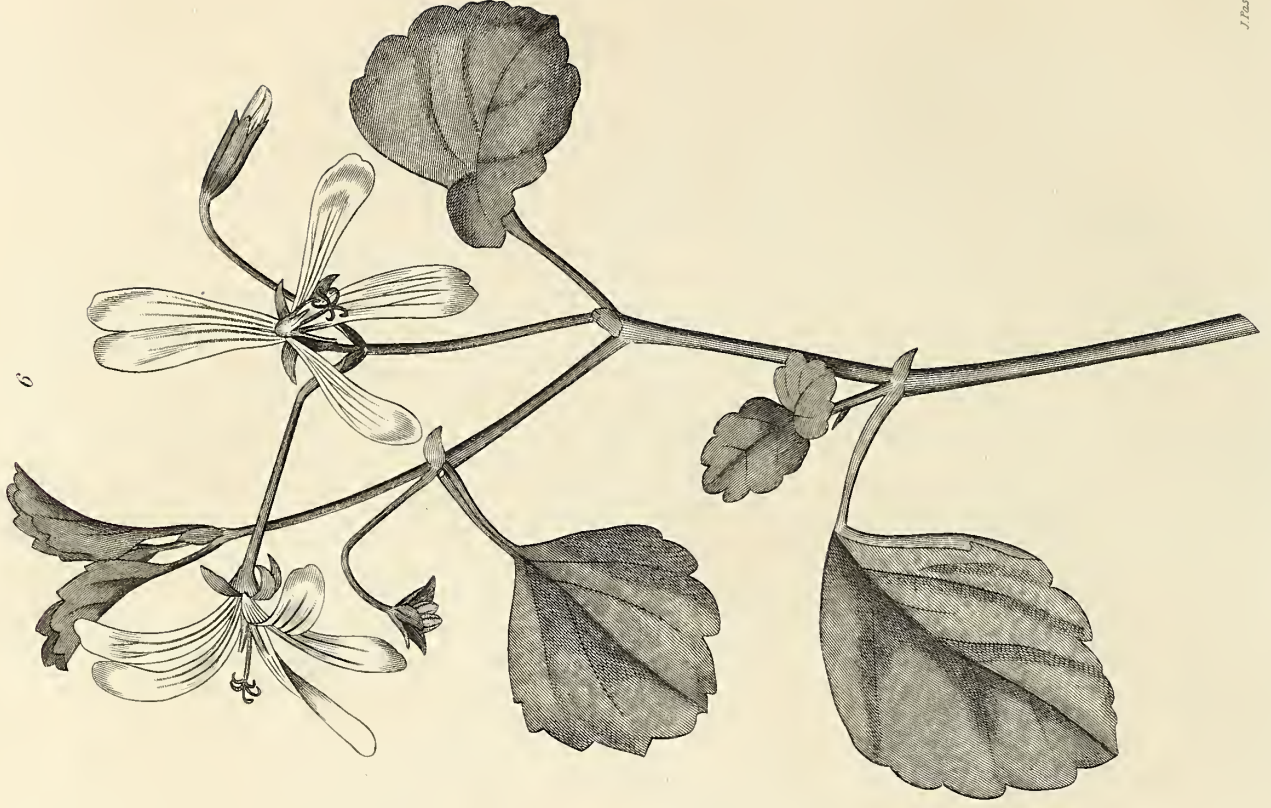
Square stalked Stokes's - bell.

J. Sims sc.

Engraved for the Encyclopaedia Londinensis. 1821.



Four-leaved Stock's-bill.



Stock's-bill.

bels few-flowered; pedicels elongated; leaves elliptic, toothed; stems herbaceous. Introduced in 1774, by Masson; it flowers from May to July.

47. *Pelargonium betulinum*, or birch-leaved stork's-bill: umbels few-flowered; leaves ovate, unequally serrate, levigated. Stem shrubby, four or five feet high, sending out several branches. The flowers vary considerably both in size and colour; its foliage is different from that of the other species, and, as its name imports, like that of the birch-tree. It flowers most part of the summer, and was introduced in 1786, by Masson. Hence Mr. Miller's *betulinum* is supposed not to be this species.

48. *Pelargonium glaucum*, or spear-leaved stork's-bill: peduncles two-flowered; leaves lanceolate, quite entire, acuminate, glaucous. The whole plant is very smooth, glaucous, and in a manner whitish. Stem shrubby, with round, rod-like, declining branches, two feet high. Leaves opposite, often shorter than the petioles, which are round and erect. Stipules lanceolate-acuminate, fleshy, deciduous. Peduncles alternately axillary, very long, one or two-flowered. Segments of the calyx acuminate, the uppermost and two lower ones wider. Corolla papilionaceous, white; the upper petals wider, reflex; claws purple. Antheræ pale saffron: sometimes there are only six. It flowers from June to August.

"This elegant and very singular species (says Mr. Curtis) appears to have been first cultivated in this country; its introduction was attended with circumstances rather unusual. Mr. Lee, nurseryman of the vineyard at Hammer-smith, in looking over some dried specimens in the possession of Sir Joseph Banks, (1775,) which he had recently received from the Cape of Good Hope, was struck with the singular appearance of this geranium, no species having before been seen in this country with spear-shaped leaves; on examining the specimens attentively, he perceived a few ripe seeds in one of them; those he solicited, and obtained; and to his success in making them vegetate, we are indebted for the present species. The shape of the leaf readily suggested the name of *lanceolatum*, an epithet by which it has been generally distinguished in this country, and which, from its extreme fitness, we have continued, notwithstanding the younger Linnæus has given it that of *glaucum*, though, at the same time, his illustrious father had distinguished another species by the synonymous term of *glaucophyllum*." It is represented, from the Botanical Magazine, on Plate III. fig. 5.

49. *Pelargonium tricuspdatum*, or three-pointed stork's-bill: peduncles two-flowered; leaves three-pointed, middle lobe more produced, suberrate; midrib mucronated underneath. Root branched. Stem shrubby, two feet high, and more, very much branched, smooth, round, the thickness of a reed or the little finger, almost upright; when old dusky, when young more or less blood-red. Introduced in 1780, by Messrs. Kennedy and Lee. It flowers from May to August.

50. *Pelargonium acetosum*, or sorrel stork's-bill: umbels few-flowered; leaves obovate, crenate, smooth, fleshy; petals linear. Stem shrubby, six or seven feet high, sending out several side-branches. Leaves of a grey colour, and having an acid taste like sorrel. Peduncles axillary, long, sustaining three or four flowers, with narrow unequal petals, of a pale blush-colour, with some stripes of a light red. The flowers continue in succession most part of the summer. This is represented at fig. 6.

51. *Pelargonium scabrum*, or rough-leaved stork's-bill: umbels few-flowered; leaves wedge-shaped, semitrid, rugged; lobes lanceolate, loosely serrate. Stem shrubby, round, three or four feet high, the thickness of a finger, upright, of a reddish bay colour, branching from the axils, very rough, as is the whole plant, but becoming smooth with age. Common peduncles terminating and axillary, short, sustaining commonly from four to six flowers; calyx green; petals blunt, of a purple rose-colour; the two upper ones twice as wide as the others,

with a dark blood-red spot at the base; antheræ oblong, blood-red; as are also the stigmas. Seeds rough, with a rough beak, an inch in length. Introduced in 1775, by Messrs. Kennedy and Lee. It flowers from August to November.

52. *Pelargonium crispum*, or curled-leaved stork's-bill: peduncles subbiflorous; leaves distich, cordate, three-lobed, curled, mucronated. This is a stiff shrub. Leaves small, five-lobed, having the smell of balm. Flowers violet. Introduced in 1774, by Mr. Francis Masson. It flowers from July to November.

53. *Pelargonium adulterinum*, or hoary-trifid-leaved stork's-bill: peduncles subbiflorous; leaves cordate, three-lobed, waved, villose, soft. Introduced in 1785, by Mr. Archibald Thompson. It flowers in April and May.

54. *Pelargonium ex-stipulatum*, or soft-leaved trifid stork's-bill: umbels few-flowered; leaves cordate, three-parted-lobed, toothed, hoary; stipules scarcely any. The whole plant smooth, and somewhat glaucous. Stem shrubby, a foot high, with round upright branches. Leaves alternate, shorter than the petioles, mostly divided into three lobes; each is three-lobed at the tip, and crenate; they have a very sweet smell, not unlike sweet marjoram; when young, and in the open air, whitish with a very fine nap, but in the stove smooth and green. Found by Mr. William Paterson; and introduced at Kew, in 1779, by the counts of Strathmore. It flowers from May to August.

VI. New Species, chiefly from Jacquin.

55. *Pelargonium ternatum*, or ternate stork's-bill: stem shrubby, hispid; leaves opposite, ternate; leaflets wedge-shaped, gash-trifid, serrate, scabrous. Stem suffruticose, dichotomous, round, purple, villose, erect, two feet high and more: branches simple, short, resembling the stem. It differs very materially from the other species in the unusual roughness of the stalks, as well as in its whole habit.

56. *Pelargonium tricolor*, or three-coloured stork's-bill: the two upper petals ragged at the base, with prominent shining dots. The plants of this newly-introduced species scarcely exceed a foot in height here, growing up with a shrubby stem, and spreading widely into numerous flowering branches, so much disposed to produce flowers in a constant succession, that during most of the summer the plant is loaded with a profusion of them. For the most part they go off without seed; and, when any is produced, there is generally one perfect and four abortive. The fertile stemens vary in number; four are most usually apparent, three superior, one and often two inferior. The whole plant is covered with short white hairs, which give to the foliage a somewhat silvery hue. The two uppermost petals are of a beautiful red, having their bases nearly black; the three lowermost are white. Instances occur in which one or more of the white petals have a stripe of red; and the dark colour at the base of the upper petals is, in a certain degree, soluble in water; for, on the plants being watered, the white petals here and there become stained by the colouring matter, which in a diluted state is purplish; as the flowers decay, this apparently-black part, distinguished by the roughness of its surface, arising from prominent lucid points, is sometimes perforated with numerous small holes. Introduced by Masson at Kew in 1792. Raised also from Cape seeds by Mr. Williams, nurseryman at Hammer-smith.

The above species, with very few exceptions, are natives of the Cape of Good Hope. These that follow are described by Jacquin, in the last volume of his *Collectanea*, and figured in the third volume of his *Icones Plantarum rariorum*.

57. *Pelargonium carneum*, or flesh-coloured stork's-bill: stemless; root rapaceous, simple; leaves bipinnate; pinnules gashed, smoothish; five filaments fertile. Root like a turnip, oblong, brown, two inches long, perennial.

Root-

Root-leaves many, decumbent in a ring, with a few smaller that are upright, about five inches in length, oblong, of a dusky-green colour, almost smooth, appearing ciliate at the edge when examined by a magnifier; having something of a turpentine smell. Peduncles two inches long, thickish, about seven in number, somewhat hairy, red; petals somewhat wedge-shaped; the two upper ones three times as wide as the others, and having branched red veins; all pale the first day, but afterwards flesh-coloured, expanded in the day-time, but contracted and shut at night; antheræ scarlet; germ silky; stigma purple. It flowers in March and April.

58. *Pelargonium barbatum*, or bearded stork's-bill: stemless; root rapaceous, simple; leaves pinnate; pinnae pinnatifid, lanceolate-linear, acute, bearded at the tip; five filaments fertile. Resembles the preceding.

59. *Pelargonium melananthum*, or dark-flowered stork's-bill: stemless; root rapaceous, simple; leaves pinnate, somewhat hispid; pinnae lobe-gashed, blunt; five filaments fertile. Flowers in April and May.

60. *Pelargonium triphyllum*, or three-leaved stork's-bill: stemless; root rapaceous, simple; leaves ternate, crenate, smooth; five filaments fertile. Root the length and thickness of a finger, brown, perennial. Petals wedge-shaped, blunt, upright at bottom, and thence spreading very wide, rose-coloured, a little longer than the calyx; the two upper ones with blood-red dots below; style and stigma of a very dark blood-red colour. It flowers in April.

61. *Pelargonium heterophyllum*, or various-leaved stork's-bill: stemless; root rapaceous, simple; leaves ternate and entire, smooth, ciliate; leaflets often lobed; five filaments fertile. Root two inches long, black, perennial; root-leaves several, in a ring. It flowers in March and April, and when bruised has the smell of turpentine. Jacquin suspects that it may perhaps be only a variety of *P. hirsutum*, N° 1.

62. *Pelargonium nervifolium*, or nerve-leaved stork's-bill: stemless; root rapaceous, simple; leaves ternate, three-lobed, and entire, many-nerved, smooth, prickly-ciliate at the edge; five filaments fertile. It flowers in March and April, and when bruised has a little smell of turpentine.

63. *Pelargonium longifolium*, or long-leaved stork's-bill: stemless; root rapaceous, simple; leaves lanceolate, acute, smooth, the older ones often pinnate; four filaments fertile. Root roundish, an inch in length, brown, perennial. Style and stigma red. It flowers in March and April.

64. *Pelargonium ciliatum*, or ciliated stork's-bill: stemless; root rapaceous, subsimple; leaves lanceolate, acute at both ends, ciliate, smooth underneath, hairy above, often appendiced; five filaments fertile. Root brown, three inches long, perennial. Leaves lanceolate, quite entire, about three inches long. It flowers in May.

65. *Pelargonium depressum*: or flat-umbelled stork's-bill: stemless; root rapaceous, simple; leaves narrow, lanceolate, acute, smooth; umbels finely depressed, smooth; four filaments fertile. It flowers in March and April.

66. *Pelargonium longiflorum*, or long-flowered stork's-bill: stemless; root rapaceous, simple; leaves lanceolate, acute, smoothish; petals very long; four filaments fertile. It flowers in May.

All the above species, from N° 57 inclusive, are natives of the Cape of Good Hope, and belong to the first section.

67. *Pelargonium chamædryfolium*, or germander-leaved stork's-bill: peduncles one or two flowered; stems herbaceous, decumbent; leaves oblong, blunt, serrate, villose; five filaments fertile. Root branching, annual. The whole plant villose, and smelling rather disagreeably. Stems several, branched, diffused, from six to ten inches in length, the thickness of a pigeon's quill at the base, round, jointed, knobbed, in the primary divisions dichotomous,

more or less of a dusky-purple. Leaves petioled, opposite, entire, thickish, hoary green, the largest scarcely an inch long, but most of them only half that length. Flowers very small; calyx green, and somewhat rough-haired; antheræ yellow; stigma five-cleft, purple. Seed hirsute; the tail half an inch long, and bearded.

68. *Pelargonium trichostemon*, or hairy-stemmed stork's-bill: peduncles few-flowered; leaves roundish-ovate, bluntly serrate, velvety; stem biennial, almost erect; filaments hirsute, five fertile. Root branched, biennial. Stem branching from the very bottom, so that it appears to be many-stemmed; the thickness of a reed, round, a foot high, when young very soft and like velvet, as are also the other parts of the plant. Leaves scattered, blunt, nerved and veined, flat, except that they are often a little waved at the ferratures, thickish, somewhat hoary on both sides, an inch or an inch and a half in length. It flowers in March and the following months.

69. *Pelargonium coronopifolium*, or buck's-horn-plantain-leaved stork's-bill: peduncles two-flowered; leaves lanceolate-linear, tooth-ferrate, smooth above, somewhat rough-haired underneath. Root branching, the thickness of a reed, brown, long. Stems few, procumbent, half a foot high, round, perennial, more slender by half than a reed, covered with the imbricate permanent brown stipules of fallen leaves. Peduncles opposite to the leaves, erect, villose, soft, three inches long, the lowest umbelled, two-flowered, the rest three-flowered. Petals blunt, spreading very much, white at the claws, the rest purple; antheræ tawny red; stigma smooth, purple. The little smell it has is unpleasant. It flowers in June and July.

There is a variety which has smaller flowers, with the claw of the two upper petals white, and crowned with a deep-red band: all the leaves are linear-lanceolate, and gash-ferrate almost their whole length.

70. *Pelargonium bullatum*, or bladder-leaved stork's-bill: peduncles two-flowered; corollas four-petalled; stem biennial; leaves ternate, pinnatifidly lobed, somewhat hispid on both sides; five filaments fertile. Stem round, the thickness of a reed, dusky, dividing into several branches a foot and a half long, appearing villose in the magnifier, but neither hairy nor hirsute. Petals always four, very pale purple or flesh-colour, twice as long as the calyx; antheræ scarlet; stigma blood-red. It flowers in the summer, and when rubbed has an unpleasant smell.

71. *Pelargonium betonicum*, or betony-leaved stork's-bill: peduncles few-flowered; corollas four-petalled, seldom five-petalled; stem biennial; leaves pinnatifidly lobed, somewhat rough haired; five filaments fertile. Root brown, round, the thickness of a reed, biennial. Stems several, branched, herbaceous, round, attaining the height of eighteen inches. Awn of the seed feathered, and two inches long. It flowers in summer; has but little smell; and is rough-haired all over.

72. *Pelargonium lacerum*, or jagged-leaved stork's-bill: peduncles five-flowered; corollas five-petalled; stem biennial, hairy; leaves pinnate-lobed, gashed; five filaments fertile. Stem herbaceous, round, procumbent or almost erect, the thickness of a reed, a foot and a half high, branched, blood-red next the sun. It flowers from May to July, and has an unpleasant smell.

73. *Pelargonium longicaule*, or long-stalked stork's-bill: peduncles from one to five flowered; corollas four-petalled, seldom five-petalled; stem biennial, hirsute; leaves pinnate-lobed; seven filaments fertile. Stems several, herbaceous, at most the thickness of a reed at bottom, round, often jointed and knobbed, dusky purple, wholly procumbent, and closely hirsute with white hairs; three feet high, branched. It resembles the preceding very much; but it has very seldom five petals, and has always seven fertile filaments. It flowers from May to July; and has a disagreeable smell.

74. *Pelargonium multicaule*, or many-stalked stork's-bill: peduncles five-flowered or thereabouts; corollas four-

four-petalled; stem biennial, smooth; leaves pinnate-lobed, smooth; seven filaments fertile. Root the thickness of a reed and more, about three inches long, round, branched, pale. Stems numerous, procumbent except at the end, where they ascend in a bow stiffly branched, round, smooth, somewhat villose towards the top, knobbed, blood-red at the joints, dusky purple at bottom, in other parts green, with a tinge of purple here and there, herbaceous, two feet long, the thickness of a pigeon's quill. Leaves alternate, except the upper ones, which are opposite, two or three inches in length reckoning the petioles, three-lobed, gashed, blunt, smooth, green. Calycine leaflets oblong, mucronate, fcreaked, spreading, blood-red, the uppermost twice as wide as the others. Petals spreading, deep purple, with deeper purple bands above the claw; filaments awl-shaped, shorter than the calyx, purple; antheræ oblong, erect, flesh-coloured, with a yellow pollen; stigma purple. Seeds villose, with a feathered awn an inch in length. It flowers in April and the following months, and is void of smell.

75. *Pelargonium anemonæfolium*, or anemone-leaved stork's-bill: peduncles four or five flowered; corollas five-petalled; stem biennial; leaves pinnate-lobed, somewhat rough-haired underneath, smooth above; seven filaments fertile. Root round, the thickness of a reed, brownish. Stem round, the thickness also of a reed, a foot high, branched, somewhat rugged, rough-haired, hispid, erect, with the lower branches somewhat spreading. It flowers in the summer, and when bruised has an unpleasant balsamic smell.

76. *Pelargonium hirtum*, or rough-haired stork's-bill: umbels five-flowered or thereabouts; leaves tripartite, hirsute; pinnules linear; stem fleshy. Root round, the thickness of the little finger, half a foot long. Stem procumbent, twisted, shrubby, branched, the same size with the root, brown, rough with the indurated scars of fallen leaves; when young, fleshy and hirsute. Peduncles hirsute, roughish, spreading, three or four inches long, sustaining from three to five flowers in an umbel. Petals spatulate, blunt, spreading, red purple; the two upper ones nearly twice as wide as the others, and of a deeper colour. Seven of the filaments have flesh-coloured antheræ with a yellow pollen. Stigma blood-red. It flowers in March and April; and has little smell, but that unpleasant.

77. *Pelargonium tomentosum*, or downy stork's-bill: umbels many-flowered, simple, and compound; leaves cordate, mostly five-lobed, serrate, tomentose, very soft; stem fleshy. Root branched. The whole plant is covered very closely with villose hairs, and has a strong unpleasant smell. Stem shrubby, branched, erect, round, knobbed, two feet high and more. Leaves alternate, three-lobed or five-lobed, bluntish, veined, thickish, three or four inches in length and breadth. Petals oblong, blunt, a little longer than the calyx, white with a little longitudinal red band at the claw. Filaments blood-red, the length of the calyx; antheræ oblong, flesh-coloured; stigma blood-red. It flowers in April and the following months.

78. *Pelargonium ribifolium*, or currant-leaved stork's-bill: umbels many-flowered, depressed, somewhat halved, leaves cordate, three-lobed, serrate, somewhat hirsute; lobes lobed, gashed; stem fleshy. The whole plant has a strong smell. Stem shrubby, the thickness of a finger, round, irregular with projecting scars, erect, firm, branched, three feet high; when young hirsute, when old smooth and brown. Branches hirsute, pale green. It flowers from June to August.

79. *Pelargonium fuscatum*, or dark stork's-bill: umbels four-flowered; leaves cordate-roundish, mostly five-lobed, acutely serrate, smoothish; stipules ovate; stem shrubby, erect, when young rugged. Stem three or four feet high, round, branched, brownish, with ash-coloured scars from the fallen leaves. It flowers here in the sum-

mer. The leaves have hardly any smell; the flowers have rather a disagreeable scent.

80. *Pelargonium patulum*, or broad-leaved stork's-bill: peduncles two-flowered; leaves somewhat kidney-shaped, lobe-gashed, acutely crenate, smooth above; stem shrubby; six filaments fertile. From a branched root arise very many weak stems, two feet high and more, round, smooth, almost upright, of a pale bay-colour, irregular from the scars of fallen leaves. It flowers in summer; and has little smell.

81. *Pelargonium balsameum*, or sweet-scented stork's-bill: umbels few-flowered; leaves five-parted, somewhat rough-haired; lobes lanceolate, acute, gashed, somewhat rigid; stem shrubby. Stem upright, three feet high, woody, very much branched, ferruginous, when young red, roughish, appearing rough-haired in the magnifier, the thickness of a finger at the base. It flowers in summer; and the whole plant has a balsamic scent, approaching to that of Tacamahaca.

82. *Pelargonium hermanniæfolium*, or hermannia-leaved stork's-bill: peduncles two-flowered; leaves cuneate-roundish, gashed, rough-haired, rigid, distich; stem shrubby. Stem four or five feet high, almost upright; branches rod-like, round, ferruginous; these with the leaves, stipules, peduncles, involucres, and calyxes, are rough-haired. Leaves closely distich, or in two rows, all along the branches; the upper ones converging, the lower spreading. Calycine leaflets lanceolate, acuminate, green; petals white, or tinged with flesh colour, twice as long as the calyx; filaments flesh-coloured, one third shorter than the petals; antheræ vermilion; style and stigma blood-red. After flowering whilst the seeds are growing, young branches are pushed out beyond them, and the peduncles cease to be terminating. It is easily distinguished from *P. crispum* by having no smell, or at most a slight smell of turpentine when bruised: the leaves are larger, always on very short petioles, of a true wedge shape, scarcely obsoletely three-lobed, scarcely curled; and the stature of the whole is much greater.

Propagation and Culture. All the sorts of *Pelargonium*, or African Geranium, may be propagated by seeds; they may be sown upon a bed of light earth towards the end of March, where the plants will appear in a month or five weeks after, and by the beginning of June will be fit to remove; when they should be carefully taken up, and each planted into a separate pot, filled with light kitchen-garden earth, and placed in a shady situation till the plants have taken new root, when they may be removed into a sheltered situation, and placed among other of the hardier green-house plants, where they may remain till autumn, when they must be removed into the green-house, and treated in the same manner as other hardy kinds of green-house plants. But those who are desirous to have their plants large, and flower soon, sow the seeds upon a moderate hot-bed in the spring, on which the plants will come up much sooner, and will be fit to remove long before those which are sown in the open air; but, when these plants come up, there must be great care taken not to draw them up weak; and, when they are transplanted, the pots should be plunged into another moderate hot-bed, observing to shade them from the sun till they have taken new root; then they must be gradually inured to bear the open air, into which they should be removed the beginning of June, and placed in a sheltered situation with other exotic plants. If these plants are brought forward in the spring, most of the sorts will flower the same summer, and, the plants being strong before the winter, will make a better appearance in the green-house.

The *shrubby* African Geraniums are commonly propagated by cuttings, which, if planted in a shady border in June or July, will take good root in five or six weeks, and may then be taken up and planted into separate pots,

placing them in the shade till they have taken new root; after which they may be removed into a sheltered situation, and treated in the same manner as the seedling plants. The 17th, 19th, 20th, and 34th, sorts, have more succulent stalks than the others; the cuttings, therefore, of these, should be planted in pots filled with light kitchen-garden earth, and plunged into a very moderate hot-bed, where they should be shaded from the sun in the heat of the day, and have but little water; for these are very apt to rot with much moisture. When these are well rooted, they may be separated and planted in pots filled with the same sort of earth, and placed in the shade till they have taken new root; then they may be removed into a sheltered situation, where they may remain till autumn. These four sorts should be sparingly watered, but especially in the winter, for they are apt to take a mouldiness with moisture, or in a damp air: they will thrive much better in an airy glass-case than in a green-house, because in the former they will have more sun and air than in the latter. But all the other shrubby sorts are proper furniture for the green-house, where they will only require protection from frost, but should have a large share of free air when the weather is mild: they will require water every week, in mild weather once or twice, but it should not be given them in too great plenty, especially in frosty weather. These plants should be hardened in the spring gradually, and towards the middle or end of May they may be taken out of the green-house, and at first placed under the shelter of trees, where they may remain a fortnight or three weeks to harden; then should be removed into a situation where they may be defended from strong winds, and enjoy the morning sun till eleven o'clock, where they will thrive better than in a warmer situation.

As these shrubby sorts grow pretty fast, they soon fill the pots with their roots; and, if they stand long unremoved in summer, they frequently put out their roots through the holes at the bottom of the pots into the ground, and then the plants will grow vigorously. But, when they are suffered to grow long in this manner, it will be difficult to remove them; for, if their roots are torn off, all the younger branches will decay, and many times the plants are killed. Therefore the pots should be moved once in a fortnight or three weeks in the summer months, and the roots which may be then pushing through the holes in the pots cut off, to prevent their striking into the ground. These plants will also require to be new potted at least twice in the summer; the first time should be after they have been three weeks or a month out of the green-house; the second should be towards the end of August, or the beginning of September, that the plants may have time to establish their new roots before they are removed into the green-house. When new potted, all the roots on the outside of the balls of earth should be carefully pared off, and as much of the old earth drawn away from the roots as can be done with safety to the plants; then, if they require it, they should be put into pots a size larger than those out of which they were taken, putting a quantity of fresh earth into the bottom of the pot, then place the plants upon that, being careful the ball about the roots of the plant is not so high as the rim of the pot, but that some room may be left to contain the water which may be given to the plants. Then the cavity all round the ball should be filled up with fresh earth, which should be gently pressed down, and the bottom of the pot beaten upon the ground, to settle down the earth; then the plant should be well watered, and the stem fastened to a rail, to prevent the wind from displacing the roots before they are fixed in the new earth.

The compost in which these plants thrive best (where there is not a conveniency of getting some good kitchen-garden earth) is fresh hazel-loam from a pasture, mixed with a fourth or fifth part of rotten dung; if the earth is inclinable to bind, then a mixture of rotten tan is pre-

ferable to dung; but, if it is light and warm, then a mixture of neat's-dung is best: this compost should be mixed three or four months before it is used, and should be turned over three or four times, that the parts may be well mixed and incorporated; but, where a quantity of good kitchen-garden earth can be had, which has been well worked, and is clean from the roots of bad weeds, there will need no composition, for in that they will thrive full as well as in any mixture which can be made for them, especially if the earth has lain in a heap for some time, and has been two or three times turned over to break the clods, and make it fine: these plants should not be planted in very rich earth, for that will cause them to grow very luxuriant, but they will not flower so well as in a poorer soil.

The shrubby sorts must be looked over frequently during the winter, whilst they are in the green-house, to pick off all decayed leaves from them, which, if left on, will not only render the plants unsightly, but by their falling off, will make a litter among the other plants; and, if they are suffered to rot in the house, they will often occasion a foul nasty damp air, which will be very prejudicial to all the plants; therefore, to avoid this, they should be constantly picked off every week; and during the summer season they will require to be picked every fortnight or three weeks to keep them clean from dead leaves; for, as the branches advance, and new leaves are produced on their top, the under ones as constantly decay; and, if left on till they drop off, will render the plants very unsightly.

The species of the two first divisions are generally increased by parting the roots in August. Every tuber will grow, if it has a bud or eye to it. They may be planted in the same sort of earth as was before directed; and, if the pots are plunged into an old tan-bed, under a good frame in winter, the plants will thrive better than in a green-house: the glasses may be drawn off every day in mild weather; and, if in severe frost the glasses are well covered, it is all the shelter they require: they should have little wet in winter, and therefore the glasses should be kept over them in heavy rains, or in mild weather raised only at the top. They may also be propagated by seeds.

PELAGIANS, in ancient geography, the most ancient people of Greece, according to Thucydides, Strabo, and Herodotus. The last author says, that the whole country, which in his time was called *Hellos*, was in a former period denominated *Pelagria*. These people, as some say, were denominated *Pelagi*, because they were an unsettled wandering people, who often changed their habitations. Others, among whom we may reckon Hesiod, take them to have been *Autochthones*, which was the designation given to the natives of the country, or rather to all whose original was unknown. They first inhabited Argolis in Peloponnesus, which from them received the name of *Pelagria*; and, about 1383 years before the Christian era, they passed into *Æmonia*, and were afterwards dispersed in several parts of Greece. Some of them fixed their habitation in Epirus, others in Crete, others in Italy, and others in Lesbos. From these different changes of situation in the Pelagians, all the Greeks are indiscriminately called *Pelagians*, and their country *Pelagria*, though, more properly speaking, it should be confined to Thessaly, Epirus, and Peloponnesus, in Greece. Some of the Pelagians, that had been driven from Attica, settled in Lemnos, where some time after they carried some Athenian women, whom they had seized in an expedition on the coast of Attica. They raised some children by these captive females, but they afterwards destroyed them with their mothers, through jealousy, because they differed in manners as well as language from them. This horrid murder was attended by a dreadful pestilence, and they were ordered, to expiate their crime, to do whatever the Athenians commanded them. This was to deliver their possessions into their hands. The Pelagians then established themselves, according to Herodotus, in
the

the town of Adè, a territory separated from the continent of Thrace by a canal; by degrees they extended themselves to the continent, and occupied Crestonia.

Dionysius informs us, that when some of the Pelasgi, under the reign of Deucalion, passed into Italy, the isle of Crete, and the Cyclades, Bœotia, the Phocide, and Eubœa, others migrated into Asia. According to Strabo, the Lesbians claim the honour in behalf of their ancestors of having been in the war of Troy, under the conduct of Pylæus, a chief of the Pelasgi. All the towns of the maritime coast of Ionia had been at one time inhabited by the Pelasgi; the inhabitants of the isle of Chios also pretend that the Pelasgi of Thessaly were their founders; nor indeed is there a country of Greece, Thrace, and Asia Minor, in which the Pelasgi have not left traces of their power. Soon after the war of Troy, the name of Pelasgi began to sink into oblivion. Those who existed till the time of Herodotus, near the Hellespont, and on the coasts of Thrace, were subject to foreign dominion; and the language which they spoke was the only evidence of their ancient origin. Thucydides says, that the chief cause of the ruin of this nation was the confederation of the *Hellenes*, who sprang from the Pelasgi themselves. The Hellenes made a league, formed among themselves a separate body, and made conquests. After separation from the Pelasgi, their parents, they estranged themselves from their manners and habits, and by little and little changed their language, in consequence of the commercial intercourse which they had with colonies from the east. Those at length who were originally Pelasgi joined this league, surrendered the name of Pelasgi, and adopted that of *Hellenes*. Herodian relates, that the Athenians, though reckoned to be Pelasgians at the time of the famous emigration of these people, were become Hellenes, when the Pelasgi, driven from Italy, returned to Greece. About the same time the Lacedæmonians, the Argians, and the Arcadians, who had been also known under the name of Pelasgians, laid aside the barbarism of their progenitors, and assumed the name of *Hellenes*.

PELASGIO'TIS, or PELAS'GIA, a country of Greece, whose inhabitants are called *Pelasgi*, or *Pelasgiotæ*. Every country of Greece, and all Greece in general, is indiscriminately called Pelasgia, though the name should be more particularly confined to a part of Thessaly, situate between the Peneus, the Aliacmon, and the Sperchius. The maritime borders of this part of Thessaly were afterwards called *Magneſia*, though the sea or its shore still retained the name of "Pelasgicus Sinus," now the Gulf of Volo. Pelasgia is also one of the ancient names of Epirus, as also of Peloponnesus.

PELAS'GUS, a son of Jupiter and Niobe, who reigned in Sicyon, and gave his name to the ancient inhabitants of Peloponnesus. But several persons of this name are mentioned by ancient writers. The scholiast upon Apollodorus Rhodius makes Pelasgus to have been the son of Inachus; and this is the same who, according to Hesiod, was the father of Lycaon king of Arcadia. See the preceding articles; and GREECE, vol. viii. p. 828.

PELA'TÆ, certain free-born citizens among the Athenians, who by poverty were reduced to the necessity of serving for wages. During their servitude they had no vote in the management of public affairs, as having no estate to qualify them; but this restriction was removed whenever they had released themselves from their servile situation, which they were allowed to do when able to support themselves. While they continued servants, they had also a right to change their masters. *Ency. Brit.*

PELATY'AH, [Heb. the Lord delivers.] Son of Haniah, and father of Ishi, of the tribe of Simeon. He subdued the Amalekites upon Mount Seir; (1 Chron. iv. 42.) The time of this action is unknown.

PELATY'AH, son of Benaiah, a prince of the people, who lived in the time of Zedekiah king of Judah, and opposed the wholesome advice given by Jeremiah, to submit

to king Nebuchadnezzar. See farther concerning him, Ezekiel xi. 1, 2, 3, 4.

PELCHIL'LEN, a town of Prussia, in Natangen: twenty-five miles south-south east of Königsberg.

PELDRZ'IMOW. See PILGRAM.

PE'LE, in ancient geography. There were two towns of this name in Thessaly; the one subject to Eurypylus, the other to Achilles; both extinct.

PELECANUS, *f.* [from *πελεκας*, Gr. a hatchet, on account of the shape of the bill and pouch.] The PELICAN; a genus of birds of the order of anseres; including, besides the pelicans properly so called, the cormorants, shags, boobies, gannets, &c. amounting to thirty-three species, which are divisible into those with plain bills, and those with serrated bills. Generic characters—Bill straight, the tip consisting of a hooked nail; nostrils obscure chinks; face somewhat naked; feet balanced; all the four toes palmed; the nail of the mid-toe is generally serrated.

In Hebrew the pelican was denominated *kahik*; in Arabic, *huk* and *alhawful*, meaning gullet; in Persian *kik tacab*, which signifies water-carrier; or *miſo*, sheep, on account of its bulk; in Egyptian, *gemel-el bahr*, water-camel; in Turkish, *fackagufch*; in Spanish, *groto*; in Italian, *agrotto*; at Rome, *truo*; in the Alps of Savoy, *goet-trufe*, because its bag resembles the *goitres* to which the mountaineers are subject; in German, *meergans*, *ſchnee-gans*, sea-goose, snow-goose; in Austria, *ohue-vogel*, the awme, or tierce-bird; in Polish, *bak cudzoziemski*; in Russia, *baba*; in modern Greek, *toubano*; in the French West-India islands, *grand gofier*, great-gullet; in Mexico, *atototl*; and by the Spanish settlers *alcataz*.

This bird has been long and early distinguished by the fabulous celebrity of its name, sacred among the religious emblems of ignorant nations. It has been employed to represent maternal tenderness, tearing its breast to nourish its languishing family with its blood. This hieroglyphic, which the Egyptians had before depicted of the vulture, cannot apply justly to the pelican, which lives in abundance, and even enjoys an advantage over the other piscivorous birds, being provided with a capacious bag for storing its provisions. And the fact is, that very few birds, if we except the ostrich, show less affection for their helpless offspring. It is with great reluctance that we deprive the bird of the honourable office of being a true symbol of charity; but, as we intend to let no idea, though ever so pleasing, intrude itself into the minds of our young readers at the expense of truth, we must undeceive them, whenever we find an opportunity. This bird is often represented scratching her breast and feeding her young with the blood that gushes out of the wounds; and is used as a representation of the unspeakable goodness of HIM who shed his blood to redeem mankind. But all this has no other ground than the bird having been sometimes, though seldom, seen picking off the down of her breast to soften the nest she is making. However, as this pious pelican is often painted or drawn more like a vulture than the bird of that name, we should not be surpris'd if the quality of the one had been transferred to the other, by some ancient and accidental mistake. Thus much of pelicans in general; we now proceed to enumerate the species.

I. Bill not serrated.

1. *Pelecanus onocrotalus*, [from the Gr. *ονος*, an ass, and *κροσσον*, a rattle, because of the gurgling in its throat or pouch;] the large white pelican: colour dirty white; gullet pouch'd. The bill is red; the upper mandible depressed and broad, the lower forked; the bag at the throat flaccid, membranaceous, capable of great distention; the irides hazel-coloured; the gape of the mouth wide; the head is naked at the sides, covered with a flesh-coloured skin; the hind head is somewhat crested; the body is faintly tinged with flesh-colour; the spurious wings and first quill-feathers are black; the legs are of a lead colour.

colour. It inhabits Asia, Africa, and South America. In fishing, this bird does not immediately swallow its prey, but fills its bag, and returns to the shore to devour at its leisure the fruits of its industry. As it has a very quick digestion, it has generally to fish more than once in a day. At night it retires to rest, a little way on the shore, with its head resting on its breast. In this state it remains almost motionless, till hunger calls it to break its repose. It then flies from its resting-place, and, raising itself thirty or forty feet above the surface of the sea, turns its head with one eye downwards, and continues to fly in that posture till it sees a fish sufficiently near the surface, when it darts down with astonishing swiftness, seizes it with unerring certainty, and stores it up in its pouch. It then rises again, and continues the same manœuvres, till it has procured a competent stock. The female feeds her young with fish, macerated a long time in her bag. The pelican generally builds in marshy and uncultivated places, particularly in islands and lakes, making its nest, which is deep, a foot and a half in diameter, of carices, and lining it with grass of a softer texture. It lays two or more white eggs, which, when harassed, it sometimes hides in the water. When it builds in dry and desert places, it brings water to its young. It walks slowly, flies in flocks, and lives in society with other birds.

This singular fowl appears susceptible of some education, and even of a certain cheerfulness, notwithstanding its reclusive life. It has nothing savage, but soon becomes familiar with man. Rzaczynski speaks of a pelican kept fourteen years at the court of Bavaria, which was very fond of company, and seemed to take singular pleasure in hearing music. Belon saw one in the isle of Rhodes, which walked freely through the town; and Culmann, in Gesner, relates the noted story of the pelican which followed the emperor Maximilian, flying over the head of his army when on a march, and rising sometimes so high as to seem like a swallow, though it measured fifteen feet across the wings. This vast power of flight would be astonishing in a bird that weighs twenty-four or twenty-five pounds, were it not wonderfully assisted by the great quantity of air with which its body is inflated, and also by the lightness of its skeleton, which exceeds not a pound and a half; its bones are so thin, that they are somewhat transparent, and Aldrovandus asserts that they have no marrow. It is no doubt owing to the nature of these solid parts, which are slow in ossifying, that the pelican enjoys its great longevity: even in captivity it has been observed to live longer than most other birds. Turner speaks of a tame pelican that lived fifty years. The one mentioned by Culmann attained the age of fourscore; and in its latter years it was maintained by order of the emperor, at the expense of four crowns a-day.

The pelican, though not entirely foreign, is very rare in our climates: one was killed in England, at Horselyfen, in May 1663, which measured twelve feet from tip to tip of the wings; and two were killed in France; one in Dauphiny, and the other on the Saone. Gesner speaks of one that was taken on the lake of Zurich, and was regarded as an unknown bird. It is not common in the north of Germany, though great numbers occur in the southern provinces watered by the Danube: this noble river was an ancient haunt of these birds; for Aristotle, ranging the pelicans with some gregarious kinds, the crane and the swan, says, that "they depart from the Strymon, and, waiting for each other at the passage of the mountains, they all alight together, and nestle on the banks of the Danube." These streams, therefore, seem to bound the countries where these flocks advance from north to south in our continent; and Pliny must have been ignorant of this route, when he represented them as coming from the northern extremity of Gaul; for they are strangers there, and still more in Sweden and the arctic tracts, at least if we judge from the silence of Linnæus, Muller, &c. They are found in Red Russia, and in Lithuania, as well as in Volhinia, in Podolia, and

in Pokutia, as Rzaczynski testifies: but they extend not to the most northern parts of Muscovy, as Ellis pretends. In general, these birds seem to affect more the warm than the cold climates. One of the largest size, weighing twenty-five pounds, was killed in the island of Majorca, near the bay of Alcudia, in June 1773. They appear regularly every year on the lakes of Mantua and Orbitello; and from a passage of Martial we may infer that they were common in the territory of Ravenna. They are found also in Asia Minor, in Greece, and in many parts of the Mediterranean and the Propontis. Belon even observed at sea their passage between Rhodes and Alexandria; they flew in bodies from north to south, shaping their course towards Egypt: and the same traveller enjoyed a second time this sight near the confines of Arabia and Palestine. Voyagers also tell us, that the lakes of Judea and of Egypt, the banks of the Nile in winter, and those of the Strymon in summer, seen from the heights, appear whitened by the multitude of pelicans which cover them.

When we collect the testimonies of the various navigators, we see that the pelicans inhabit all the southern countries of our continent, and that they occur, with little difference, and in still greater numbers, in the corresponding parallels in the new world. They are very common in Africa, on the sides of the Senegal, and of the Gambia, where the negroes call them *pohko*: the great tongue of land, which bars the mouth of the first of these rivers, is filled with them. They are found likewise at Loango, and on the coasts of Angola, of Sierra Leone, and of Guinea: in the bay of Saldana they are intermingled with a multitude of birds, which seem, on that shore, to fill the air and the sea. They occur at Madagascar, at Siam, in China, at the isle of Sunda, and at the Philippines, especially on the fisheries of the great lake of Manilla. They are sometimes met with at sea; and they have been seen on the remote lands in the Indian ocean, and at New Holland, where captain Cook says they are extremely large. Captain Keeling also, in his voyage to Sierra Leone, says the pelicans there are of a white colour, with exceeding long bills; and M. Thevenot, in his travels to the Levant, observes, that the pelicans about some part of the Nile, near the Red Sea, swim by the bank-side like geese, in such great numbers that they cannot be counted. Father Morolla, in his voyage to Congo, says pelicans are often met with in the road to Singa, and are all over black, except on their breast, which is of a flesh-colour like the neck of a turkey. He adds further, that father Francis de Pavia informed him, that on his journey to Singa he observed certain large white birds, with long beaks, necks, and feet, which, whenever they heard the least sound of an instrument, began immediately to dance, and leap about the rivers, where they always reside, and whereof they were great lovers: this, he said, he took a great pleasure to contemplate, and continued often upon the banks of the river to observe.

In America, the pelican is found from the Antilles and Terra Firma, the isthmus of Panama, and the bay of Campeachy, as far as Louisiana, and the country adjoining to Hudson's bay. They are seen also on the inhabited isles and inlets near St. Domingo; and in greater numbers on those small isles, clothed with the finest verdure, which lie in the vicinity of Guadaloupe, and which seem to be occupied as the retreat of different species of birds: one of these isles has even been called the Isle of Pelicans. They augment also the flocks of birds which inhabit the island of Aves: the coast of the Sambales, which abounds with fish, attracts them in great numbers: in that of Panama, they are seen to alight in bodies on the shoals of pilchards left at spring tides: and all the adjacent islets are to such a degree covered with these birds, that their fat is melted for oil. They stray little from the coasts; and, when met with at sea, it is regarded as a sign of the proximity of land. Of the two names

pelicanus

PELECANUS.

Plate I.



The large white Pelican.

Engraved for the Encyclopædia Londinensis, 1728.

J. Pass Sc.

pelecanus and *onocrotalus*, the first has misled the translators of Aristotle, and even Cicero and Pliny: they have rendered it by the word *platea*, which would confound the pelican with the spoon-bill. When Aristotle says that the pelican swallows thin shell-fish, and casts them up half digested, in order to separate the meat which they contain, he imputes it to a habit which agrees better with the spoon-bill, considering the structure of its œsophagus; for the pouch of the pelican is not a stomach where digestion is begun; and Pliny inaccurately compared the manner in which the *onocrotalus* swallows and brings up its food, to the process carried on in ruminating animals. "There is nothing here," M. Perault very judiciously remarks, "but what enters into the general plan of the organization of birds: all of them have a craw in which their food is lodged; in the pelican it lies without and under the bill, instead of being concealed within, and placed at the bottom of the œsophagus. But this exterior craw has not the digestive heat of that of other birds, and in this bag the pelican carries the fish entire to its young. To disgorge them it presses the pouch against its breast; and this very natural act may have given rise to the fable so generally told, that the pelican opens its breast to nourish its offspring with its blood. The pelican, as voracious as it is destructive, takes up in a single excursion as many fish as would feast half a dozen men. It swallows easily a fish of seven or eight pounds: and we are told that it also eats rats and other small animals. Pison says, that he saw a kitten swallowed alive by a pelican, which was so familiar that it walked into the market; where the fishermen hastened to tie its bag, lest it should silyly purloin some of their fish. It eats with the side of its mouth, and, when a person throws it a morsel, it snaps at it. The pouch, in which it stores all its captures, consists of two skins; the inner coat is continued from the membrane of the œsophagus, the outer is only a production of the skin of the neck: the wrinkles in which it is folded serve to contract the bag, and when empty it becomes flaccid. The bag of the pelican is used as a tobacco-pouch; and, in the West-India islands, is termed *blague*, or *blade*, from the word bladder. It is asserted, that, when these are prepared, they are more beautiful and softer than lamb-skins. Some sailors make caps of them; the Siamese form musical strings of the substance; and the fishermen of the Nile use the sac attached to the jaw as a scoop for lading their boats, or for holding water; as it neither rots with moisture nor can be penetrated by it.

This very large species occupies the whole of the annexed Plate. It is copied from Edwards's Nat. Hist. of Birds, Part II. and we shall transcribe also a part of his description of it. "This bird seemed to me to be more than double the bigness of the largest swan; it measured from the point of the bill to the angle of the mouth twenty inches of our English measure, which is six inches more than any natural historian has found it; the Academy of Paris having measured one which was but fourteen inches, Paris measure I suppose; and our countryman, Willoughby, measured one brought from Russia, which he makes fourteen inches English; so that I believe this bird of mine must be proportionably bigger in all its parts than what have been before described. I thought it something incredible in Willoughby's description, that a man should put his head into the pouch under the bill, till I saw it performed in this bird by its keeper; and am sure a second man's head might have been put in with it at the same time: indeed it is said to be capable of holding twenty quarts of water. The upper mandible is straight and flat, having a ridge running along its middle, and at the point a remarkable hook; the skin round the eye is bare of feathers, of a light flesh-colour; the nostrils are not perceivable; the eyes are of a dark hazel-colour. The lower part of the bill is composed of two flexible sides, which it can open

pretty wide, or draw together at pleasure; these sides are joined the whole length, except at the point, by a loose skin of the consistence of thin tripe, of a yellowish colour, which it can either draw up close to the bill, or let fall to a considerable depth from it; this skin extends itself under the throat; it hath rather the appearance of the root of a tongue than what may be called a tongue. When it extends its neck, it appears longer in proportion than represented in the figure, and sometimes it is drawn in shorter. This bird was brought from the Cape of Good Hope by captain Pelly, in the India company's service, anno 1745, who obliged me with a sight of it before it was exposed in London. I find no material difference between this and what has been described by Willoughby, and the Academy of Paris, except its size, so that I cannot pronounce it specifically different from what has been described before. The curious, who desire to examine into the anatomy of this bird, may consult Mem. de l'Academie Royale des Sciences, 1666 to 1699. As no English author hath given a tolerable figure of this bird, my history in that respect will be new, as well as in its extraordinary magnitude, which all the curious in this city are witnesses of, it having been publicly shown here."

2. *Pelecanus roseus*, the rose-coloured pelican: colour rosy; gullet pouched. The bill and legs are black; the area of the eyes is naked; the pouch yellow. It is about the size of a goose; and inhabits Manilla.

3. *Pelecanus fuscus*, the brown pelican: cinereous brown; gullet pouched. This is the American pelican of Edwards; he says it is something larger than a full-sized tame goose, its length being nearly four feet. The bill is shaped as in the first species, and is fifteen inches long; at the base it is greenish, but inclines to blue mixed with red near the end: the pouch is of a bluish-ash-colour, streaked with reddish lines; irides deep bluish-ash-colour: the bare skin round the eyes whitish. The head and neck are white; the first a little crested at the back part: back, scapulars, and rump, cinereous brown; the middle of each feather whitish: the breast and under parts like the upper, but plain: the upper wing-coverts like the back; but some of the outer great ones are plain brown: the shape of most of the feathers is pointed, narrow, and long: prime quills black; the secondaries hoary brown: tail the same, and consists of eighteen feathers: legs lead-colour: claws black.

The brown pelican is very common in many parts of the coasts of America; and no where more so than in the West-India islands, Jamaica, Barbadoes, &c. Also in the Bay of Campeachy, and as low as Carthagen. In summer it is found as far north as Hudson's Bay. These birds are celebrated for a most affectionate attachment to the sick and maimed of their own species, to whom they will constantly carry a supply of food; a circumstance which the Americans take advantage of to procure fish without trouble. They take a live pelican, break its wing, and, after tying it to a tree, conceal themselves in the neighbourhood; there they watch the coming of the other pelicans with their provisions, and, as soon as they see these discharge the fish from their pouch, they run in, and, after leaving a little for the captive bird, carry off the residue.

4. *Pelecanus Manillensis*, the Manilla pelican: this species resembles the rose-coloured pelican, except in the plumage being wholly of a brown colour. It inhabits Manilla, where it is found in great abundance, making its nest on the ground, and seems very unwieldy while on land; yet at times they fly very high. Their flesh is rank and bad.

5. *Pelecanus Philippensis*, the Philippine pelican: white; crest varied white and brown; gullet pouched. This is nearly four feet and a quarter in length; the bill fourteen inches long, the colour reddish white, with a few spots of brown on the sides of the upper mandible: the bare space round the eyes is of the colour of the

bill: the pouch is very pale. The head and neck are whitish: from the hind head to the back is a stripe of feathers somewhat longer than the rest, mixed white and brown; those of the hind head still longer, so as to form a crest; the feathers of all these parts are very soft and silky. The upper part of the back and scapulars cinereous grey; the lower part of the neck, the breast, the lower part of the back, and rump, white: the wing-coverts cinereous grey, with the shafts and margins white; the outer greater ones, and bastard wings, darker, almost black: quills dusky black; the base of many of the secondaries white: tail composed of eighteen feathers, colour greyish white; all but the two middle ones white on the inner webs at the base; shafts black: legs red. This inhabits the Philippine islands, and is probably the bird known there by the name of *aleatraz*. The natives say that the skin of the breast, dressed with the feathers on, has a sweet smell; and, being worn on the stomach of any one afflicted with the asthma, proves a remedy for the same.

6. *Pelecanus rubescens*, the red-backed pelican: colour reddish; head crested; tail dusky; gullet pouched. Length five feet; bill thirteen inches, of a pale dirty yellow; reaches eight inches down the neck. The hind-head is crested, some of the feathers four inches in length. The head and neck dirty reddish white; the back of a fine pale cinnamon colour: the wing-coverts are like the neck, but darker: scapulars pale greyish lead-colour. The legs are yellow. This bird was brought to England by Mr. Lewis, a navy-surgeon, who had it alive from the governor of one of our forts on the gold-coast in Africa, where it had been kept tame for a long time, and was reckoned a scarce bird. Like others of its race, it was very voracious: an experiment was tried how many fish it could take into the bill, and numbers of different sizes were laid before the bird on the ground: it first attempted to take up one of ten pounds, but the bill would by no means raise it from the ground; it then picked, up as far as ten of the others, each weighing a pound, and stowed them carefully in the bag, arranging them along-side each other, with the heads towards the throat; and after this it walked off very stately, with the bag hanging down to its feet. The pouch held about two gallons of water.

7. *Pelecanus Carolinensis*, the Charlestown pelican: dusky above, white on the breast and belly; gullet pouched. These abound in the bay of Charlestown in America, where they are continually fishing. Two specimens of birds similar to the above, if not the same, are in the Hunterian Museum. The size corresponds: length four feet; bill thirteen inches long, and differs from many in having that part of the upper mandible which is next the base almost cylindrical, and not flat, though spreading out considerably near the end: the lower half of the back, in one specimen, striped black and dusky white; the feathers narrow, and edged with the last colour: in the other, the back is of a plain colour. The bag is of an enormous size, taking up the greatest part of the neck before; at the hind part of it, the feathers are much longer than the rest; yet neither the nape of the neck, nor back part of the head, were at all crested. These were brought from Cayenne.

8. *Pelecanus erythrorhynchos*, the rough-billed pelican: white, hind-head crested; gullet pouched. The size of this species is between a goose and a swan: length four feet six inches; bill thirteen inches, with the addition of some singular protuberances on the top of the upper mandible, from the base of which, for above seven inches, the surface is plane, as in other pelicans: at this part an elevated ridge begins, of about an inch and a half in height, and one-third of an inch in thickness; this continues about an inch and a half on the bill, and then other smaller ones rise, of different sizes, and continue growing smaller, in an abrupt manner, to the end of the bill. The colour of the bill and ridge is reddish

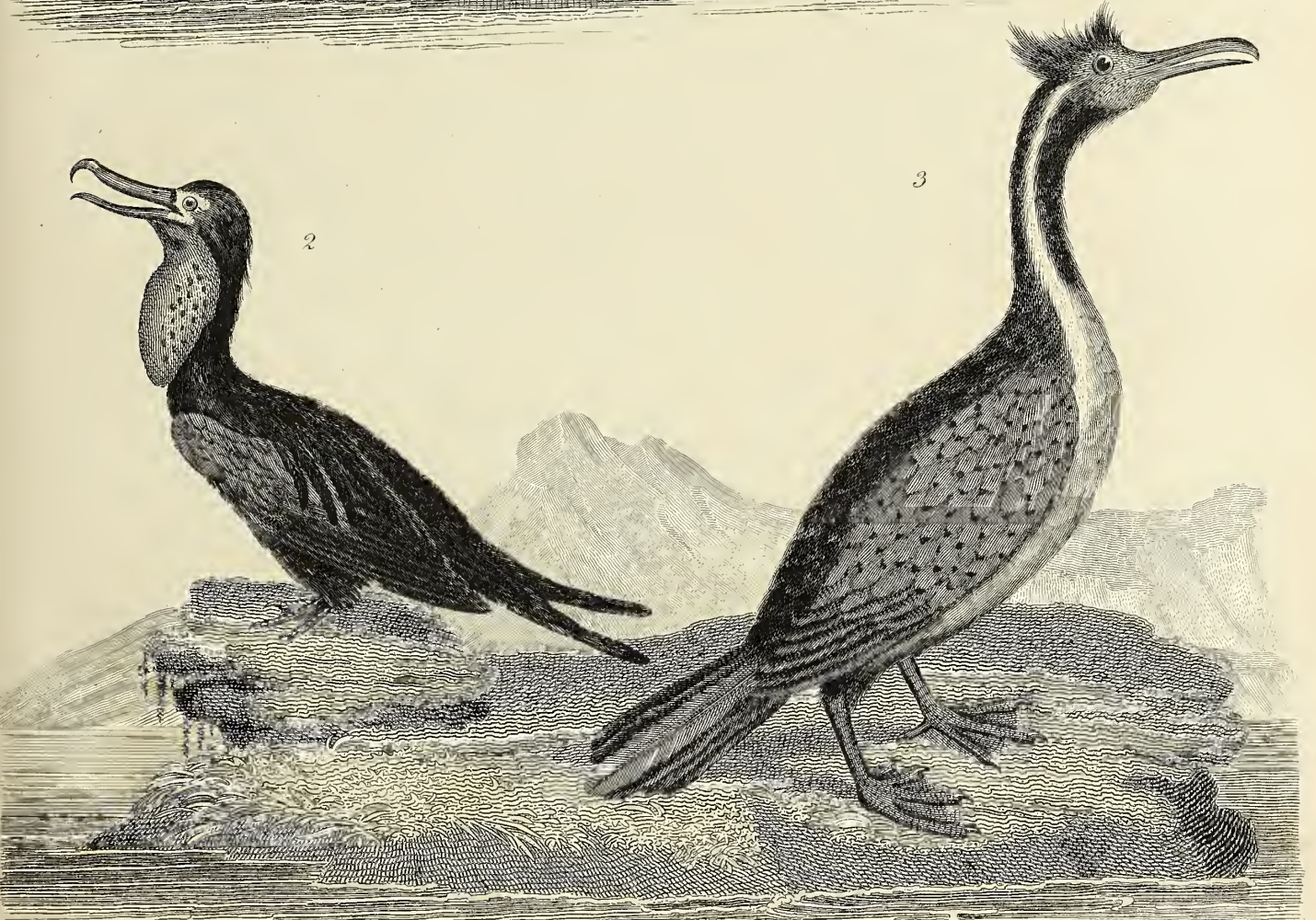
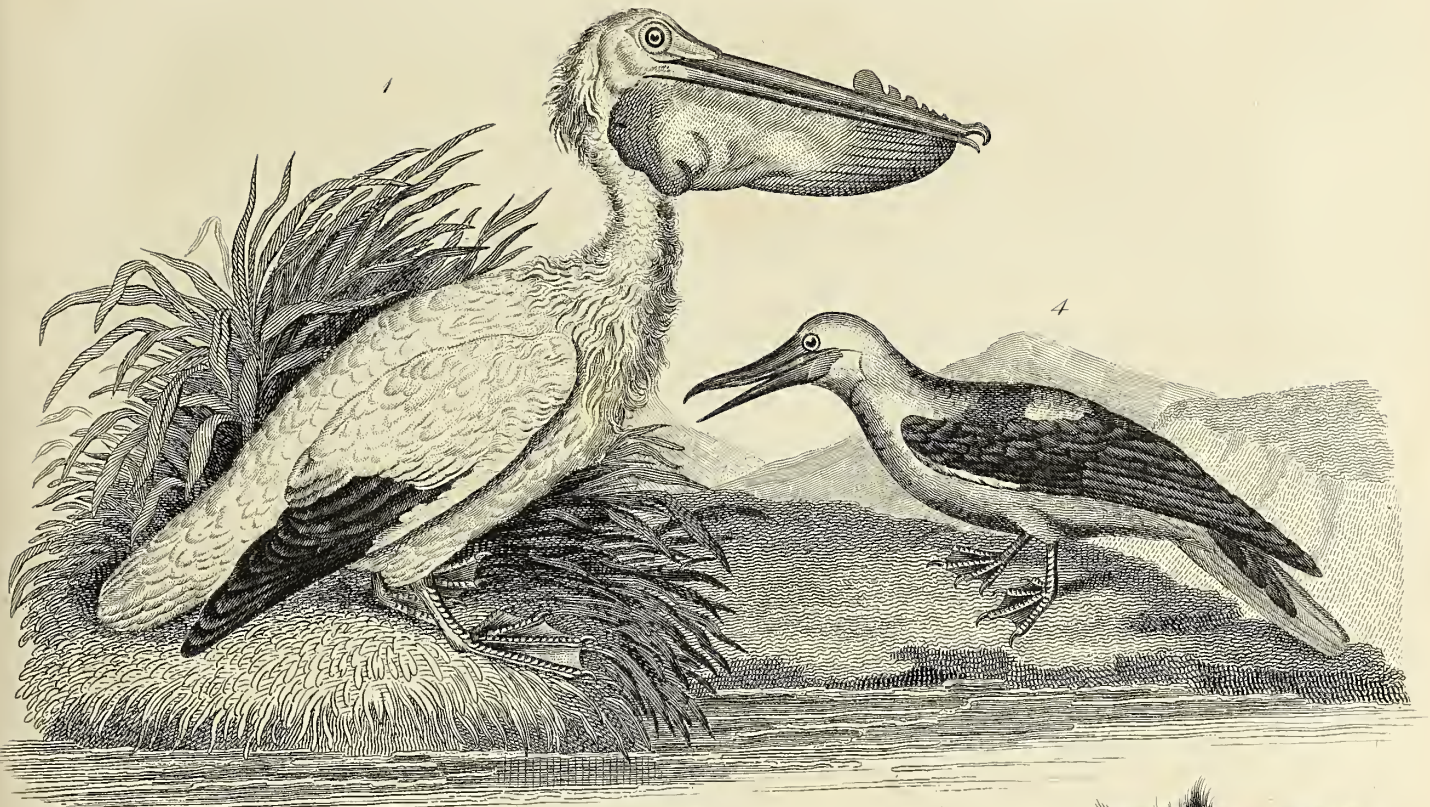
yellow, here and there inclining to red: the under mandible and pouch as in other species; but on each side, about the middle of the first, is a small black spot; and the bag is streaked with lines of black, which are pretty numerous on the fore part of it, mostly so next the end of the bill. The plumage of the bird is wholly of a pure white, except the greater quills, which are black: at the hind head the feathers are greatly elongated, forming a crest of four inches and a half in length: the legs are black. This species is found in several parts of America, having been seen at New York and in South Carolina. It is by some considered as a variety of the large white pelican; but it is a much smaller and more delicate bird. It is represented on Plate II. at fig. 1.

9. *Pelecanus aquilus*, the frigate-pelican, or man-of-war bird: tail forked; body ferruginous, orbits black; bill red; belly of the female white. It is three feet long; the extent of the wings is full fourteen feet. The bill is slender, five inches long, and much curved at the point; colour dusky; from the base a reddish dark-coloured skin spreads on each side of the head, taking in the eyes. From the under mandible hangs the pouch, which is attached some way down the throat; the colour of this is a fine deep red, sprinkled on the sides with a few scattered feathers; and when dilated, and resting on the breast, really looks as if it was punctured and running with blood, from whence the fabulous notion of tearing open its bosom to feed its young might most easily have been taken.

The whole plumage is brownish black, except the wing-coverts, which have a rufous tinge. The tail is long, and much forked: the outer feathers eighteen inches or more in length; the middle ones from seven to eight: the legs are small, all the toes webbed together, and the webs deeply indented; the colour of them dusky red.

The frigate pelican, or man-of-war bird, is chiefly, if not wholly, met with between the tropics, constantly out at sea, being only seen on the wing. It is usual with other birds, when fatigued with flying, to rest on the surface of the water; but nature, from the exceeding length of wing ordained to this, has made the rising therefrom utterly impossible; at least writers not only inform us, but every one who has particularly noticed them avers the same; though perhaps this is no defect of nature, as it scarcely seems to require much rest; at least, from the length of wing, and its apparent easy gliding motion (much like that of the kite), it appears capable of sustaining very long flights; for it is often seen above an hundred, and not unfrequently above two hundred, leagues from land. It has indeed been known to settle on the masts of ships; but this is not a frequent circumstance, though it will often approach and hover about the top-mast flag. Sometimes it soars so high as to be scarcely visible, and at other times approaches the surface of the sea, where, hovering at some distance, the moment it espies a fish, it darts down on it with the utmost rapidity, seldom without success, flying upwards again as quick as it descended. It is also seen to attack other birds which have caught a fish, when it obliges them to disgorge it, and takes care to seize it before it falls into the water. It is an enemy to the flying-fish; for, on their being attacked by the dolphin, and other voracious enemies in the sea, these semi-volatiles leap out of the water in clusters; and during their flight the frigate darts in among them, and seizes one or two.

These birds, though not uncommon every-where within the tropics, yet are less frequent in some places than in others. They were seen by Cook in $30\frac{1}{2}$ degrees. In the old route of navigators they are mentioned frequently, as being met with at Ascension Island, Ceylon, East Indies, and China. Dampier saw them in great plenty in the island of Aves in the West Indies. Our later navigators describe them as frequenting various places of the South Sea, about the Marquesas, Easter Isles, and New Caledonia; also at Otaheite, though at this last place



1. Rough-billed Pelican. 2. Man of War Bird. 3. Spotted Skua. 4. The Booby.

Engraved for the Encyclopædia Londinensis, 1823.

J. Pass sc.

place not in such plenty as in many others. They are said to make their nests on trees, if any are within a proper distance, otherwise on the rocks. They lay one or two eggs, of a flesh-colour, marked with crimson spots. This species is represented at fig. 2.

10. *Pelecanus minor*, the smaller frigate-pelican: tail forked; body ferruginous; bill and orbits red. It resembles the last; but is less, being only about three feet long.

11. *Pelecanus leucocephalus*, the white-headed frigate-pelican: tail forked; body brown; head, neck, breast, and belly, white; bill dusky, except at the tip, where it is nearly white; legs reddish brown. Total length about three feet. This is in the Hunterian Museum. In the same collection there is another very like it, with the head and half the neck all round white, passing on the fore part down the breast, and ending between the legs: sides of the body, and the vent, brown; which, as in the other, is the general colour of the rest of the plumage: legs reddish brown; middle toes serrated. Neither of these were bare on the sides of the head, nor had any appearance of a pouch on the under mandible. Not far different from the above is one mentioned by Osbeck. In his bird the cere at the base of the bill (he says) is blue, and extends to the eyes; the temples, or sides of the head, being naked: the tongue large, almost trifid at the top; the corner at the bottom split: the head, fore part of the neck, breast, and belly, white: the general colour of the rest of the plumage black: tail forked, giving the idea of a pair of scissors: legs black. This he met with at the Isle of Ascension, where it is very tame, and does not appear to be afraid of mankind. He supposes it incapable of fishing for itself, as he observed it to be on the watch till some other bird had caught a fish; which it immediately pursued, and obliged the successful captor to render up his prey.

12. *Pelecanus Palmerstonii*, the Palmerston frigate-pelican: bill five inches and a half long, black; space round the eyes well feathered; body brown with a greenish gloss; beneath white; vent black; tail forked; the shafts of all the feathers white: legs dusky black; the middle claw serrated on the inside. Inhabits the island of Palmerston, in the South Seas. It is in the collection of the late sir Joseph Banks. Three feet two inches long.

13. *Pelecanus carbo*, the cormorant, or corvorant: tail rounded; body black; head subcrested. In Greek this bird was called *φαλαερονκοραξ*, or bald raven; the Spanish name, *ciervo calvo*, has the same signification; and the notion of water or sea raven is implied in modern Latin, in Italian, in German, and Silesian, by the appellations of *corvus aquaticus*, *corvo marino*, *wasser-rabe*, *see-rabe*. In some of the French provinces it is styled *croc-pescherot*, or dirt-fisher. Dr. Kay, in Gesner, conjectures, that *cormorant* is a corruption of corvorant, *corvus vorans*, or devouring raven; and Pennant and Latham have adopted *corvorant*. The name was formerly pronounced cormoran or cormarin, contracted from *corvus marinus*, or sea-raven: yet it resembles the raven in nothing but its black plumage, and even this is downy, and of a lighter shade.

The cormorant is so dextrous in fishing, and so voracious, that, when it visits a pool, it commits alone more havoc than a whole flock of other piscivorous birds. Fortunately, it resides almost constantly on the sea-shores, and seldom occurs in inland countries. As it can remain a long time plunged, and swims under water with the rapidity of a dart, its prey scarcely ever escapes, and it almost always emerges holding a fish across in its bill: to swallow the victim it employs a singular expedient; it tosses up the fish in the air, and dextrously catches the head in falling, so that the fins lie flat and favour the passage down the the throat, while the membranous skin that lines the under side of its bill stretches to admit the whole body of the fish, which is often very large in proportion to the neck of the bird.

In some countries, as in China, and formerly in Eng-

land, the skill of the cormorant in fishing was turned to profit: for, by buckling a ring about the lower part of its neck, to prevent deglutition, and accustoming it to return with its acquisitions in its bill to its master, it was made a domestic fisher; and this toil continued, till its master, satisfied with the earnings, loosed its collar, and permitted it to fish on its own account. Hunger alone gives activity to the cormorant; it becomes lazy and sluggish after its appetite is glutted. It inclines to fat; and, though it has a very strong smell and an unpleasant taste, it is not always despised by sailors, to whom the simplest and coarsest fare is often more delicious than the constant repetition of salt meat.

These birds are plentifully found in England, particularly on the Needle and Freshwater rocks, at the back of the Isle of Wight: on Dover cliffs, and on most of our rocky shores. They abound in many places of the old continent; on the shores of the Caspian Sea they sometimes collect in immense flocks; and are frequent in the Lake Baikal; they inhabit the Cape of Good Hope; and are common in the Philippine Isles, New Holland, New Zealand, &c. They are found in many parts of the continent of America, being met with in Hudson's Bay, New York, and from thence as low as Carolina: at the last place they are seen in March and April, when the herrings run up the creeks, at which time they may be observed sitting on the logs of wood which fall into the water, waiting for the passing-by of the fish. Our late navigators met with it in Nootka Sound. The cormorant is likewise very frequent on all the northern shores, quite to Kamtschatka: in Greenland it remains the whole year, and builds on the tops of the crags, laying three or more pale green eggs, the size of those of a goose; but these prove so very fetid and disgusting, that the Greenlanders will scarcely ever eat them. The skin is very tough, and is used by the Greenlanders for garments; they also sometimes eat the flesh. The head of the cormorant is sensibly flat, like that of most diving birds; its eyes are placed very much forward, and near the corners of the bill, whose substance is very hard, and shining like horn; the feet are black, short, and very strong; the middle nail is serrated interiorly, like that of the heron; the pinions are very long, but clothed with short quills, and hence it flies heavily. It makes its nest with sticks, sea-weed, grass, &c.

β. P. c. cristatus, the crested corvorant, is described by Mr. Montagu in the Supplement to his Ornithological Dictionary. "The possession of this bird has given us much of its history we were previously unacquainted with. It is extremely docile, and of a grateful disposition, without the smallest tincture of a savage or vindictive spirit, and by no means possessing the bad qualities a celebrated writer would induce us to believe, by making it personify Satan. The bird in question was surpris'd by a Newfoundland dog, belonging to a fisherman, under the banks of a rivulet that ran into the British channel; it was taken home, and, not being in the accustomed plumage, was reported to be a curious and unknown species. When it had been made captive about a week, it was perfectly familiarized, making one in the family circle round the fire, and suffering the caresses of the children, who were very unwilling to part with it. That mode, however, by which all earthly matters are obtained, and by which kingdoms are lost and gained, succeeded; and it was conveyed to us by the coach, being placed in a basket. As soon as it arrived and was liberated, it followed the servant who released it, and was offered every sort of food at hand, all of which was equally refused; not even raw flesh was acceptable, and no fish could then be procured to satisfy its hunger. We therefore crammed it with flesh, which was taken very reluctantly; but, even with this rough handling, its formidable bill was not made use of offensively. After feeding, it was placed on a stool, in an adjoining room to the library, where it sat perfectly contented, and adjusted

its

its disconcerted plumage. Observing it so perfectly reconciled to its new abode, and having retired to the library, leaving both doors open, with intention of returning, we were astonished, in a few minutes, to see the stranger walk boldly into the room, and, coming towards us with the greatest confidence and familiarity, joined us at the fire-side, where it re-assumed the task of pluming and dressing its feathers. From hence we removed this bird to an aquatic menagerie, to which it was carried without offering the least offensive resistance; but the sight of water made it restless; and, when liberated, it instantly plunged in and dived incessantly for a considerable time, in hopes of prey; but, after searching every part of the pond, without obtaining a single fish, it appeared to be convinced there was none, and never made any other attempt for three days, during the whole of which time, it was crammed with flesh, not being able to procure any fish. It lives in perfect harmony with a whistling swan, a bernacle goose, various sorts of ducks, and other occasional birds; but, if it perceives a gull with a piece of fish, it instantly gives chase: if, however, the gull has time to swallow it, no resentment is offered: the sight of it created the desire of possession, and that desire ceases with its disappearance. If it gets out, it never attempts to ramble; but, walking direct to the house, enters the first open door without deference to any one, regardless even of a dog; and in fact is troublesomely tame."

14. *Pelecanus graculus*, the shag: tail rounded; body black, brown beneath; tail-feathers twelve. Weighs about four pounds; length twenty-nine inches. The female weighs about three pounds and a quarter, and is only twenty-seven inches long. The heaviness or rather indolence natural to all the cormorants, is still more remarkable in the present. This species is not less diffused than the former: it occurs particularly in the islands and the extremities of the southern continents. Cook and Forster found it on the island of Georgia, which, though not inhabited, and almost inaccessible by man, is stocked with these little cormorants, which share the domain with the penguins, and lodge among the tufts of rushy grass, the only vegetable production in that weary tract. Staten-land is similar, and contains likewise great numbers of these birds. An island in the Straits of Magellan was so full of them, that captain Cook called it Shag Island. It is in these extremities of the globe that nature, benumbed with cold, has allowed five or six species still to subsist, the last inhabitants of the territories invaded by the progress of refrigeration; they live in calm apathy amidst the dead silence which has there established its gloomy reign. "One is astonished," says captain Cook, "at the peace which prevails in this land. The animals that inhabit it would seem to have formed a league not to disturb their mutual tranquillity. The sea-lions occupy the greatest part of the coast; the white bear resides in the interior part of the island; and the shags lodge in the loftiest rocks: the penguins settle where they have easiest communication with the sea; and the other birds choose places more retired. We have seen all these animals intermingled and walking together, like cattle or poultry in a farm-yard, without offering the least injury to each other." In these dreary wastes, naked, and almost frozen, the shags breed in the ragged sides of rocks, or the projecting cliffs that overhang the ocean. In some parts, their nests are found among small patches of shags, or in the tall tufts of the coarse grass which we have mentioned. There they inhabit, collected in thousands: the report of a musket does not disperse them; they only rise a few feet, and alight again into their nests. Nor need we use fire-arms, for they may be felled with sticks, and yet their companions will not be alarmed, or endeavour to escape from the massacre. Their flesh, especially that of the young ones, is pretty good food. These birds do not stray far into the sea, and seldom lose sight of land. Like the penguins, they are clothed with a very thick plumage, well adapted to guard

against the severe and continual cold of the frozen regions which they inhabit.

The shags are very numerous on the coasts of Cornwall, and in the Irish sea, particularly on the Isle of Man. They are found also on the shores of Prussia, and in Holland near Sevenhuis, where they breed on tall trees. Willoughby says, that they swim with their body entirely immersed, and only their head out of the water; and that they are as nimble and alert in that element as they are sluggish on land, and escape the shot by diving the instant they perceive the flash. In general, the shag has the same natural habits with those of the cormorant, which it resembles in its figure and in its colours: the difference consists in this, that its body and limbs are smaller and more slender, its plumage brown under the body, its throat not naked, and that there are only twelve quills in the tail. Some ornithologists have styled the shag the palmiped jay: but this is as little proper as the appellation of water-raven given to the cormorant. The cornea of the eye is of a bright red, and the crystalline approaches the spherical form, as in fish: the base of the bill is furnished with a red skin, which also surrounds the eye: the aperture of the nostrils is so narrow a slit as to have escaped observers, who have asserted, that the cormorants, both the greater and the less, want the nostrils: the greatest toe in these two species is the outer, composed of five phalanges, the next one containing three, the third three, and the last, which is the shortest, only two: the feet are of a shining black, and armed with pointed nails: under the feathers there is a very fine down, as thick as that of the swan; and small silky feathers, close like velvet, cover the head.

There are two other varieties of this species. In the first, the chin is yellow, and the tail wedged: it is found in the Cape of Good Hope. The second is blackish, but underneath it is brown; the feathers above are edged with black: inhabits Cayenne, and the Caribbee islands; and is about twenty-six inches long.

15. *Pelecanus pygmaeus*, the dwarf shag: tail wedged, the feathers twelve in number. This species is scarcely so big as a teal. The bill, legs, and shape, exactly corresponding with those of the common shag. The body black, with a cast of green about the neck and breast: wing-coverts obscure-brown, each feather margined with glossy black: about the eyes dotted with white, but the spots not very numerous; on the neck, breast, and sides, are also a few scattered spots, which arise from pencils of very tender hairs of that colour, which are intermixed, and appear here and there among the feathers. The female is wholly brown, or a dull black, and not spotted. This species is met with about the Caspian sea, among others of the genus; also on the river Jaick.

β. This variety has the chin of a mouse-colour; wing-coverts and legs black; head and neck chestnut, with a few snowy spots; belly hoary, spotted with brown.

16. *Pelecanus punctatus*, the punctated shag: crested, black; tail rounded; wings dark-ash, spotted with black; sides of the neck with a white line. Bill lead-colour; orbits naked, reddish; feathers on the middle of the back and wings with a black spot; body above greenish-black; varies in having the bill and legs yellow. Inhabits New Zealand; nearly two feet long.

17. *Pelecanus cristatus*, the crested shag: shining green, beneath dusky; bill and legs dusky; head crested. Length two feet three inches; breadth three feet six; bill four inches long; irides fine green. On each side of the head a long tuft of dusky feathers reaching beyond the crown, forming a fine crest; the tail of a dusky green, consisting of twelve feathers. This inhabits Great Britain, and the vast precipices about Holyhead and the back of the Isle of Wight, in May and June; also Norway, Iceland, and Greenland, but in the latter not very common. Mr. Pennant observes, that he met with several shags in the Hebrides, but saw none with the crest; hence we may suppose it to be somewhat rare.

18. *Pelecanus violaceus*, the violet shag: crest erect; body

body black, glossed with violet. It is found about Kamtschatka and the isles.

19. *Pelecanus urile*, the red-faced shag: shining green, throat white, face bluish red. Length two feet ten inches; bill three inches and a half long; the base of a reddish green, the end black: round the eye a bare white skin: back and wings dusky black, but glossy; the back has also a gloss of green in some lights, with here and there a white slender feather: the belly is wholly black: on each side of the rump a large patch of white feathers: tail six inches in length, consisting of twelve feathers: colour of the quills black: legs black. It inhabits Kamtschatka, chiefly about the rocky and craggy places on the sea-coasts, where it builds its nest in June. The eggs are the size of a hen's, of a green colour, and very ill tasted; notwithstanding which the natives think it worth while to climb the rocks for them at the hazard of their lives. Like others of the genus, it feeds on fish, swallowing them whole. It flies well and swiftly; but rises with difficulty from the ground. While sitting on the rocks it is very stupid, being overcome with sleep, and not easily roused; hence the natives catch them easily, by means of nets thrown over them, or nooses at the end of long poles; and not unfrequently these silly birds suffer themselves to be taken one after another to the very last. As food, every one but a Kamtschadale must refuse it; yet this nation think it very tolerable, whether owing to the method of cooking or not, is uncertain: their method is to roast it in holes in the earth, whole, without plucking off the feathers, or taking out the entrails, and after it is done enough they skin and eat it. It is said to have no tongue; yet it is averred that it cries morning and evening, not greatly unlike the blowing of a trumpet.

20. *Pelecanus naevius*, the spotted shag: black; tail rounded, orbits naked, dingy red; front and hind head crested; a white curved stripe from the eye to the wing; wing-coverts spotted with black.

This species, which is suppressed by Dr. Turton in his translation of Gmelin, is the Crested Shag of Cook's last Voyage, vol. i. p. 151. and is represented on the annexed Plate at fig. 3. It might indeed be called double-crested, or two-crested; for just over the forehead arise some long feathers, forming a pointed crest; and at the hind part of the head a second, not unlike the first, but rather longer, some of the feathers measuring an inch and a half. Just over the eye begins a stripe of white, which passes down on each side of the neck quite to the wing, and growing broader as it proceeds downwards. The middle of the back, and the wings, are of a brownish ash-colour, each feather tipped at the end with a round spot of black, largest on the wing-coverts, but no where bigger than a small pea: quills not spotted: from the middle of the back to the end of the tail, and from between the legs to the vent, black glossed with green: tail three inches in length, rounded at the end; that and the quills plain black: legs deep brown or black. This species inhabits New Zealand, and builds among the rocks; it is met with principally in Queen Charlotte's Sound, where it is known by the name of *pa degga-degga*. Length two feet, or more.

21. *Pelecanus carunculatus*, the carunculated shag: black, beneath white; bill dusky: sides of the head bare of feathers; between the bill and eye much carunculated, and red; the rest of the space round the eye ash-colour; the orbits of a fine mazarine blue, and elevated; and over the eye is a tubercle larger than the rest. The irides are whitish, or very pale brown: the head somewhat flat on the sides, and the crown rather full of feathers: the top of the head, and sides of it, the hind part of the neck, and all the upper parts of the body, the wings, and tail, are black, except a longish patch of white on the wing-coverts: the forehead, chin, and all beneath, white: the legs are flesh-colour, or very pale brown. This inhabits New Zealand; and is found in Queen Charlotte's Sound, though not in plenty; but was met with by millions in

Staaten-land; and is said by our voyagers to build in towns. Length twenty inches.

22. *Pelecanus Magellanicus*, the Magellanic shag; black, beneath white: bill three inches long, and black: sides of the head, and chin, bare, and reddish; tail wedged. The head and neck somewhat glossy, and the feathers of the first seem full, making that part appear larger than it is; but the head is by no means crested: behind each eye a spot of white. It inhabits Terra del Fuego and Staaten-land: in Christmas Sound it builds by thousands among the rocks, choosing such places where they project over the sea, or at least where they rise perpendicularly, that, in case the young fall out, they may take no harm, dropping only into the water. Length thirty-six inches.

23. *Pelecanus varius*, the pied shag: brown, beneath white; bill four inches and a half; the top of it dusky; the bare space about the eye, yellow: over the eyes a narrow streak of a pale colour: the head, hind part of the neck, back, wings, and tail, are brown; the middle of the back, and wing-coverts, palest; the margins of the last almost white, or very pale: the lower part of the back, rump, and thighs, very deep brown, nearly black: quills black; tail rounded, and six inches or more in length; legs flesh-colour; claws dusky. This species inhabits New Zealand, and was met with frequently in Queen Charlotte's Sound. It builds in trees, on which a dozen or more are seen at once. The egg is two inches and a half long, rather smaller than that of a hen, and of a pale bluish white. Length of the full-grown bird, thirty inches.

24. *Pelecanus cirratus*, the tufted shag: black, beneath white; bill dusky yellow; round the eye bare: the head crested; on the wing-coverts is an oblong patch of white. The tail is four inches and a half in length, rounded in shape, and composed of fourteen feathers: the legs pale yellow brown. This was brought from Queen Charlotte's Sound; and is in the Hunterian Museum. Size of the preceding.

25. *Pelecanus Africanus*, the African shag: brown, beneath variegated, chin white; scapulars and wing-coverts blue grey, each feather margined all round, and tipped with black: the three first greater quills pale brown, inclining to cinnamon; the rest brown black: secondaries as long as the quills, of a dusky black, edged with brown. The tail consists of twelve feathers, is cuneiform in shape, the two middle feathers being seven inches long, the outer three inches and a half only; the four middle ones, and the outer on each side, are pale brown, the others black. Inhabits Africa; and is about twenty inches long.

II. Bill ferrate.

26. *Pelecanus thagus*, the saw-billed pelican: brown; tail rounded; gullet pouched, and covered with short cinereous feathers. Bill a foot long, each mandible hooked; pouch very large; legs black. Inhabits Chili; size of a turkey; extent of wings nine feet.

27. *Pelecanus baffanus*, the gannet, or Soland goose: tail wedged; body white; bill and quill-feathers black; face blue; irides yellowish; tail-feathers twelve; eyes surrounded with a naked skin of fine blue; legs black, and greenish on the fore part; the feet long.

Linnaeus gave the name of *Baffanus* to this species, because it is a native of the Baffin-isle, a stupendous rock in the Frith of Forth, near Edinburgh. It is about the size of a common goose; weight seven pounds; length near three feet, alar extent six. The gannet inhabits all the northern isles, but in particular that of the Baffin in Scotland. It generally first makes its appearance in March, and, after making a circuit of the island, departs in October or November. This race seems to be in pursuit after the herrings and pilchards, whose motions it watches; and fishermen know the coming of these fish by the appearance of the birds. That this is the inducement seems probable.

bable, as they are likewise seen, in the month of December, as far south as the coast of Lisbon and Gibraltar, plunging for sardines, a species of pilchard. The gannet is also common on the coasts of Norway and those of Iceland, and now and then are met with on the southern coasts of Greenland. In America, they are found on the coasts of Newfoundland, where they breed, migrating in winter as far as Carolina. They were also met with frequently by our several voyagers in many parts of the southern ocean. Their nest is composed of grass and sea-plants, intermixed with any thing the bird finds floating on the water. It lays only one egg, which is white, rather less than that of a goose; if this egg be taken away, the bird will lay a second; and, should this be taken also, a third; but, on the loss of the third, it can furnish no more that season. They place their nest in the clefts of the rock, and the common people believe that they perform the office of incubation standing on one foot, a notion suggested probably by the breadth of its sole. Hence, it is alleged, they received the name of *sole-angeese*; but Martin informs us, that this word is of Irish or Erse derivation, and signifies quick-sighted; these birds being noted for the bright lustre of their eyes. The foot, however, is widely palmated, and the middle and outer toes are each near four inches long, and all the four are connected by an entire piece of membrane.

Though large and heavy, they are very dexterous fishers; they descend from a vast height, and plunge many fathoms under water. It is in Scotland that they are usually called *solan-geese*, in Cornwall and Ireland *gannets*, and in Wales *gan*. The inhabitants of St. Kilda, we are assured by Martin, take above twenty thousand of the young birds annually, besides a prodigious number of eggs. These spoils are the chief subsistence of these hardy islanders, and they store up their provisions in pyramidal stone buildings, covering them over with peat-ashes.

It is very curious to observe, that in these birds the skin does not adhere to the body; it is connected to it only by small bundles of fibres placed at equal distances, such as one or two inches, and capable of being extended as much; so that the skin may be drawn out like a membrane, and inflated like a bladder. The following are the remarks of Mr. Montagu upon this singular conformation. "If a duck or a goose be attended to when the usual cry is emitted, it will be evident, that the pressure of the abdomen propels the air which is therein contained with much force into the anterior part of the body, which, with what is there already, not being able to escape through the trachea, not only inflates the cellular membrane about the breast to an unusual size, but, by compression, rushes with violence through the larynx, and produces a sound more or less intense, in proportion as the muscles are more or less exerted. Although this contrivance is so absolutely necessary to the existence of every species of bird, it is not immediately obvious for what particular purpose the property of inflation is so much further extended than usual in the gannet. We should not expect to find this power of inflating the skin peculiar to those who obtain their subsistence by diving, because, in the act of immersion, such power could not be exerted without obstructing that operation; and it is obvious, that the air contained within the cavity of the body is sufficient for all the ordinary purposes of seeking their prey under water. It will not be unreasonable, therefore, to conclude, that the gannet is endowed with such singular properties for very different purposes than that of long and continual immersion. It cannot be doubted, but such a power of inflation must contribute greatly to lessen the concussion in its rapid descent upon the water, in order to seize its prey: besides, as the enlargement of the surface, without materially adding to the specific gravity, must greatly contribute to its buoyancy both in air and water, it is well adapted for residing in the midst of the most tempestuous sea, floating on its surface in perfect security, and following those shoals of

fish on which depends its whole existence: thus, when all others are compelled to seek shelter in bays and creeks, the gannet is enabled to brave the severest weather in all seasons, without attempting to near the shore. This contrivance may also be of the most important service to an animal which is constantly exposed, even in the most inclement season, and cannot quit its station without starving: nothing could possibly conduce more to its security against intense cold, or be better adapted to preserve the necessary temperature of animal heat, than this intermediate body of air between the skin and the body, since that element is found to be a non-conductor of heat. Upon this principle, what animal can be more securely protected against cold, or retain its vital heat so effectually, as the gannet, or such birds as are almost surrounded with a body of confined air, divided by cells, and intersected by membranes between the skin and the body, and that skin so amply covered with a light porous substance, filled also with air, and impervious to water?" An account, by the same gentleman, of a non-descript insect which infests the cellular membrane of this bird, will be found under the word *CELLULARIA*, vol. iv. See also Mem. of the Wernerian Society, vol. i.

β. *Sula major*, the great booby: brown spotted with white, beneath white; orbits naked, blackish. This is about the size of a goose, but the tail is longer; the bill a little more than five inches long, and of a grey brown; irides hazel, legs black. It inhabits the shores of Florida, where it is frequent.

23. *Pelecanus piscator*, the little gannet: body whitish, face red; tail wedged, all the quill-feathers black. Size of the Muscovy duck: length two feet seven inches; bill five inches long. Throat naked, dusky black, the scapular feathers are also black at the ends. The tail consists of fourteen feathers; the base white, but black the rest of their length: the legs red; the middle claw broad and ferrated. This species is said to inhabit China, where it is called *bubbi*; and is supposed to be one of the sorts used by the Chinese to catch fish, a ring being placed round the neck. Some birds have those parts of a deep brown which in others are black.

β. The least gannet. Size of a duck: length twenty inches. Bill straight, as in the common gannet, and shaped like it. Colour reddish brown, with a dusky or black point; the base, and skin round the eye, of a deep red. The plumage is wholly white, except the wings, scapulars, and middle of the back, which are dusky, and the quills black: the tail is even at the end: legs blood-red. This bird was in the Leverian Museum; and Dr. Latham supposes it to be a variety of this species. It differs chiefly in being smaller, and in having the tail-feathers white throughout, which in the other are only white at the base, the rest of the length being black.

29. *Pelecanus fula*, the booby: body whitish, quill-feathers tipped with black; tail wedged. In every organized being, instinct displays itself by a chain of consistent habits, which all tend to its preservation; and this internal sense directs them to shun what is hurtful, and to seek what may contribute to the support, and even the enjoyment, of life. These birds, however, seem to have received from nature only half that faculty: armed with a firm bill, provided with long wings, and with feet completely and broadly palmated, they are fitted to exercise their powers both in the air and in the water; they are invited to act and to live; yet they seem ignorant what exertions they should make, or what precautions they should observe, to escape that death which perpetually awaits them. Though diffused from one end of the world to the other, from the seas of the north to those of the south, they have no-where learnt to distinguish their most dangerous enemy: the sight of man does not intimidate or discompose them. They suffer themselves to be taken, not only at sea on the ships' yards, but also at land on the islets and coasts, where they may be felled by blows with a stick, in great numbers, one after another, and

and yet the stupid flock will make no effort to escape. Hence these birds are called boobies because of their great stupidity, their silly aspect, and their habit of continually shaking their head and shivering as it were when they alight. And, since the mental powers and the moral qualities of animals are derived from their constitution, we must attribute the excessive sluggishness and helpless security of the boobies to some physical cause; and this, most probably, is the difficulty of putting their long wings in motion.

Man is not their only foe; their want of courage exposes them to another enemy, which perpetually harasses them. This is the frigate, or man-of-war bird. It rushes upon the boobies, which it descries at a distance; pursues them without intermission, and obliges them, by blows with its wings and its bill, to surrender their prey, which it instantly seizes and swallows: the silly creatures then return to seek new prey, which they often lose by a second piracy. The boobies hover above the surface of the water, scarcely moving their wings, and drop on the fish the instant it emerges. Their flight, though rapid and well supported, is greatly inferior to that of the frigate. Accordingly, they do not roam so far, and their appearance is regarded by navigators as a pretty certain sign of the vicinity of some land. Yet these birds frequent the remotest and most sequestered islands in the midst of the ocean. There they live in companies, with the gulls, the tropic-birds, &c. and the frigate, their inveterate foe, follows them to these retreats. Dampier gives a curious account of the hostilities between the man-of-war birds and the boobies, in the Alcrane islands, on the coast of Yucatan. "These birds were crowded so thick, that I could not," he says, "pass their haunt without being incommoded by their pecking. I observed that they were ranged in pairs, which made me presume that they were male and female. When I struck them, some flew away, but the greater number remained, and would not stir for all I could do to rouse them. I remarked also, that the man-of-war birds and the boobies always placed sentinels over their young, especially when they went to sea for provision. Of the man-of-war birds, many were sick or maimed, and seemed unfit to procure their subsistence. They lived not with the rest of their kind, whether they were expelled from the society, or had separated from choice: these were dispersed in different places, probably that they might have a better opportunity of pillaging. I once saw more than twenty on one of the islands fall out from time to time into the open country, to carry off booty, and they returned again almost immediately. When one surprised a young booby that had no guard, he gave it a violent peck on the back to make it disgorge, which it instantly did: it cast up one or two fish about the bulk of one's hand, which the old man-of-war bird swallowed still more hastily. The vigorous ones play the same game with the old boobies which they find at sea. I saw one which flew against a booby, and, with one stroke of its bill, made him deliver up a fish which he had just swallowed. The man-of-war bird darted so rapidly as to catch it in the air before it could fall into the water."

The boobies resemble most the cormorants in their shape and organization, except that their bill is not terminated in a hook, but in a point slightly curved; and the upper mandible is articulated, as it were, and formed of three pieces joined by two sutures; the first is traced near the point, which therefore appears like a detached nail; the second is situated at the root of the bill near the head, which enables the bird to raise the tip of its upper mandible two inches, without opening the bill.

These birds utter a loud cry, partaking of the raven and of the goose; and this is heard particularly when they are pursued by the frigate, or when, assembled together, they are seized by some sudden panic. In flying they stretch out the neck, and display the tail. They cannot begin their motion but from some lofty station, and

therefore they perch like cormorants. Dampier remarks, that in the isle of Aves they breed on trees, though in other places they nestle on the ground, and always a number in the same haunt; for a community, not of instinct but of weakness, seems to collect them together. They lay only one or two eggs. The young ones continue long covered, for the most part, by a very soft and white down. The common booby is sometimes met with on the British shores. It is of a middle size, between the duck and the goose: its length, from the end of the bill to that of the tail, is two feet five inches; the bill is four inches and a half, and its tail near ten. The naked skin which encircles the eye is yellow, and so is the base of the bill, whose point is brown. The legs are straw-coloured. The flesh is black, and has a marshy flavour; yet the sailors and marine adventurers often feed on it. Dampier relates, that a French fleet, being cast on the isle of Aves, partly subsisted on these birds; and made such consumption of them, that the number there has since been much diminished. They are found in great numbers not only on the isle of Aves, but in that of Remire, and on a rock shaped like a sugar-loaf, rising apart in the sea, within sight of Cayenne. Multitudes also occur on the islets which lie along the shores of New Spain and Caracca. The same species is met with on the coast of Brazil, and on the Bahama islands, where, it is asserted, they lay and breed every month of the year. What makes these birds so extremely numerous on those shores, is the incredible swarms of fish which attract them: a person can scarce let down into the water a line with twenty or thirty hooks, but he finds, on drawing it up, a fish hanging from each. This harmless helpless creature is represented on Plate II. fig. 4.

30. *Pelecanus fiber*, the brown booby: body brownish, quill-feathers blackish, face red; tail wedged. Bigger than a mallard: length two feet or more; bill three inches and three quarters; that and the legs red. It inhabits Cayenne, and other parts of America, as well as several of the West-India islands; and is found also in Africa.

31. *Pelecanus maculatus*, the spotted booby: brown, spotted with white; below, white waved and spotted with brown; bill, wing-quills, tail, and feet, brown. In this species, the wings are remarkably short, much more so than in any other of the known species. It inhabits Cayenne. Turton makes it a variety of the *P. bassanus*.

32. *Pelecanus parvus*, the little booby. This is the smallest of the boobies, and measures in length scarcely eighteen inches. The bill is pretty straight; and the space round the eye not bare; the throat, breast, and belly, white; all the rest of the plumage dusky black. This also inhabits Cayenne.

33. *Pelecanus Sinensis*, the leu-tze, or Chinese fishing-cormorant: tail rounded; body brown, beneath whitish spotted with brown; throat white, bill yellow, irids blue. Inhabits China, and is there tamed for the purpose of catching fish. On a large lake, near that part of the Imperial Canal where the river runs into it, Sir George Staunton saw "thousands of small boats and rafts built entirely for this species of fishery. On each boat stand ten or a dozen birds, which at a signal from the owner plunge into the water; and it is astonishing to see the enormous size of the fish which these birds bring up. They appeared to be so well trained, that it did not require either ring or cord about their throats, to prevent them from swallowing any portion of their prey, except what the master was pleased to return to them for encouragement and food. The boat used for this mode of fishing is remarkably light, and is carried on the shoulder to the lakes, together with the fishing-birds, by those who gain a livelihood by this employment."

PELECHU'CHO, a town of Peru, in the diocese of Cusco: thirty-six miles north-north-west of Caravava.

PELECI'NUS, *f.* in botany. See BISERRULA.

PELE'E,

PELE'E, a small island in the English channel, near the coast of France: three miles north-east of Cherbourg. Lat. 49. 41. N. lon. 1. 28. W.

PE'LEG, son of Eber, was born in the year of the world 1757. The Scripture says, his father gave him the name of *Peleg*, signifying "division," because in his time the earth began to be divided, (Gen. xi. 16. x. 25.) whether it was that Noah had begun to distribute the earth among his descendants, some years before the building of Babel; or that Peleg came into the world the same year that Babel was begun, and at the division of languages; or that Eber by a spirit of prophecy gave his son the name of *Peleg* some years before the tower of Babel was begun; is not absolutely certain. That which here perplexes the interpreters is, first, that Peleg came into the world not above 100 years after the deluge; and it should seem, that the number of men was not then sufficient for such an undertaking as that of Babel. Secondly, Joktan, the brother of Peleg, had already thirteen sons at the time of this dispersion, which happened after the confusion of Babel; (Gen. x. 26, 27, 28, &c.) Peleg being born in the thirty-fourth year of Eber, (Gen. xi. 16.) it is impossible his brother Joktan should have such a number of children at the birth of Peleg. It seems therefore that he was not born at the time of the dispersion. To this may be answered, that Moses has there enumerated the names of the thirteen sons of Joktan (in Gen. x. 26.) by way of anticipation, though they were not born till a good while after the confusion at Babel; but, as they possessed a very large country, it was convenient to take notice of them, and to name them among the other descendants of Noah, who divided the provinces of the east among themselves. *Ency. Brit.*

PELEGRINO, an island in the Pacific Ocean, discovered by Quiros in 1606. Lat. 14. S. lon. 162. W.—Also a mountain on the north coast of the island of Sicily, near Palermo, in which is a celebrated sanctuary dedicated to St. Rosalia.

PELENGON, or GELENGON, a town of Persia, in the province of Laristan: sixty-six miles north-east of Lar.

PELES, a town of Sweden, in the province of Savolax: forty-eight miles east of Nysslot.

PELETHITES. The Pelethites and Cherethites were famous under the reign of king David. They were the most valiant men in the army of that prince, and had the guard of his person. See Ezekiel xxv. 16. Zephaniah ii. 5. 1 Samuel xxx. 14. 2 Samuel xv. 18. xx. 7.

PELETHRO'NI, a name or epithet given to the Lapithæ, either because they inhabited the town of Pelethronium at the foot of Mount Pelion in Thessaly, or because one of their number bore the name of *Pelethronius*. It is to them, we are told, that mankind are indebted for the invention of the bit with which they tamed their horses with so much dexterity.

PELETHRO'NIUM, a town of Thessaly, situated in a flowery part of Mount Pelion; and hence the appellation *throna*, signifying, "flowers." Lucan says the Centaurs were natives of that place; to whom Virgil assigns Mount Othrys. Most authors, however, ascribe the breaking of horses to the Centaurs. Some make the Lapithæ and Centaurs the same; others a different people; allowed, however, to be both of Thessaly. Their story is greatly involved in fable. See LAPITHUS, vol. xii.

PELEUS, in fabulous history, a king of Thessaly, son of Æacus and Endeis, the daughter of Chiron. He was concerned in the murder of his brother Phocus, and was therefore obliged to leave his father's dominions. He fled to the court of Eurystus the son of Ætor, who reigned in Phthia, (or according to the opinion of Ovid, the truth of which is questioned, to Ceyx, king of Trachinina.) He was purified of his murder by Eurystus, with the usual ceremonies, and the king gave him his daughter Antigone in marriage. After this, as Peleus and Eurystus went to the chase of the Calydonian boar, the father-in-

law was accidentally killed by an arrow which his son-in-law had aimed at the beast. This unfortunate accident obliged him to banish himself from the court of Phthia, and he went to Iolchos, where he was also purified of the murder of Eurystus by Acastus the king of the country. His residence at Iolchos was short: Aftydamia, the wife of Acastus, fell in love with him; but, when she found him insensible to her passionate declarations, she accused him of attempts upon her virtue. The king her husband partly believed the accusations of his wife; but, not willing to violate the laws of hospitality, by putting him instantly to death, he ordered his officers to conduct him to Mount Pelion, on pretence of hunting, and there to tie him to a tree and leave him a prey to the wild beasts of the place. The orders of Acastus were obeyed: but Jupiter, knowing the innocence of his grandson Peleus, ordered Vulcan to set him at liberty. As soon as he had been delivered from danger, Peleus assembled his friends in order to punish the ill treatment which he had received from Acastus. He took Iolchos by force, drove the king from his possessions, and put to death the wicked Aftydamia.

On the death of Antigone, Peleus made love to Thetis, of whose superior charms Jupiter himself had been enamoured. His pretensions were rejected; for, as he was but a mortal, the goddess fled from him with the utmost abhorrence; and, the more effectually to evade his inquiries, she generally assumed the shape of a bird, or a tree, or of a tigress. Peleus's passion was fanned by refusal: he offered a sacrifice to the gods; and Proteus informed him, that, to obtain Thetis, he must surprise her while she was asleep in her grotto near the shores of Thessaly. This advice was immediately attended to; and Thetis, unable to escape from the grasp of Peleus, at last consented to marry him. Their nuptials were celebrated with the greatest solemnity, all the gods attending, and making them each the most valuable presents. The goddess of Discord was the only one of the deities who was absent, and she punished this seeming neglect by throwing an apple in the midst of the assembly of the gods, with the inscription of *Detur pulchriori*, "To be given to the fairest." The celebrated Achilles was the fruit of this marriage, whose education was early entrusted to the Centaur Chiron, and afterwards to Phœnix the son of Amyntor. Achilles, it is well known, went to the Trojan war, at the head of his father's troops; and Peleus gloried in having a son who was superior to all the Greeks in valour and intrepidity. His death, however, was the source of great grief to Peleus; but Thetis, to comfort her husband, promised him immortality, and ordered him to retire into the grottoes of the island of Leuce, where he should see and converse with the manes of his son.

PELEW ISLANDS, or PALA'OS, a group of islands in the western part of the Pacific Ocean, or in that extensive division of the globe called *Polynesia*, situated between the Philippine Islands and the Caroline Islands.

Various conjectures have been formed respecting the time of their first discovery by Europeans. Mr. Keate, the editor of the only voyage in which we have any account of their climate, soil, and produce, together with the manners of their inhabitants, thinks they were first noticed by the Spaniards from the Philippines, and by them named *Palos* from the number of trees growing in them resembling the masts of ships. This conjecture has been vehemently opposed by a critic, who affirms that the whole of Mr. Keate's introduction is erroneous, and that the islands in question were first discovered by some Jesuits of the Philippines, viz. the fathers Duberon and Cortil, who left the Philippines for this purpose on the 14th of November, 1710. Before this time, it was only known, that the largest island, which was the most northerly, was called Panlog, and that the royal residence was in Falu or Pelew. After a voyage of fifteen days these fathers discovered land towards the north-east; and the two isles that were seen were called those of St. Andrew, as hav-

ing

ing been discovered on the day of that apostle. From some Pelewans, whom they accosted, they received information that the true name of these isles was *Sonforol*: that Panlog was to the north-north-east, and Pulo to the south-south-east. Panlog was afterwards discovered about fifty leagues from Sonforol, in lat. 7. 14. N. This seems to be the island now called Babelthouap, and the largest of the group, the south extremity of which in Arrowsmith's maps is about lat. 7. 25. Father Cantova's letter, dated 1722, and contained in the collection entitled *Lettres Edifiantes*, gives a brief account of the Pelews, and very unjustly represents the natives as cannibals. By his account, the group called the Palaos or Pelews, consisted of seven principal isles, situated from north to south. Their names were Peilicu, Coaengal, Tagaiteu, Cogeal, Yalap, Mogulibee, and Nagarro; the king was called Yaray, and resided in Yalap. The natives were described by the Jesuits as naked cannibals, who were regarded with horror by the people of the Carolines.

It was not till the year 1783, that we were able to obtain a just account of these islands, and of their inhabitants. When captain Wilson, commander of the Antelope packet, in the service of the East India Company, was wrecked on one of these islands, he derived that information which was communicated on his return to Mr. Keate; and this ingenious writer, indulging perhaps in some degree the glow of his feelings and imagination, drew up that very pleasing and interesting account, which, from its first publication, has passed through several editions. The whole group is said to contain eighteen islands; but those which Mr. Keate mentions are Oroolong, Artingall, Pelelew, Emilligue, Emunga, Aramalorgoo, Arraguy, Caragaba, and Pethoull: but the names of all were not discovered; and it was but lately known that Pelew was only the name of the capital of the island called Cooroora, and the residence of the king.

From Mr. Keate we learn that the natives of these islands, so far from being savage cannibals, were remarkably mild, hospitable, and humane. The crew of the Antelope consisted of thirty-three Europeans besides the captain, and sixteen Chinese; and the only possible means by which they could be delivered from an island, which at first appeared to them uninhabited, was by building a ship capable of transporting them to the nearest European settlement in that quarter of the globe. Whilst they were meditating upon this undertaking, the natives appeared on the second day after their arrival; and their intercourse with them was facilitated by means which appear as singular as they were providential. Captain Wilson had a servant recommended to him at Macao, who spoke both the Malay and English languages perfectly well; and they had not been long at Pelew before they had the good fortune to meet with a Malay, who had been thrown by a tempest upon this very spot about a year before, and had made himself acquainted with the language of the country; so that by this extraordinary event each party had an interpreter who could readily explain their wants and desires.

After some time it was agreed on by Captain Wilson and his people, that some of the crew should be sent to the king of the place, in order to solicit his friendship, and intreat his permission to build a vessel that might carry them back to their own country. This business was allotted to the captain's brother; and during his absence, Raa Kook, the king's brother, and several of the natives, remained with our people. This amiable chief seemed to place an entire confidence in those he was among: he endeavoured to accommodate himself to their manners; would sit at table as they did, instead of squatting on his hams; and inquired particularly into the principles and causes of every thing he observed about him, lending his personal assistance in all that was going forward, and even desiring the cook to let him aid him in blowing the fire.

VOL. XIX. No. 1320.

In order to conciliate their affections, Captain Wilson had presented Arra Kooker, another of the king's brothers, with a pair of trowsers; but, having conceived a greater passion for a white shirt, one was immediately given to him; which he had no sooner put on, than he began to dance and jump about with so much joy, that every body was diverted by his singular gestures, and the contrast which the linen formed with his skin. This prince was about forty, of a short stature, but so plump and fat that he was nearly as broad as he was long. He possessed an abundant share of good humour, and a wonderful turn for mimicry; and had besides a countenance so lively and expressive, that, though our people at this time were strangers to almost all he said, yet his face and gestures made them accurately comprehend whatever he was describing.

After three or four days, Abba Thulle, the king, arrived with a great retinue. He was received with every mark of respect by the ship's company, who were exercised before him, and fired three volleys in different positions. The surprise of the natives, their hooting, hallooing, jumping, and chattering, produced a noise almost equal to the discharge of the muskets; and, when one of the men shot a bird, which was done to display the effect of their arms, the surprise it occasioned was wonderful. Some of the natives ran for it, and carried it to the king, who examined it with great attention, but was unable to comprehend how it could be wounded, not having seen any thing pass out of the gun.

The king then visited the different tents, and inquired about every thing he saw: all was novelty, and of course interested his attention. When he got to the tent where the Chinese men were, Raa Kook, whose retentive mind never lost a single trace of any thing he had been informed of, acquainted the king that these were a people quite different from the English, and that he had learnt there were many other nations besides these interspersed through the world, some of which fought with guns, and others with boarding-pikes, an instrument which he held very cheap in comparison with the former. When the king heard his brother discoursing about a variety of nations, who all spoke differently, and had before him the example of the Chinese, whose language was not the same with the English, he appeared instantly thoughtful and serious, as if struck with conceptions which had never before crossed his mind. He remained a while pensive and bewildered; and this circumstance impressed on every one at the time an idea that there was every reason to imagine that there had never been a communication between those people and any other nation: and indeed it is evident, that, if the Jesuits did really visit them in 1710, they had before 1783 lost the remembrance of every trace of European manners.

Some time after this, the king requested five of Captain Wilson's men to attend him in a war he was going to make against the inhabitants of a neighbouring island called Oroolong, who, as he said, had done him an injury. In this enterprise little more was done than braving their enemies, stripping some cocoa-nut trees of their fruit, and carrying off a number of yams and other provisions; but in another, which was undertaken against the island of Artingall, they were more successful, and showed signs of the same sanguinary disposition which some demon has infused into the whole human race. Nine prisoners of war who had been taken upon this occasion were cruelly put to death; and, notwithstanding the English strongly remonstrated against this proceeding, all the arguments they could use were of no avail. In justification of their conduct, they alleged the necessity of doing it for their own security, declaring that they had formerly only detained them as menial servants, but that they always found means to get back to their own country, and return with such a force as frequently made great depredations.

Having given this general account of the character and conduct

conduct of these hitherto-unknown people, we now proceed to lay before our readers what we have learned of their government, customs, manners, and arts; together with a description of the face of their country. In this the editor of Captain Wilson's Voyage must be our guide; and, if our narrative do not satisfy the man of science, it is to be observed, that the Antelope was not a ship sent out purposely to explore undiscovered regions, nor were there people on-board properly qualified to estimate the manners of a new race of men; they had amongst them no philosophers, botanists, or draughtsmen, experienced in such scientific pursuits as might enable them to examine with judgment every object which presented itself. Distress threw them upon these islands; and, while they were there, all their thoughts were occupied on the means of liberating themselves from a situation of all others the most afflicting to the mind, that of being cut-off for ever from the society of the rest of the world.

It however clearly appears, from their uniform testimony, that at Pelew the king was looked up to as the father of his people; and, though divested of all external decorations of royalty, had every mark of distinction paid to his person. His *rupacks*, or chiefs, approached him with the greatest respect; and his common subjects, whenever they passed near him, or had occasion to address him, put their hands behind them, and crouched towards the ground. Their councils were always held in the open air, where the king first stated the business upon which he had assembled them, and submitted it to their consideration. Each *rupack* delivered his opinion, but without rising from his seat; and, when the matter before them was settled, the king standing up put an end to the council. When any message was brought him, whether in council or elsewhere, if it came by one of the common people, it was delivered at some distance in a low voice to one of the inferior *rupacks*, who bending in an humble manner at the king's side, delivered it in the same manner with his face turned aside. His commands appeared to be absolute, though he acted in no important business without the advice of his chiefs; and every day in the afternoon, whether he was at Pelew or with the English, he went to sit in public for the purpose of hearing any requests, or of adjusting any difference or dispute which might have arisen among his subjects. But these, according to our editor, seldom happened; for, as their real wants were but few, and they saw nothing to create artificial ones, every one was chiefly occupied with his own humble pursuits; and, as far as the ship's crew, who remained among them about three months, could decide, they appeared to conduct themselves towards each other with the greatest civility and benevolence; never wrangling or entering into quarrelsome contentions, as is customary among those who call themselves a polished and enlightened people. Even when children showed a disposition of this kind, they strongly marked their displeasure, by stifling with rebuke their little animosities.

Next in power to the king was his brother Raa Kook, who was official general of all his forces. It was his duty to summon the *rupacks* to attend the king for whatever purpose they were wanted. He was also his presumptive heir; the succession of Pelew not going to the king's children till it had passed through his brothers; so that after the demise of Abba Thulle, the sovereignty would have descended to Raa Kook; on his demise to Arra Kooker; and on the death of this last it would have reverted to Qui Bill, the king's eldest son, when Lee Boo, his second son, of whom we have much to say, would have become the hereditary general.

The office of first minister is described as follows: "The king was always attended by a particular chief or *rupack*, who did not appear to possess any hereditary office, but only a delegated authority. He was always near the king's person, and the chief who was always first consulted; but, whether his office was religious or civil, or both, our people could not learn with any certainty. He was not considered as a warrior, or ever bore arms,

and had only one wife, whereas the other *rupacks* had two. The English were never invited to his house, or introduced into it, although they were conducted to those of almost every other chief." Of the other *rupacks* it is observed "That they could only be regarded as chiefs or nobles; they were not all of the same degree, as was plain by a difference in the *bone* they wore: this was a mark of rank worn upon the wrist, with which Captain Wilson was invested by the king; but what animal it came from, our people could not learn. They generally attended the king, and were always ready at his command to accompany him on any expedition with a number of canoes properly manned, and armed with darts and spears, who were to remain with him till they had his permission to return home with their dependents. In this part of their government we may trace an outline of the feudal system; but, from the few opportunities our people had of investigating points of internal government, it appeared that the titles of *rupacks* were personal badges of rank and distinction; nor did they apprehend they were hereditary honours, unless in the reigning family, who must of necessity be of this class."

These islands are in general of a moderate height, and covered with wood; and encircled on the west side by a reef of coral, from two to six leagues from the shore, and of great length. Cooroora, the capital of which is Pelew, bears the marks of industry and good cultivation. All the islands which the English saw were covered with trees of various kinds, and some of them of large size, which appeared from their canoes, made of their trunks, and capable of carrying twenty-eight or thirty men. Among the trees in the forest, they observed the ebony, and also a tree which, when pierced with a gimblet, yielded a juice of the consistence of cream; a species of the manchineel tree; a tree in size and its branches resembling the cherry-tree, and in its leaves the myrtle, and having, instead of bark, an outward coat of the thickness of a card, darker than the inside, though equally close in texture, the colour of the interior part being nearly that of mahogany, and so extremely hard, that few of the tools which the English had could work it without breaking their edges. Here were also the cabbage-tree, and a tree whose fruit resembled an almond; the carambola, and the wild bread-fruit, called by the natives *rasnall*. Yams and cocoa-nuts, being the chief means of subsistence, are objects of particular attention. Of the beetle-nut, which abounds, the natives make great use; and their islands also afford plantains and bananas, Seville oranges, and lemons. They furnish some sugar-canes, great abundance of the bamboo, and likewise the turmeric, used as a dye, and employed by the women for staining their skins. None of the islands which the English visited afforded any kind of grain, nor any sort of quadruped, except some rats, which were found in the woods, and three or four meagre cats found in the house, and which were probably drifted ashore from some wreck. Of birds, pigeons were the most numerous; and they had plenty of cocks and hens, undomesticated and running wild in the woods, of which they had made no use as articles of food till they were instructed by the English to eat them. Several birds of beautiful plumage were observed to fly about, and some of a small size, whose notes were very melodious, and particularly one, which used to sing every morning and evening, with a pipe as sweet as a flageolet. Of fish they had great variety.

These islands, when seen from the sea, exhibit high rugged land, covered with wood; the interior parts were in many places mountainous, but the valleys were extensive and beautiful, and presented many agreeable prospects. The soil was in general rich; the grass, as no cattle ate it down, grew high, and was burnt up with the heat of the sun. The English saw no river in these islands; their supplies of fresh water were derived from small streams and ponds, of which there were many. They had no salt, or any kind of seasoning with their food,

food, which consisted chiefly of fish; and they had also a kind of sweetmeats, which they prepared from the sugar-cane, which seemed to be indigenous. The milk of the cocoa-nut was their usual beverage. They had no method of measuring time, but by the height of the sun; and they divided their seasons, like the inhabitants of other tropical countries, into wet and dry. They appeared to have some knowledge of the stars, to several of which they gave names. Those islands that were visited by the English appeared to be populous, but the account of their population was not ascertained. Their houses were placed upon large stones, and raised about three feet from the ground; being constructed of planks and bamboos, and having the fire-place in the middle, secured with hard rubbish. Their fishing-hooks were of tortoise-shell: their twine, cord, and fishing-nets, were well manufactured from the hulks of the cocoa-nuts. The mats on which they slept, and which they threw over them at rest, were formed of plantain-leaf. At their meals they used a plantain-leaf instead of a plate, and the shell of a cocoa-nut served them as a cup, which they sometimes finely polished. Their best knives were of mother-of-pearl, and others of a large muscle-shell, or split bamboo. They had also vessels of an oval shape and reddish-brown colour, which were a kind of earthen-ware, and which they used for heating their water, and for boiling their fish, yams, &c. The principal weapons used in their battles were spears, about twelve feet long, formed of the bamboo, having its pointed end of very hard wood: these were barbed transversely, nor could they be drawn from the body without lacerating the flesh. Another weapon was the dart and sling; the sling was a piece of wood about two feet long, with a notch made in it, wherein the head of the dart was fixed. The dart was of bamboo, pointed with extremely hard wood. Their canoes were formed of the trunks of trees, and neatly ornamented.

The natives of these islands are a stout well-made people, rather above the middling stature; their complexion is of a far deeper colour than what is understood by the Indian copper, but not black. They are mild, affable, and industrious, and, like the inhabitants of Otaheite, they form an exception to the general rule of savage existence. Their hair is long and flowing, rather disposed to curl, which they mostly form into one large loose curl round their heads: some of the women, who wore remarkably long hair, let it hang loose down their backs. The men were entirely naked: the women wore only two little aprons, or rather thick fringes, one before and one behind, about ten inches deep and seven wide: these were made of the hulks of the cocoa-nut stripped into narrow slips, which they dyed with different shades of yellow: this, which was their only dress, they tied round their waists, commonly with a piece of line, though such as were of higher rank used a string of some kind of beads. Both men and women were tattooed, or, as they called it, *melgathed*; an operation which is supposed to have taken place at a certain period of youth, children of either sex not being marked by it. The men had their left ear bored, and the women both: a few of the first wore beads in the perforated ear; the latter put either some leaf through, or an ear-ring of tortoise-shell inlaid. The cartilage between the nostrils was also bored in both sexes, through which they frequently put a little sprig or blossom of some plant or shrub that accidentally caught their fancy. When the men and women grew up, their teeth were blacked, which was done by means of some dye; and the operation was tedious and painful. For this purpose they used groundsel, with four other herbs, bruised together, and mixed with a little chinam into a paste, which was applied to the teeth every morning, in order to dye them black; the patients lying with their heads upon the floor, and letting the saliva run out of their mouths. At night the paste was taken away, and they were permitted to eat a lit-

tle. The same process was repeated the day following; and five days were necessary to complete the operation. This occasioned great trouble, and made them extremely sick.

Persons of both sexes were very expert at swimming, and appeared to be as perfectly at ease in the water as on land. The men were admirable divers. Their marriages were probably no more than a civil contract, but at the same time the contract was regarded as inviolable. They allowed a plurality of wives, but in general had not more than two: the king had five, though not living together. They did not appear to be in any degree jealous of them, permitting them to partake of all their diversions. When a woman was pregnant, she always separated from her husband at night, and it was observed that the utmost attention was paid to women in that situation. Their children are named soon after they are born, and probably without any ceremony. Some peculiar circumstances attended their funerals. At the place of interment, an elderly woman was observed to get out of the new-made grave, who was supported by those who attended to be the mother or some near relation, who had been drawn by affection to the melancholy scene, in order to be satisfied that every thing was duly prepared. When the corpse was laid in the earth, the lamentation of the women that attended was very great. These last sad offices seemed to be wholly left to the tenderness of the weaker sex: the men only assembled round the body before it was carried to the grave, where they preserved a solemn silence. They had places appropriated to sepulture. Their graves were made like ours in country church-yards; having the mould raised up in a ridge over the place where the body was deposited, some flat stones raised above them, with a flat one laid horizontally over, and surrounded by a kind of hurdle-work, to prevent any one from treading over them.

On the article of religion the editor observes, that our people during their continuance with the natives of Pelew, never saw any particular ceremonies, or observed any thing that had the appearance of public worship. But it would perhaps be going too far to declare that the people of Pelew had absolutely no idea of religion. A few occurrences, which are mentioned in the course of the narrative, would lead us to believe that they could not be altogether unacquainted with the nature of religious worship; for, when they were present at the public prayers of the English, they expressed no surprise at what was doing, but seemed desirous to join in them, and constantly preserved the most profound silence. The general even refused to receive a message from the king which arrived during divine service. And upon another occasion, when Captain Wilson told Lee Boo, that good men would live again above, he replied, with great earnestness, "All same Pelew: bad men stay in earth; good men go into sky; become very beautiful;" holding his hand up, and giving a fluttering motion to his fingers.

The most wonderful circumstances in the history of this people, are the acuteness of their understanding, their hospitality, and the implicit confidence which they placed in utter strangers. That their manners were pleasing, and their society not disagreeable, is evident from the conduct of Madam Blanchard, one of the seamen, who, when the vessel was built and ready to take her departure with his captain and his companions, was left behind at his own particular request. That they had the fullest confidence in Capt. Wilson and his crew, is put beyond a doubt by the behaviour of the king and Raa Kook when their guests were to leave them. Raa Kook solicited his brother's permission to accompany the English, but from prudential motives was refused. The love-reign, however, resolved to entrust his second son *Lee Boo* to Capt. Wilson's care, that he might improve his mind, and learn such things as at his return would benefit his country.

The instructions which he gave the young man, and the

the fortitude which he showed upon this occasion, would have done honour to the most enlightened mind. Upon delivering him to Capt. Wilson, he used these expressions: "I would wish you to inform Lee Boo of all things which he ought to know, and make him an Englishman. The subject of parting with my son I have frequently revolved; I am well aware that the distant countries he must go through, differing much from his own, may expose him to dangers, as well as diseases, that are unknown to us here, in consequence of which he may die; I have prepared my thoughts to this; I know that death is to all men inevitable; and whether my son meets this event at Pelew or elsewhere is immaterial. I am satisfied, from what I have observed of the humanity of your character, that, if he is sick, you will be kind to him; and, should that happen which your utmost care cannot prevent, let it not hinder you or your brother, or your son, or any of your countrymen, returning here; I shall receive you, or any of your people, in friendship, and rejoice to see you again." This is the language of a king, a father, and a philosopher, who would have been delighted to see his son with European accomplishments. But, alas! the subsequent history of this amiable youth must force a tear from the eye of every reader whose heart is not callous to the genuine feelings of nature and humanity.

As soon as they arrived at Macao, the house into which he first entered, and the different articles of furniture, fixed him in silent admiration; but what struck his imagination most was the upright walls and flat ceilings of the rooms, being utterly unable to comprehend how they could be so formed. When he was introduced to the ladies of the family, his deportment was so easy and polite, that it could be exceeded by nothing but his abundant good-nature; and at his departure, his behaviour left on the mind of every one present the impression, that, however great the surprise might be which the scenes of a new world had awakened in him, it could hardly be exceeded by that which his own amiable manners and native polish would excite in others.

They were now conducted to the house of an English gentleman, who introduced them into a large hall, which was lighted up, with a table in the middle, covered for supper, and a sideboard handsomely decorated. Here a new scene burst at once upon Lee Boo's mind: he was all eye, all admiration. The vessels of glass particularly riveted his attention; but, when he surveyed himself in a large pier-glass at the upper end of the hall, he was in raptures with the deception. It was in truth, to him, a scene of magic, a fairy tale.

Soon after the people of the vessel came on-shore, some of them went to purchase things they were in want of; in doing which they did not forget Lee Boo, who was a favourite with them all. Among the trinkets they brought him was a string of large glass beads, the first sight of which almost threw him into an ecstasy; he hugged them with a transport which could not have been exceeded by the interested possessor of a string of oriental pearls. His imagination presented to him that he held in his hand all the wealth the world could afford him. He ran with eagerness to Capt. Wilson to show him his riches, and begged he would get him a Chinese vessel to carry them to the king his father, that he might see what the English had done for him; adding, that if the people faithfully executed their charge, he would at their return present them with one or two beads as a reward for their services.

Having no quadrupeds at Pelew, the sheep, goats, and other cattle, which he met with at Macao, were viewed with wonder; but soon after, seeing a man pass the house on horseback, he was so much astonished, that he wanted every one to go and look at the strange sight. After the matter, however, was explained to him, he was easily persuaded to get upon horseback himself; and when he was informed what a noble, docile, and useful, animal

it was, he besought the captain to send one to his uncle Raa Kook, as he was sure it would be of great service to him.

Omitting a number of other particulars of this kind, which excited his curiosity and showed the excellent disposition of his heart, we shall follow him to England, the country from which he was never to return. Here he had not been long before he was sent to an academy, to be instructed in reading and writing, which he was extremely eager to attain, and most assiduous in learning. His temper was mild and compassionate in the highest degree; but it was at all times governed by discretion and judgment. If he saw the young asking relief, he would rebuke them with what little English he had, telling them it was a shame to beg when they were able to work; but the intreaties of old age he could never withstand, saying, "Must give poor old man, old man no able to work."

He always addressed Mr. Wilson by the name of Captain, but never would call Mrs. Wilson by any other name than Mother, looking on that as a mark of the greatest respect; and, such was the gratitude of his heart for the kindness they showed him, that, if any of the family were ill, he always appeared unhappy, would creep softly up to the chamber, and sit silent by the bedside for a long time together without moving, peeping gently from time to time between the curtains, to see if they slept or lay still.

He was now proceeding with hasty strides in gaining the English language, writing, and accounts, when he was overtaken by that fatal disease, the small-pox, which the greatest pains had been taken to guard him against; and, notwithstanding the utmost care and attention of his physician, he fell a victim to this scourge of the human race. Upon this trying occasion, his spirit was above complaining, his thoughts being all engrossed by the kindness of his benefactors and friends. He told his attendant that his father and mother would grieve very much, for they knew he was sick. - This he repeated several times, "and begged him to go to Pelew, and tell Abba Thulle that Lee Boo take much drink to make small-pox go away; but he die; that the captain and mother very kind; all English very good men; much sorry he could not speak to the king the number of fine things the English had got." Then he reckoned up the presents which had been given him, desiring that they might be properly distributed among the chiefs, and requesting that particular care might be taken of two glass pedestals, which he begged might be presented to his father.

We have given this short history of Lee Boo, because it exhibits in a strong light the manners of the natives of the Pelew islands, to which we know nothing similar in the history of man from the savage state to that of civilization. They appear to have had no communication with any other people; and were yet neither treacherous, cruel, nor cowardly. They are a striking instance of the weakness of all the philosophic theories by which mankind are usually traced from their origin through the several stages of savagism, barbarism, and civilization, down to the period of refinement, ending in effeminacy.

Since the publication of Capt. Wilson's voyage we have some further accounts of these islands, all confirming what we were first told of the gentleness of the people. Two armed ships were, by order of the court of directors, fitted out at Bombay, for the purpose of surveying the islands of Pelew, and furnishing the natives with domestic animals, and such other things as might add to the comforts of life. Among the presents to the king were swords and other European implements of war; of which it is at least possible that he and his people might have been equally happy had they remained for ever in total ignorance. The foundation of a fort was likewise laid on one of the islands, and possession of it taken in the name

of the English; we trust with no remote view of enslaving the people, or of driving them from their native country.

The following is the sequel of the adventure here alluded to. The two vessels called the Panther and Endeavour, under the command of Capt. M'Cluer, were fitted out for a voyage to the Pelew islands, to acquaint Abba Thulle the king with the death of his favourite son Lee Boo. On the 24th of August, 1790, Capt. M'Cluer sailed from Bombay, having on-board Messrs. White and Wedgeborough, who had been shipwrecked with Capt. Wilson, and were much esteemed by the king of those islands, at which he arrived in January 1791. Abba Thulle, the king, received them with demonstrations of joy, as Englishmen of whom he had previously found reason to entertain a very favourable opinion. The presents which the company sent to Abba Thulle were landed with all convenient speed. These consisted of a considerable quantity of live stock, such as cows, bulls, ewes, rams, goats, pigs, and poultry, together with arms, ammunition, and packages of hardware, comprising a number of articles which could not fail to be of singular advantage to the natives. The grateful king was astonished at the meaning of all this; and, being informed that it was a small acknowledgment for his generous treatment of the crew of the Antelope when wrecked on his coast, he expressed his regret that it was not in his power to have done more.

With the nature and situation of these islands, as well as the amiable and engaging manners of the natives, Capt. M'Cluer was so well pleased, that he considered them as a paradise, where he could spend with pleasure the remainder of his days. The Panther sailed in the month of February from the Pelew islands for China, the Endeavour remaining behind till her return, which happened on the 10th of June the same year. Having visited these islands a third time, after a survey of the coast of New Guinea, Capt. M'Cluer formally signified to the officers of the Panther his intention of resigning the command of the expedition, and remaining on the island. To render his new situation as comfortable as possible, he requested from Mr. Wedgeborough about twenty muskets with bayonets, twelve pistols, twelve pole-axes, two wall-pieces, fustil and pistol ammunition, an anvil, bellows, frame-saw, standing vice, &c. After a consultation with the other officers, it was agreed to send him these articles, on condition that they should be accounted for by his attorneys, if the East India Company should not be satisfied with the measure. This resolution was carried into effect in the month of February 1793. Scarcely, however, had he been fifteen months in his new settlement, when he became impatient to abandon it; and he soon after set sail for Macao. He returned to the Pelew islands in the year 1795, for the purpose of removing his family; and, sailing from thence to Bombay, he touched at Bencoolen, where he met with a frigate bound for Bombay, into which he put a part of his family with six Pelew women, sailing himself with the other natives towards Bengal, from which last place he set sail some time after; but neither he nor any of his crew have been since heard of. The islands lie between lat. 6. 54. and 8. 12. N. and between lon. 134. 5. and 134. 40. E.

PELF, *f.* [in low Lat. *pelfra*, not known whence derived.] Money; riches; in contempt.—The thought of this doth pass all worldly *pelf*. *Sidney*.

I read thee rash and heedless of thyself,
To trouble my still seat and heaps of precious *pelf*. *Sp.*
To the poor if he refus'd his *pelf*,
He us'd them full as kindly as himself. *Swift*.

PELFRAY seems to have been the old original word.—Indulgences, beads, pardons, pilgrimages, and such other *pelfray*. *Cramer's Answer to Gardiner*.

PELHAM, a town of North America, in Massachusetts: twelve miles north-east of Northampton.—A town of New Hampshire: thirty-six miles north of Boston.

VOL. XIX. No. 1321.

PELHAM. See PERQUAIN.

PELHAM AR'SA, or Brent, PELHAM FURNEUX, and PELHAM STOKIN, are three villages in Hertfordshire, on the borders of Essex, and near Saffron Walden, which have each their church. The first is nearest to Clavering, between Pelham Furneux and Cockenatch. Pelham Furneux, to the south-east of Horneads. Pelham Stokin lies a little to the east of the latter. These three villages were but one at the time of William the Conqueror.

PELHESTRE (Peter), a learned French writer in the department of ecclesiastical history, was a native of Rouen, where he was born about the year 1645. At a very early age he was inspired with the love of learning, and he devoted his whole life to studious pursuits. In his course of reading, he did not confine himself to the perusal of such authors as are sanctioned with the approbation of the Catholic church, but also freely consulted the writings of Protestants. Having come to Paris at the age of seventeen or eighteen, M. de Perefice, who was then archbishop of that see, sent for him, and said, "I am informed, sir, that you read the works of heretics: are you sufficiently learned to venture on such a dangerous practice?" To which the young man replied, "Your question, my lord, greatly embarrasses me: for, were I to answer in the affirmative, you might charge me with presumptuous vanity; and, should I say that I have not sufficient learning, you would prohibit me from reading such books." Pleased with the ingenuity which he discovered, the archbishop laid him under no restriction. For some time M. Pelhestre wore the ecclesiastical dress, and officiated in the inferior clerical orders, particularly in Languedoc, as a missionary for the conversion of protestants to catholicism. Afterwards he resumed the habit of a layman, which he did not change upon his appointment to the place of sub-librarian in the great convent of the Cordeliers at Paris. His motive for accepting of this post, was the unrestrained access which it gave him to a valuable library. He visited most of the religious solitudes in France, and spent some time in that of Perrecy in the Charolois; but he told his friends, that, were he to seclude himself entirely from the world, he should make choice of one of the principal monasteries on mount Athos, for the advantage of consulting the numerous Greek manuscripts which they possess. When he had any particular subject in hand, it was usual for him to shut himself up in a room from which daylight was excluded, and there, wrapped up in a coverlet, and seated in a large armed chair stuffed with straw, he applied incessantly, day and night, excepting when nature called for rest or refreshment, till his labour was finished. He died suddenly in 1710, when about 65 years of age. He was a man of prodigious reading, and particularly conversant in theological controversy, and the knowledge of ecclesiastical authors. He wrote a severe criticism on various passages in M. Dupin's *Bibliothèque des Auteurs Ecclesiastiques*, and filled all the margins of Cave's *Historia Literaria* with notes. The manuscripts of these performances are said to have fallen into the hands of Benedictines, to whom they would prove useful in their editorial and critical undertakings. He was the author of the numerous additions and valuable notes to the second impression of Father Bonaventure's "Treatise on the most proper Method of Reading the Fathers of the Church," 1697, in a large 12mo. volume. He revised the French version of "the Letters of St. Paulinus," published in 8vo. under the name of Claude Fraffen, a Cordelier, but really executed by Claude de Santeul, brother to the poet of that name; and he was also for a long time a considerable contributor to the "Memoires de Trevous."

PELI'ALA, in ancient geography, a town of Asia, in Mesopotamia, between Rhafana and Alvanis. *Ptolemy*.

PELIAS, an island on the coast of Sicily, in the vicinity of the promontory of Drepanum.

PELIAS, in fabulous history, twin-brother of Neleus, was son of Neptune by Tyro, daughter of Salmoneus. His birth was concealed by his mother, who wished her father to be ignorant of her incontinence. He was exposed in the woods, but his life was preserved by shepherds; and he received the name of *Pelias*, from a spot of the colour of lead in his face. Some time after, Tyro married Cretheus, son of Æolus king of Iolchos, and became mother of three children, of whom Æson was the eldest. Pelias visited his mother, and was received in her family; and, after the death of Cretheus, he unjustly seized the kingdom, which belonged not to him, but to the children of Tyro by the deceased king. To strengthen himself in his usurpation, Pelias consulted the oracle; and, when he was told to beware of one of the descendants of Æolus, who should come to his court with one foot shod and the other bare, he privately removed the son of Æson, after he had openly declared that he was dead. These precautions proved vain. Jason, the son of Æson, who had been educated by Chiron, returned to Iolchos, when come to years of maturity; and, having lost one of his shoes in crossing the river Anaurus or the Evenus, Pelias immediately perceived that this was the person whom he had so much dreaded. But his astonishment was greatly excited, when he saw Jason arrive at his palace, with his friends and his relations, and boldly demand the kingdom. Pelias, conscious that his complaints were well founded, endeavoured to divert his attention, and told him, that he would voluntarily resign the crown to him, if he went to Colchis to avenge the death of Phryxus, the son of Athamas, whom Æeres had cruelly murdered. This, so warmly recommended, was with equal warmth accepted by the young hero, and his intended expedition was made known all over Greece. While Jason was absent in the Argonautic expedition, Pelias murdered Æson and all his family; but, according to the more received opinion of Ovid, Æson was still living when the Argonauts returned, and he was restored to the flower of youth by the magic of Medea. This change in the vigour and the constitution of Æson astonished all the inhabitants of Iolchos; and the daughters of Pelias, who have received the patronymic of Peliades, expressed their desire to see their father's infirmities vanish by the same powerful magic. Medea, who wished to avenge the injuries which her husband Jason had received from Pelias, raised the desires of the Peliades, by cutting an old ram to pieces, and boiling the flesh in a cauldron, and then turning it into a fine young lamb. After they had seen this successful experiment, the Peliades cut their father's body to pieces, after they had drawn all the blood from his veins, on the assurance that Medea would replenish them by her wonderful power. The limbs were immediately put into a cauldron of boiling water; but Medea suffered the flesh to be totally consumed, and refused to give the promised assistance; and the bones of Pelias did not even receive a burial.

PELICAN, *f.* [*πελεκαν*, Gr. *pelicanus*, low Lat. *pelican*, Fr.] A large bird. See PELECANUS.—There are two sorts of *pelicans*; one lives upon the water and feeds upon fish; the other keeps in deserts, and feeds upon serpents and other reptiles: the *pelican* has a peculiar tenderness for its young; it generally places its nest upon a craggy rock; the *pelican* is supposed to admit its young to suck blood from its breast. *Cabmet*.—The *pelican* hath a beak broad and flat, like the slice of apothecaries. *Hakewill on Providence*.

Should discarded fathers

Have this little mercy on their flesh;

'Twas this flesh begot those *pelican* daughters. *Shakespeare*.

A glass vessel used by chemists: written also *pellicane*, and *pelecan*.

Retorts, receivers, *pellicanes*, bolt-heads,

All struck in shivers!

B. Jonson's Alchemist.

An ancient piece of artillery which carried a six-pound weight of ball, and weighed two thousand four hundred pounds.

PELICAN I'SLAND, a small island near the north-east coast of Antigua. Lat. 17. 14. N. lon. 61. 24. W.—A small island near the south-west coast of Antigua. Lat. 17. 10. N. lon. 61. 35. W.

PELICAN I'SLAND, a small island near the south coast of New Florida. Lat. 30. 14. N. lon. 88. 6. W.

PELICAN I'SLANDS, a cluster of small islands, near the coast of West Florida. Lat. 29. 48. N. lon. 88. 55. W.

PELICAN KEY (Great and Little), small islands near the south coast of Jamaica. Lat. 17. 49. N. lon. 76. 48. W.

PELICAN ROCKS, rocks on the north-west coast of Antigua.

PELICAN SHOALS, small sand-banks on the south-west coast of Barbadoes.

PELICARE, a town of Cochín: fifty miles east of Cochín.

PELICARO, a town of Naples, in the Basilicata, at the mouth of a river, which runs into the Adriatic: ten miles east-north-east of Turfí.

PELICOIDES, *f.* [from the Gr. *πελεκυς*, a hatchet, and *ειδος*, a shape.] A geometrical figure so called on account of its resemblance to a hatchet.

PELICONDA, a town of Hindoostan, in the circar of Cicacole: twenty-five miles north-west of Cicacole.

PELIDES, a patronymic of Achilles and of Pyrrhus, as being descended from Peleus.

PELIGNI, a people of Italy, who dwelt near the Sabines and Marfi, and had Corfinium and Sulmo for their chief towns. The most expert magicians were among the Peligni, according to Horace.

PELIJARVI, a town of Sweden, in the government of Kuopio: 100 miles south-east of Kuopio.

PELIKANAI, a town of Lithuania, in the palatinate of Wilna: sixteen miles south-south-west of Braflaw.

PELIM, a town of Russia, in the government of Tobolsk, on a lake of the same name: seventy-two miles north of Turinsk.

PELIM, a lake of Russia, in the government of Tobolsk, about fifty-six miles in circumference. Lat. 59. 20. N. lon. 63. 50. E.

PELIM, a river of Russia, in the government of Tobolsk, which runs into a lake of the same name.

PELING, an island near the coast of Corea, in the Hoang-Hai, or Yellow Sea: ten miles long, and four broad. Lat. 38. 24. N. lon. 124. 28. E.

PELING, a small island in the Eastern Indian Sea, near the east coast of Celebes; fifty miles long, and fourteen broad. Lat. 1. 45. S. lon. 123. 20. E.

PELION (Mount), in ancient geography, a portion of that long chain of mountains which lay on the eastern coast of Thessaly, and which extended from the peninsula, inclosing towards the south the greatest part of the country called Magnesia, as far as the mountains that separated it from Macedonia. The portion which bore the name of Pelion commenced at the summit of Rhifus; and reached almost from the sea in advancing towards the north-west. In a kind of angle which this mountain formed in its return towards the east at the bottom of the mountain flowed the small river Amyrus. The coast, in the direction of the mountain, formed in this place a small gulf, in which was Melibœa. From Melibœa, to the right bank of the mouth of the Peneus, the chain of mountains, which approached very near to the sea, was called Ossa. On the other side of the Peneus, in ascending towards the north, it formed two chains of mountains, one of which took the course of the sea very exactly, and the other inclined a little from the south-east to the north-west. These two mountains were connected with the mountains which separated Thessaly from Macedonia. They were those two chains

of mountains which the ancients comprehended under the name of Olympus. When the giants are said to have piled Ossa upon Pelion, the meaning seems to be, that they had fortified these two mountains, whither they retired after their excursions, and kept Jupiter's garrison upon Mount Olympus in awe. The top of the mountain was covered with pine-trees. The celebrated huge spear of Achilles, which none but the hero could wield, had been cut down on this mountain, and was thence called *pelias*. It was a present from his preceptor Chiron, who, like the other Centaurs, had fixed his residence here. *Lempriere*.

PELIOSANTHES, [from *πελιδος*, livid or lurid, and *ανθος*, a flower; so named by the late Mr. George Jackson, in Andrews's Repository, in allusion to the pale lead-colour, for which the flowers are remarkable. *Andr. Repos.* ix. 605. *Ker in Curt. Mag.* 32. 1302.] In botany, a genus of the class hexandria, order monogynia, natural order farmentaceæ, *Linn.* (asparagi, *Juss.*) Generic characters—Calyx: none, unless the corolla be taken for such. Corolla: inferior, of one petal, permanent; tube cylindrical; limb wheel-shaped, in six equal obovate segments; nectary of one leaf, globular, contracted at the mouth, one-third the length of the petal. Stamina: filaments very short, equal, inserted into the inside of the nectary; antheræ oblong, of two lobes and two cells, projecting just beyond the nectary. Pistillum: germ superior, enveloped in the nectary, globose; style scarcely any; stigma of three obtuse furrowed lobes. Pericarpium: berry ovate, of three cells. Seeds two in each cell, some of them frequently abortive.—*Essential Character*. Corolla tubular; limb wheel-shaped, in six segments; stamens inserted into the globular nectary; berry with three cells, and six seeds. There are two species.

1. *Peliosanthes tetra*, or grey-flowered tetra: flower-stalks taller than the leaves; corolla obtuse. Gathered by Dr. Roxburgh in Bengal. Living plants were sent by him to the late lady Amelia Hume, in whose stove they flowered in the following spring, for the first time in England. Root fibrous, perennial; stem none; leaves several, radical, erect, a foot or more in height, on channelled stalks, elliptical, pointed at each end, entire, rather rigid, evergreen, smooth, plaited, with many longitudinal ribs, and fine transverse veins. Flower-stalks erect, round, simple, smooth, somewhat glaucous, each bearing an upright cluster of numerous inodorous small flowers, scattered or in tufts, of a livid purplish lead-colour, intermixed with dull green. Bractes scattered, ovate, pointed, concave, membranous, pale. The flowers fall off even before they wither, without producing any fruit in this country. The natives of Bengal know this plant by the name of *teta*; but we find nothing recorded of its qualities or virtues.

2. *Peliosanthes humilis*, or dwarf tetra: flower-stalks shorter than the leaves; cluster simple; corolla acute. Introduced from Prince of Wales's Island, about the year 1808, by Mr. Evans of Stepney, in whose hot-house it blossomed in November. This differs from the former in its much humbler stature, the leaves being not more than three inches high, and the flower-stalk hardly two inches, bearing an ovate dense simple cluster of flowers, whose segments are acute, green with a white edge.

Mr. Jackson observes, that he had seen two species in Mr. Evans's collection just imported from Prince of Wales's Island, one of which had the leaves nearly of a blue colour, the other probably was our *humilis*. Mr. Evans's collector declared that he had found five or six distinct species of this genus, growing wild in the island just named, though he did not succeed in his attempt to bring them alive to England.

PELIOU', a town of China, of the third rank, in Quang-si: seventy miles south-west of Ou-tcheou.

PEL'ISE, a river of France, which rises in Mount la Croix, passes by Lucerna, and runs into the Cluson one mile south of Vigone.

PELISSA'NE, a town of France, in the department of the Mouths of the Rhone: three miles east of Salon, and fifteen west-south-west of Aix.

PELI'SSE, *f.* [French; from *pelyce*, Sax. from the Lat. *pellis*, a skin.] A kind of coat or robe. See **PILCH**, the old word.—Coats lined with these skins are called *pe-lisses*. *Guthrie of Crim Tartary*.

PELL, *f.* [*pellis*, Lat.] Parchment or vellum upon which bills, deeds, &c. are written.—Clerk of the *pellis*, an officer belonging to the exchequer, who enters every teller's bill into a parchment roll called *pellis acceptorum*, the roll of receipts; and also makes another roll called *pellis exituum*, a roll of the disbursements. *Bailey*.

PELL (John), a divine of the church of England, and an eminent mathematician, was born at Southwick in Suffex, of which his father was minister, in the year 1610. He was educated in grammar-learning at the free-school of Steyning in the same county; and made so rapid a proficiency in the Latin and Greek languages, that at the early age of thirteen he was fully qualified for entering upon academic studies, and sent to Trinity-college, Cambridge. Here he prosecuted his studies with the greatest diligence and intenseness; and, besides a wonderful facility in acquiring languages, he possessed a peculiar turn towards mathematical learning; so that, in 1629, when only eighteen years of age, he drew up "A Description and Use of the Quadrant, written for the use of a Friend, in two Books." In the same year he held a correspondence with the celebrated Henry Briggs, upon the subject of Logarithms. In 1630, he wrote "Modus supputandi Ephemerides Astronomicas (quantum ad motum Solis attinet) paradigmata ad An. 1630, accommodato;" and "A Key to unlock the meaning of Johannes Trithemius, in his Discourse of Steganography." He had been admitted to the degree of B. A. at the regular period, and in the present year he proceeded M. A. He now quitted Cambridge, and paid a visit to Oxford, where he was incorporated M. A. in 1631. During this year he wrote "A Letter to Mr. Edmund Wingate, on Logarithms;" and he drew up "Commentationes in Cosmographiam Eftedii."

Mr. Pell seems to have formed an early intention of entering into the marriage-state; which was most probably the reason that prevented him from offering himself a candidate either for a scholarship or fellowship in Trinity-college. Otherwise there can be no doubt but that his extraordinary accomplishments would have secured to him any encouragement which his college could offer, to engage his residence in it: for, besides his reputation as a mathematician, he was distinguished, not only by his intimate knowledge of the Hebrew, Greek, and Latin, but also of the Arabic, Italian, French, Spanish, and High and Low-Dutch, languages. His inclination, however, led him to renounce all chances of college-preferment for the enjoyment of domestic felicity; and, in the year 1732, he married a lady by whom he had four sons and four daughters. But Mr. Pell's matrimonial connexion did not diminish his ardour for mathematical pursuits. In 1633-4, he finished his "Astronomical History of Observations of Heavenly Motions and Appearances;" and soon afterwards his "*Ecliptica prognostica*, or the Eclipse Prognosticator, or Foreknower of Eclipses; teaching how by calculation to foreknow and foretell all sorts of Eclipses of the Heavenly Lights." In 1634, he translated out of Latin, "The Everlasting Tables of Heavenly Motions, grounded upon the observations of all times, and agreeing with them all, by Philip Lansberg of Ghent in Flanders, &c. from the Sexagifal to the Decimal Subdivisions, for the more ease in Calculations;" and in the same year he wrote "the Manner of his deducing his Astronomical Tables out of the Tables and Axioms of Philip Lansberg." The year 1634 produced from him two "Letters of Remarks on Mr. Gellibrand's Discourse mathematical on the Variation of the Magnetic Needle."

By these and other works, which it is not necessary to enumerate,

enumerate, Mr. Pell's reputation for mathematical knowledge was so well established, that he was considered to be deserving of a professor's chair in that science. When, therefore, a vacancy took place in one at Amsterdam in 1639, interest was made to procure Mr. Pell the appointment. The vacancy was not, however, filled up before the latter end of the year 1643, when Mr. Pell was chosen to it. Of the estimation in which he was held in Holland, a good opinion may be formed from what was said of him by his colleague, Gerard John Vossius, who styles him "a person of various erudition, and a most acute mathematician;" and he greatly applauds his lectures upon Diophantus.

In 1644, Mr. Pell published at Amsterdam, in two pages, a refutation of Longomontanus's pretended quadrature of the circle, which obtained for him a high degree of credit among the most learned mathematicians in Europe. Two years afterwards, Mr. Pell was called to the display of his talents on a new scene; for the prince of Orange, having founded a *Scholia illustris* at Breda, invited him to be professor of philosophy and mathematics in the new institution, with an annual salary of a thousand guilders. This offer he accepted, and he filled the mathematical chair at Breda with the same reputation and success which attended him at Amsterdam, having, among his pupils, several who were afterwards distinguished as eminent algebraists. The death of the prince of Orange, in 1650, deprived him of his patron; and, the war which broke out between the English and Dutch in 1652 rendering it necessary for him to withdraw from the territories of the states, he returned to his native country. In 1654, Cromwell appointed him agent to the Protestant cantons in Switzerland; which character he retained till the year 1658, when he returned to England a short time before the death of Cromwell.

While he was abroad he is said to have privately rendered no little service to the interests of king Charles II. and of the church of England. Be that as it may, it is certain that after the restoration he was encouraged to enter into holy orders; and, having been ordained deacon and priest in 1661, he was immediately instituted to the rectory of Fobbing in Essex, with the chapel of Battlesden annexed, on the presentation of the king. During the month of December in the same year, he brought into the upper house of convocation the Calendar, reformed by him, with the assistance of Sancroft, afterwards archbishop of Canterbury. In 1663, he was presented by Dr. Sheldon, then bishop of London, to the rectory of Laingdon in Essex; and about the same time he was created D. D. Scarcely had he been honoured with this degree, when his patron was translated to the archbishopric of Canterbury, and made him one of his domestic chaplains. Such an appointment is generally considered to be a step to higher preferment; but Pell was so intent on his studies, that he neglected his own interest; and was indeed so imprudent with respect to the management of his worldly affairs, that he would have disgraced the station of a dignitary. Anthony Wood says, that "he was a shiftless man, and his tenants and relations dealt so unkindly with him, that they cozened him of the profits of his parsonages, and kept him so indigent, that he wanted necessaries, and even paper and ink, to his dying day."

In the mean time he distinguished himself in the Royal Society, of which he was elected a fellow in 1663. In the following year he published "an Exercitation concerning Easter," 4to. and in 1665 he made great alterations and additions to Rhonius's Algebra, which appeared in the English version of that work, printed in 1668, under the title of, "An Introduction to Algebra; translated out of the High Dutch into English by Thomas Branker, much altered and augmented by D. P." &c. 4to. After this, he drew up "A Table of ten thousand Square Numbers, namely, of all the Square Numbers between 0 and a hundred million, and of their Sides," &c. which were printed in 1672, folio. Dr. Pell also invented the method of rang-

ing the several steps of an algebraical calculus in a proper order, in so many distinct lines, with the number affixed to each step, and a short description or process in the line. He was likewise the inventor of the character \div for division, \oslash for involution, ω for evolution, and \therefore for ergo, or therefore. But, in the midst of the incessant application to his studies, owing to the neglect of his affairs, his embarrassments increased, and he contracted debts, which proved the occasion of his being thrown more than once into the King's-Bench prison. Being at length reduced to great indigence, Dr. Whistler, then censor and registrar to the College of Physicians, invited him to his house, in 1682, where he continued till, the ill state of his health requiring particular attendance, he was removed, at first to the house of a grandchild, and afterwards to that of the reader of the church of St. Giles's in the Fields, where he died in 1685, when in the 74th year of his age.

Besides the labours already noticed by us, in chronological order, Dr. Pell wrote a Demonstration of the Second and Tenth Books of Euclid, and also of Archimedes's Arenarius, and the greatest part of Diophantus's Six Books of Arithmetic. Of the latter author he spent some time in preparing a new edition, in which he intended to have corrected the translation, and introduced new illustrations. Some of our author's manuscripts were left by him at Brereton in Cheshire, where he had resided for some time, it being the seat of lord Brereton, who had been one of his pupils at Breda. A great many others came into the possession of Dr. Busby, which Mr. Hook was directed to endeavour to obtain for the Royal Society. They continued, however, mixed with the papers and pamphlets of that gentleman, in four large boxes, till the year 1755, when Dr. Birch, secretary to the Royal Society, procured them for that body from Dr. Busby's trustees. The collection contains not only Dr. Pell's mathematical papers, letters to him, and copies of those sent by him, but also several manuscripts of Mr. Walter Warner, an eminent philosopher and mathematician in the reigns of James I. and Charles I. *Wood's Fasti Oxon.* vol. i. *Hutton's Math. Dict.*

PELLA, in ancient geography, a town of Macedonia, near the sea, on the confines of Emathia. This city became the capital of the kingdom when Edeffa was annihilated, according to Ptolemy; and owed its grandeur to Philip, who had been educated there, and to his son Alexander, who was born in this place. Livy describes it as situated on an eminence surrounded by marshes, in the midst of which was a fortress, appearing like an island, and at a distance seeming to be joined to the city; it was, however, separated from it by a river, which ran between their walls, and over which there was a bridge of communication. This river was called Ludias, Loedias, and Lydius.

M. de Pouqueville, a French traveller, visited very recently the site of Pella. This ancient capital of the kings of Macedon, he informs us, does not announce itself, in its desolation, to the eye of the stranger, as at Athens and Corinth, by the display of the remains of its ancient splendour. The position of Pella is known only from its correspondence with the descriptions of its site, preserved in history. Thus it is described by Livy, in the conclusion of his forty-fourth book: "The consul M. Æmilius Paulus, proceeding from Pydna, after the utter discomfiture of Perseus of Macedon, arrived with his army on the second day at Pella. Encamping about a mile from the city, he there remained some days, examining the position on every side, and acknowledging that not without good reason had the royal residence been there placed. Pella was seated on an eminence sloping down to the south-west, and surrounded by marshes of impassable depth in summer as well as in winter, produced by several stagnant lakes. Within the marsh itself, on the side next to the city, appeared, like an island, the castle, or citadel, erected on a mound, a work of vast labour, which sustained the fortifications, while it resisted all injury

jury from the inclosing waters. This citadel, conspicuous from its situation and structure, was connected by a wall to the city, and within that wall was a stream of water, over which was erected a bridge. From its position it resulted, that, although the city might be blockaded, yet the citadel was wholly inaccessible; nor, on the other hand, if the king should shut up any person within the citadel, could he possibly escape but by the bridge, which might be very easily defended." Conformably with this representation, the vestiges of Pella are found on an eminence sloping down to the south-west, and encompassed by marshes. In vain, however, do we look for the walls of the city, for the citadel, for the dykes constructed to defend from inundation the temples, buildings, and other monuments of its grandeur: the barbarians from the north, the Romans, and the succession of ages, have destroyed even the ruins.

To Philip of Macedon, Pella was indebted for its rank and magnificence among the cities of the east; and it must have been with a view to its strength, in a position inapproachable in ancient times by any hostile force, that he selected for his capital a spot extremely unhealthy. Enlarged and improved by his son Alexander and his successors, Pella had attained a high degree of power and splendour, before it was taken and sacked by the adventurers from Gaul, the forerunners of the Romans, who overthrew the city after the conquest of Macedonia. Commanding, by its position, the mouths of the Axios and the Lydias, Pella would naturally have become an important commercial station, had not Thessalonica, distant only twenty-one miles, possessed a safe and commodious port for shipping. But in ancient times, military strength and security, and not commercial advantages, were the objects contemplated, in the founding and improving of cities.

"Looking forward, at last, we discovered the miserable village called Allah-Kilissa, or Allah-Hissar, (God's Tower or Castle,) composed of about threescore huts, inhabited by Bulgarians, with a tower, garrisoned by a dozen Albanians, with their officer. Such are the present edifices, population, and military establishment, of Pella, the once-powerful capital of Philip, and Alexander, and Perseus! A low Mahometan now commands, whip in hand, in the city where Alexander first saw the light; and the paternal seat of that monarch whose dominions extended from the Adriatic to the Indus, is now the property of Achmet, son of Ismael, bey of Serres. But, if Pella be sunk, well adapted to its fallen state are the inhabitants, distinguished, even in Macedonia, by their gross ignorance and their brutal hatred of strangers. Notwithstanding the orders of the commandant, and the abundant offer of money, it was not without a long altercation that we obtained entrance into a hovel, merely to deposit our baggage. Proceeding to survey the place, we first visited a church, built of stone, dedicated to St. Paul, usually styled by the Greeks, the Great Apostle. The children, attracted by the European dress, followed us from place to place; while the dogs, not less amazed, assailed us in the most ferocious manner. Some of the people, however, who had seen Franks in Thessalonica, offered to sale antique coins and small figures in *terra cotta*, found in the place. Traversing a large space of ground, covered with fragments of tombs, and masses of brick and tile, we came to the village-well, on a stone of which were these words: ΔΙΟΝΥΣΙΟΣ ΜΕΤΑΚΛΕΟΥΣ. Descending in a westward direction, we fully recognized the position of Pella, as described in the foregoing quotation from Livy, on the slope of a double eminence. The remains of the ramparts, constructed of stones of very large size, carried round the summit of the highest hill, induced me to suppose them to indicate the position of the citadel. Descending southwards, I followed the line of another inclosing wall, still called Pella by the inhabitants. The direction of this wall points to a square basin, of Turkish workmanship: but the facing wall is founded on a broader wall, of

ancient Greek construction. In the lake Lydias, now called Jenidgé, I observed the mouth of the river from the town so called, and those of the river Niagoufta, and of several rivulets, proceeding from neighbouring springs.

"Having thus surveyed all that remains of Pella above ground, and to attempt excavation was impracticable, (although under the surface, a rich treasure of antiquities must undoubtedly be concealed,) we returned to our Bulgarian hut, where our Janissaries had prepared a dinner of pilaw, the usual food of travellers, and the favourite dish of the people in the east. After dinner, I extended my researches towards Jenidgé, a considerable town, famed for its tobacco, distant about a league westward from Pella. Entering on the road which runs not far from the well before mentioned, I observed a tumulus, or barrow, which had been opened. Going into it, by an opening made on the south side, we found a fort of passage, thirty-one feet four inches, English, in length, by seven feet in breadth, which led to two square parallel rooms, both much injured by the openings made to enter and examine them. Continuing to descend to the second passage, by a steep slope under a vault, which terminated at a horizontal passage or gallery fifty-seven feet long, and eleven feet two inches broad, we observed two niches in the wall. These left us no doubt that the galleries and recesses, which externally appear as barrows, were certainly constructed as places of sepulture. A third passage opened into another vaulted chamber, fourteen feet three inches by twelve feet ten inches in length from north to south. This tumulus having been opened and examined, no discoveries were left for us to make. We were, however, convinced of the erroneoufness of the vulgar opinion, that the barrows found in various parts of the country were thrown up by the Turks, when they first invaded Macedonia, as a place on which to erect the precious national standard of Mahomet. Nothing now remaining to be seen at Pella, we returned to Thessalonica by the road we had before pursued." Tour from Thessalonica to Pella. *Monthly Mag.* March 1822.

PEL'LA, a town of Russia, at the junction of the Tosna and the Neva: twenty miles south-east of Peterfburg.

PELLACON'TA, in ancient geography, a river of Asia, in Mesopotamia. *Pliny*.

PELLACO'PAS, a river of Asia, in Mesopotamia. *Arrian de Exped. Alex.*

PELL'AGE, *f.* [from *pell.*] A custom or duty on tanned hides.

PELLA'GRA, *f.* [probably from *pellis*, the skin, and *agri*, scab.] A sort of cutaneous disease, which was first described about the year 1771 by some Italian physicians, as occurring in many persons in the neighbourhood of Milan and Venice. There is something bordering upon the marvellous in this early history of the pellagra; but subsequent observation has confirmed it. A full account of the disease may be found in Frapolti, "*Animadversiones in Morbum vulgo Pellagram dictum;*" Milan; 1771, (the first writer who noticed it;) and in an Essay by W. X. Janfen, "*De Pellagra, Morbo in Mediolanensi Ducatu endemio,*" Leyden, 1787. (This essay was reprinted in Dr. Frank's *Delectus Opusculorum Medicorum*, vol. ix. art. 9.) See also a long list of references to Italian writers on the subject, under the article *Pellagra*, in Dr. Parr's London Medical Dictionary.

A more recent and reasonable account of the disease is given by Dr. Holland, who had resided in the north of Italy for some time, and noted the symptoms and progress of it on the spot. The Pellagra, according to this writer, is a disease chiefly confined to the peasants of Lombardy, and owing its birth to deficiency of food and clothing, and the cachectic habit consequent thereon. The disease occurs in the spring, and begins like a common erythema. The patient perceives on the back of his hand, on his feet, and sometimes, but more rarely, on other parts of the body exposed to the sun, certain red spots or blotches; which gradually extend themselves, with a slight elevation

of the cuticle, and a shining surface, not unlike that of lepra in its early stage. The colour of this eruption is a somewhat more obscure and dusky red than that of erysipelas: it is attended with no other uneasy sensation than a slight pricking or itching, and some tension in the part. After a short continuance in this state, small tubercles are frequently observed to arise on the inflamed surface; the skin almost always becomes dry and scaly, forming rough patches, which are excoriated and divided by furrows and rhagades. Desquamation gradually takes place, and leaves a shining unhealthy surface in the parts affected; but towards the close of the summer, or occasionally still earlier, the skin resumes its natural appearance; and, but that the further progress of the disease is familiar to every inhabitant of the country, the patient might be led to flatter himself that the evil was gone by, and that there was no particular reason to dread its recurrence.

The constitutional symptoms which precede the eruption are those usually indicative of the cachectic habit; viz. languor, flabbiness of flesh, and debility; those which follow it are debility of the whole body; vague and irregular pains of the trunk and limbs, but especially following the track of the spine and dorsal muscles; headache, with occasional vertigo; irregular appetite, and general depression of spirits. The bowels are for the most part relaxed; and usually continue so in the further course of the disease. There are no febrile symptoms; and in females the menstruation is generally continued without irregularity.

The constitutional, like the local, derangement, usually goes off towards the latter end of the summer, but it returns the next year with increased violence, and during the third and fourth years acquires an horribly alarming character. The local appearance changes from that of the erysipelatous eruption and desquamation before described, to that of profound scabs and scales, or ill-conditioned ulcerations; and the constitutional derangement is marked by a severe impediment to the progress of the assimilative and the sensorial functions. Nervous irritation manifests itself, firstly, in a variety of spasmodic pains, uneasy sensations, and visual and aural deceptions; and, secondly, by desponding furious mania, and frequent attempts at suicide. No plan of treatment has been hitherto applied to pellagra with advantage; but the general indications, of course, are to cure the cachexy of the body, by removing to healthy situations, and the administration of wholesome food. This disease is supposed by some learned authors to be the leprosy of the middle and dark ages. See LEPROSY, vol. xii. and London Med. Journal for March 1818.

PELLA'NA, or PELLANE, in ancient geography, a town of Laconia, south-east of Belemina. It was washed by the Eurotas; and is thought to have been very ancient. In the time of Pausanias it had a temple of Esculapius and a fountain called Pellanide.

PEL'LEGRIN (Simon Joseph), a French poet and ecclesiastic, was born at Marseilles. He obtained, in 1704, the prize of the academy for his "Epistle to the King on the Success of his Arms." He entered into the religious order of the Servites, but afterwards obtained leave to remove into that of Cluny. He wrote several pieces for the theatres, and dramatized the History of the Old and New Testament, the Psalms of David, &c. He is also known as the translator of the works of Horace into the French language. He died in 1745.

PELLEGRINI (Camillo), a learned historian and antiquarian, was born at Capua in 1598. He was educated at the Jesuits' school at Naples, where, besides the usual studies, he acquired an accurate knowledge of civil and ecclesiastical law and theology. He entered into the clerical order; and, having been sent to Rome, he diligently consulted the archives and libraries of that capital, and formed the design of collecting all the ancient documents relating to his native place, and to the whole kingdom of Naples. For this purpose he made many journeys, and

was at great expense in procuring copies of records and manuscripts, and in forming a collection of antiquities. The first fruit of his labours was "L'Apparato alle Antichità di Capua," printed in 1651, in which he minutely describes all the parts of Campagna Felice, and relates its history and several revolutions. He afterwards published a work entitled "Historia Principum Longobardorum," containing the Chronicle of the Anonymus Salernitanus, and several other historical pieces which had not yet seen the light, illustrated with learned annotations and dissertations. This publication was of great service in elucidating the history not only of those provinces of Naples which were under the sway of the Lombard kings, but of all Italy; it was therefore republished in the collections of Burmann and Muratori, and has been re-edited, with various additions, at Naples, 1749, by Sig. Fr. Moria Pratlili. This learned writer published other works on different subjects, and had a great collection of MSS. as well of his own writing as others, which were unfortunately lost to the world by the following incident. Being in a bad state of health, he had given orders to a female domestic, that, when he should be near his end, she should burn a large bundle of papers which he pointed out. One day, overhearing the physicians prognosticate that he had not many hours to live, he too faithfully executed his commands, to his own great regret after he was somewhat recovered. He died at Naples in 1660, at the age of sixty-five.

PELLEGRINO of MODENA, a celebrated Italian painter, born 1511, and bred under Raphael, was killed in an affray.

PELLEGRINO-PELLEGRINI (Tibaldi), a celebrated painter and architect, was born at Bologna in 1527, of a family from the Milanese. He studied in the school of Bagnacavallo in his native place; but his chief education was derived from the works of Michael Angelo at Rome, viewed with the eye of genius. It is not easy to determine whether he ought to be reckoned among painters or architects; for he erected edifices, and ornamented them with his paintings; but he was great in both departments. At his visit to Rome he was patronized by cardinal Poggi, who sent him back to Bologna to finish his palace there, which is now the Academical Institute, and is decorated with his paintings. These, with those of the chapel of St. Jacopo of the Augustine friars, are the principal specimens of his art in Italy, and were the study and imitation of the Caracci. He went from Bologna to Loretto, in the church of which he built a chapel, and ornamented it with stuccos and paintings. At Ancona he gave decorations for two of the churches, and built and adorned the merchants' hall; and he likewise superintended the fortifications of the place as military architect. At Pavia he constructed the Palace of Sapienza, called afterwards the Borromeian College. The city of Milan named him, before 1570, architect of its celebrated cathedral: he disencumbered its dome of gothic ornaments, and in their room enriched it with several elegant chapels, and a majestic choir. Having been engaged by Philip II. to prepare plans for the Escurial, he went into Spain in 1586, and during nine years was employed as architect and painter of that vast edifice. His works would require a volume to describe, and they were amply remunerated with riches and honours. He returned to Milan, where he continued his labours, under the title of ducal engineer, to an advanced age. The year of his death is not exactly known, but it was under the pontificate of Clement VIII. and about the close of the sixteenth century. He was buried in a tomb erected for himself and his family in the dome of Milan.

Tibaldi is regarded as the greatest designer of the Bolognese and Lombard schools. He was called by the Caracci "the reformed Michael Angelo," possessing his grandeur and energy, without his extravagance; and they commended *Del Tibaldi il decoro e il fondamento*, "his decorousness joined with learning." He is principally known

known as a painter by his works in fresco, his pictures in oil being extremely scarce; his pieces in the Institute of Bologna, representing stories from the *Odyssæy* in fresco, are his most remarkable remains. Of these a book has been engraved. *D'Argenville. Pilkington.*

PELLEGRU'É, a town of France, in the department of the Gironde: twelve miles north-north-east of La Reolle, and thirty east of Bourdeaux.

PEL'LEN, a town of Prussia, in the circle of Natangen: sixteen miles south of Brandenburg.

PELLE'NA, in ancient geography, a town of the Peloponnesus, in the Argolide.

PELLENBECK, a village of the kingdom of the Netherlands, in the province of South Brabant; three miles of Louvain on the river Dyle; and till the late peace was included in the (French) department of the Dyle.

PEL'LENDORF, a town of Austria: ten miles west of Zisterdorf.—A town of Austria: eight miles south-east of Vienna.

PELLE'NE, in ancient geography, a town of the Peloponnesus, in Achaia, south of Ariftonautæ. It was built round a mountain, and formed a beautiful amphitheatre. The inhabitants pretended that it took the name from Pallas, one of the Titans; but the Argians with greater probability ascribe its name to Pellenè, the son of Phorbas, and grandson of Triopas, who came from Argos to this place. Water was conveyed to this city by a beautiful aqueduct; and at a small distance was a gymnasium. Near the town was a temple, on a spot consecrated to Neptune. About two leagues towards the south-east from Pellenè was a famous temple of Ceres the Mysian. In its vicinity feasts were celebrated for seven days. Pellenè was defended by a fortress called Olurus towards the south-east, and by the valour of its inhabitants long maintained its liberty; at length it became a part of Sicynonia, retaining its liberty to the time when the Romans took possession of Greece.

PELLENIN'KEN, a town of Prussian Lithuania: nine miles north-east of Interburg.

PELLERIN' (Joseph), an eminent medalist, born at Paris in 1683, was commissary-general of the French marine. Having obtained his dismissal after forty years' service, he devoted the remainder of his life to the study of antiquity. His collection of medals, which was the richest and most valuable that was ever made by a private individual, was purchased by the king in 1776. He contributed to the promotion of the numismatic science by a publication in nine volumes, 4to. enriched with a great number of plates. It consists of a collection of medals of kings, hitherto inedited or little known; a collection of medals of people and towns, inedited or little known; miscellaneous medals; supplements to the above; and letters on medallic subjects. This is reckoned a very valuable work, not only on account of the beauty of the engravings, but of the learned and judicious explanations subjoined. The author died at Paris in 1782, in the ninety-ninth year of his age.

PELLERIN' a town of France, in the department of the Lower Loire, on the Loire, with a harbour for small vessels: nine miles north of Nantes, twelve south-east of Painbœuf.

PEL'LET, *f.* [from *pila*, Lat. *pelote*, Fr.] A little ball.—That which is sold to the merchants, is made into little pellets, and sealed. *Sandys.*—I dressed with little pellets of lint. *Wijeman's Surgery.*—A bullet; a ball to be shot.—The force of gunpowder hath been ascribed to rarefaction of the earthy substance into flame, and so followeth a dilatation; and therefore, lest two bodies should be in one place, there must needs also follow an expulsion of the pellet or blowing up of the mine: but these are ignorant speculations; for flame, if there were nothing else, will be suffocated with any hard body; such as a pellet is, or the barrel of a gun; so as the hard body would kill the flame. *Bacon.*—In a shooting-trunk, the longer it is to a

certain limit, the more forcibly the air passes and drives the pellet. *Ray.*

To PEL'LET, *v. a.* To form into little balls. *Not in use:*

Oft did she heave her napkin to her eyne,
Which on it had conceited characters,
Laundering the silken figures in the brine
That season'd woe had *pelleted* in tears. *Shakespeare.*

PEL'LETED, *adj.* Consisting of bullets:

My brave Egyptians all,
By the discandying of this *pelleted* form,
Lie graveless. *Shakespeare.*

PELLETIER (Bertrand), a very able French chemist, was the son of an apothecary at Bayonne, where he was born in 1761. He received his early education at the college of that city, and distinguished himself from childhood by his ardour for study. At the age of seventeen he came to Paris, and particularly attached himself to the eminent chemist Danet. He soon acquired an extraordinary passion for chemical experiments, to the expenses of which he sacrificed almost the necessaries of life. At length a lover of the science offered him his laboratory, which he gladly accepted, and for more than a year he paid it a daily visit. He had conducted his experiments with so much care and accuracy, that at the age of twenty-one he made himself advantageously known by some observations on the arsenical acid and other substances, printed in the *Journal de Physique* in 1782. In the next year Danet entrusted him with the management of the pharmaceutical establishment of his father-in-law Rouelle. His reputation caused him to be aggregated to the company of apothecaries at Paris earlier than the regulated age; he also took his degrees in medicine; and in 1784 he married. Employing all his leisure in experimental chemistry, he gave to the public successively a variety of memoirs which have perpetuated his name among those of the most ingenious and successful cultivators of the science. Of these, some of the most curious relate to phosphorus. In five papers upon this production, he considers the best method of preparing and purifying it, its powers of decomposing the arsenical acid, and the mode of uniting it with the metals, so as to produce phosphurets of almost all metallic bodies. Other memoirs relate to the analyses of plumbago and molybdena, to acetic ether, to caustic alkalies, oils, and the preparation of soap, to bell-metal, muriate of tin, carbonate of barytes and potassium, and strontian. The latter, with many more, are inserted in the "*Annales de Chymie*," in the compilation of which he was concerned from the year 1792. In the preceding year he had been admitted a member of the Academy of Sciences, an honour which few have obtained at so early an age. After that establishment was suppressed, he was employed by the government in several important commissions. He was in succession a member of the board of consultation for the arts, inspector of the hospitals of Belgium, commissary of gunpowder and saltpetre at Essonne and La Fère, and member of the council for superintending the health of the armies. Notwithstanding his natural weakness of constitution, he made a point of performing all his duties with the utmost punctuality.

When the National Institute had taken the place of all the other academical institutions, Pelletier was called to a seat in it, which he occupied with distinction. During the two last years of his life he was employed to give a course of chemistry in the Polytechnic school; and the clearness, precision, and method, of his lectures were universally admired. His language was simple, pure, and devoid of all ornament foreign to the subject. He exactly described what he had seen and proved; and never suffered his imagination to wander in brilliant theories, or to lead him to exaggerate in his facts. A timid disposition and feeble organization had caused him to undergo several

several severe shocks during the storms of the revolution; and his tranquillity was also occasionally invaded by the claims of other persons to his discoveries, the injustice of which deeply wounded him; but the metallic and carbonic vapours to which he was so much exposed in his experiments were the immediate cause of the pulmonary affection that proved fatal to him. During the progress of it, he felt no diminution of his zeal for chemical science, and was often roused from a fit of low spirits by the sight of some curious preparation. He had determined upon a journey to his native place, which he flattered himself would restore him to health, when, in July 1797, he was carried off at the early age of thirty-six, to the great regret of his friends and the public. He had been made a member of several learned societies, native and foreign, among which were the Academy of Turin, and the Paris and London Medical Societies. His works were published collectively in two volumes, 8vo. Paris, 1798; with an Eloge prefixed, from which the above account is collected.

PELLICAN (Conrad), a learned German divine of the reformed communion, was the son of respectable but not opulent Catholic parents, and born at Ruffach in Alsace, in the year 1478. His family surname was originally *Kürfner* (Skinner), which he changed to *Pellican*. Having been instructed in the rudiments of learning at his native town, he was sent by an uncle to the university of Heidelberg, and supported there for about sixteen months, when, the expense proving too heavy, our young student was obliged to return to his father's house. He now for some time gratuitously assisted his old schoolmaster, and gladly availed himself of the permission which was given him to read the books belonging to a neighbouring convent. Observing his fondness for study, the monks used all their arts to engage him to enter into their community; and by degrees made such an impression upon his mind, that he took the habit in 1493, when he was in his sixteenth year, without the approbation or knowledge of his parents. In this convent he applied with unwearied diligence and distinguished success to the study of the Latin and Greek languages, polite literature, philosophy, and divinity; and in the year 1496, he was sent for further improvement to the university of Tübingen. Here he spent between four and five years in attending the lectures of the different professors; and during this period, with incredible labour for want of proper books, which reduced him to the necessity of constructing a grammar and dictionary for his own use, he made himself a tolerable proficient in the Hebrew language. In the year 1500, John Capnio, who then came to Tübingen, assisted him in greatly improving his acquaintance with this tongue. In 1501, Pellican was ordained priest at Pfortzheim, and immediately returned to the convent at Ruffach. He had now acquired so high a reputation for learning and knowledge, that in 1502 he was appointed professor of divinity in the convent belonging to his order at Basil. This situation was peculiarly acceptable to him, as it proved the means of introducing him to the acquaintance of the eminent literary characters who frequented that city; and also of the learned printers for whom it was famous, who engaged his assistance in editing the complete works of St. Augustine and St. Chrysostom. He contracted an intimacy, in particular, with the celebrated John Froben, who never suffered him to be in want of useful books. In the year 1504, cardinal Raymund, the legate of pope Alexander VI. having been informed of the great merits of Pellican, and tried him by an examination which lasted some hours, created him licentiate in divinity; and with this extraordinary distinction, that, when arrived at the age of thirty, he should succeed to the title of doctor in that faculty, without going through any other forms.

About this time he drew up, at the request of the bishop of Basil, "A Summary of Christian Doctrine," in which he adhered to the Catholic creed, and used the language

of the schools; but his mind was beginning to entertain doubts on the subjects of indulgencies, purgatory, confession, the eucharist, and the papal power. In the year 1508, he was appointed to fill the divinity-chair at Ruffach; and was afterwards elected successively guardian of the convents belonging to his order at Pfortzheim and in that town. While he held these offices, he made himself master of the Chaldee dialect, and read with great attention the Targum of Onkelos on the Pentateuch, and various Jewish commentators on the Old Testament writings. In 1516, he was deputed by his province to attend a general congregation of the Minorite order at Rouen in Normandy; and he was afterwards their representative in a general congregation held at Rome. In 1519, to his great satisfaction, he was appointed guardian of the convent at Basil, and renewed his learned connexions and intimacies in that place. By reading the writings of Luther, which were about this time brought to Basil, the doubts which he had formerly begun to entertain respecting some of the leading tenets of the papal church, were strengthened and confirmed, and he gradually became an entire convert to the doctrine of that great reformer. Under the influence of this change in his principles, he delivered in the pulpit an exposition of the gospel of St. Matthew, which lasted nearly eighteen months, and was attended by crowded auditories, among whom were some of the most learned men in Basil, who heard him with the highest satisfaction, and encouraged him to proceed with his plan. But by this conduct he exasperated the zealous adherents to popery; and in the year 1523, when the provincial Satzgerus visited the convent at Basil, some doctors of the university, and canons of the great church, preferred a charge against Pellican, his vice-guardian, and other members of the fraternity, that they were Lutherans, and encouragers of the books of that daring heretic. By their representations the provincial was determined to remove the accused from their situations; but he was prevented from taking that step by the interference of the senate of Basil, who confirmed them in their places, and appointed Pellican fellow-professor of divinity with Oecolampadius. Some time afterwards, however, in a general congregation of the Minorite order at Landslut, on the representation of Satzgerus, Pellican was removed from the office of guardian; but he still retained his post in the university, and filled the theological chair alternately with his learned colleague. In the mean while, some of his fellow-monks were secretly employed in endeavouring to prejudice the citizens against him; and they carried their hatred to such a length in the convent, that his life was in danger, and he was daily furnished with provisions by friends, that he might not prove the victim of apprehended attempts to poison him. Thus circumstanced, his friends prevailed upon him to consult his personal safety; and in the year 1526, on the invitation of Zuinglius, he privately withdrew to Zurich, where he was appointed professor of divinity and of the Hebrew language. Upon this event he laid aside his cowl, and adopted the common dress of ecclesiastics. To show, likewise, that he finally renounced the papal communion, he followed the example of many of the other clergy who embraced the reformation, by taking to himself a wife. In the same year, he edited a second impression of the "Biblia Hebraica, cum Comment. R. Abraam, Abenezra, et R. Salomonis, in Prophetas;" and also of the "Sepher Michlol," first printed at Constantinople. In the year 1528, he took part in the celebrated disputation at Bern, on the subject of the eucharist; and published a volume of the debates and speeches on that occasion. During the following year he commenced his public exposition of the books of the Old Testament, which employed him till 1539, and exhibited proof of very laborious application, extensive learning, and, particularly, an intimate acquaintance with the Jewish commentators, ancient and modern. This Exposition he afterwards published, in four volumes folio; and then devoted

devoted his labours to an illustration of the New Testament, which he gave to the world in a fifth volume. He had, besides, a considerable share in preparing for the press and editing the Commentaries of Sebastian Meyer upon the Apocryphal Books. Pellican also translated into Latin the Chaldee paraphrases, including the Targum of Onkelos, Jonathan, and Jerusalem, various small talmudical treatises, and Elias Levita's edition of the Masora. He published, in German, "An Exposition of the Pentateuch, Joshua, Judges, Ruth, Samuel, and the Books of Kings." With the hope of introducing the philosophy of Aristotle and Cicero into Germany, he translated several books from their works into the German language; and he bestowed immense labour in editing various commentaries, dictionaries, &c. He died in 1556, about the age of seventy-eight, highly respected for his learning, and esteemed for his integrity, candour, modesty, and simplicity of manners. His works have been collected together, and published in seven vols. folio. *Melchior. Adam. Vit. Germ. Theol. Gen. Biog.*

PELLICER (Josef de Ossau, Salas, y Tobar), a long name of considerable eminence in the literary history of Spain. He was born at Saragossa, April 22, 1602; and inherited a disposition to letters from his father D. Antonio Pellicer de Ossau, who left in manuscript an epitome of Garibay's Great History, and a poem called *Batavia Rebelde*; doubtless of a right Catholic complexion. He took an honorary degree at Alcala, and from thence removed to Salamanca; and at the age of twenty-two took up his residence in Madrid, full of academical honours, and with as much learning as ever so young a man could possibly have acquired. In 1629 he was made chronicler or historiographer of Castille. The states of Arragon named him to the same office for their kingdom; but, as this was already held by Francisco Ximenez de Urrec, it was ultimately decided that the reversion could not be granted. Philip IV. made him amends by creating him Arch-Historiographer for the kingdoms of the crown of Arragon, an office which had been invented for Lupercio Leonardo de Argensola, and which had remained vacant since the death of his brother Bartolous. The duty of this arch-historiographer was to revise and correct the works of the chronicler of the particular kingdoms. As a father honour, the habit of the order of Montesa was given him, and afterwards exchanged for that of Santiago.

These honours did not bring with them corresponding profits, and Pellicer all his life was poor. He died at seventy-seven, worn out, say his biographers, by incessant literary application. He was author of a great number of works, the titles of which, some time previously to his death, filled five folio pages. His learning is generally acknowledged, and his learned works are still consulted by the literati of different countries. *Gen. Biog.*

PELLETIER (James), a French physician, and medical and mathematical writer; born at Mans 1517, died 1582.

PEL'LICLE, *f.* [*pellicula*, Lat.] A thin skin.—After the discharge of the fluid, the *pellicle* must be broke. *Sharp's Surgery*.—It is often used for the film which gathers upon liquors impregnated with salts or other substances, and evaporated by heat.

PELLICULATION, *f.* [from the Lat. *pellicular*, to cover with a pellicle.] A deception. *Cole*.

PELLICULATOR, *f.* A deceiver. *Cole*.

PELLIPA'RIOUS, *f.* [in old records.] A skinner, one that dresses leather.

PELLIS, *f.* [Latin.] The skin of a beast.

PELLISON' (Fontanier Paul), an eminent French writer, born at Beziers in 1624, was descended from a family in the law. He lost his father at an early age, and was brought up by his mother, who educated him in the Protestant religion. He studied successively at Castres, Montauban, and Toulouse; and acquired an intimate knowledge of the best authors in the ancient and modern languages. He applied professionally to the study

of the law, and had already appeared with distinction at the bar at Castres, when he was attacked with the small-pox. This cruel disease left a permanent weakness in his eyes, and so disfigured him that he became a model of ugliness. Under a forbidding exterior, however, dwelt many fair qualities of the mind. He quitted the bar, and retired for some time into the country. He then came to Paris, and made himself known as a man of letters. In 1652 he obtained the place of a king's secretary, and applied with diligence to the affairs of the council, with which he became intimately acquainted. In the same year he read before the French Academy a history which he had composed of that institution, and which was so much approved, that a resolution was made to admit him as a member on the first vacancy, and in the mean time to give him the privilege of being present and speaking at the meetings of the academy. His History was printed in 1653, and many successive editions were given of it. Although too minute and panegyric in the account of authors of little merit, negligent in its style, and not very correct in its facts, it is a curious and interesting performance.

M. Pellison was brought into a conspicuous public situation in 1657, by being appointed first clerk to the celebrated superintendent Fouquet. The financial business into which he was now plunged impaired neither the disinterestedness of his character nor the amenity of his disposition. His services were recompensed in 1660 by admission into the council of state; but in the following year he was involved in the fall of his patron, and, as having been one of his principal confidants, was committed to the Bastille. As it was found impossible to corrupt his fidelity to his former master, attempts were made to worm out his secrets by means of a German, a pretended fellow-prisoner, who concealed craft under a gross and simple exterior. Pellison was aware of his artifices, and treated him with so much politeness, that he converted him into a friend. During his imprisonment he composed three memoirs in favour of Fouquet, which are reckoned among the most eloquent and best-written pieces of the kind in any language, and have conferred lasting honour on his memory. They were, however, the immediate cause of increased rigour in his confinement. He was prohibited the use of ink and paper, and was reduced to write with the lead of his casement upon the margins of books, or to use a kind of ink which he made with burnt crusts tempered with wine. His whole company was a stupid Basque, whose only talent was playing on the bagpipe. With infinite pains he trained a spider to come out of its hole at the sound of this instrument, and take flies from his hand. Books of controversy were another employment of his solitary hours; and he received in the Bastille those impressions which afterwards produced a change of religious profession. He preserved many friends in this forlorn situation; and Tannegui le Fevre had the courage to dedicate to him, whilst in prison, his *Lucretius*, and his translation of Plutarch's *Treatise on Superstition*. At length, after a confinement of four years and a half, he obtained his liberty; and thenceforth, says Voltaire, "he passed his life in lavish praises upon the sovereign who had deprived him of his liberty; a thing seen only in monarchies!" He was taken into favour, obtained a royal pension and a brevet of *entrée*, and was made the king's historiographer. His public recantation of Protestantism, in 1670, was doubtless one of the conditions of this favour. He soon after took the order of sub-deacon, and was presented to an abbacy and a rich priory. It was with some reason, therefore, that he annually celebrated his reconciliation with the church of Rome. He gave a more interesting proof of the goodness of his disposition by commemorating the anniversary of his liberation from the Bastille with the annual release of some prisoners.

In 1671, Pellison delivered at the French Academy, a "Panegyric on Louis XIV." which was translated into

various languages, and even into Arabic by a patriarch of Mount Lebanon. He accompanied his royal master in his campaigns, and for some time was the only man of letters engaged in writing his history; but some offence which he gave to Mad. de Montespan induced the king to give the appointment of historiographer royal to Boileau and Racine, and take it from Pellisson. He was, however, ordered to proceed in his own historical labours; and he produced a "History of Louis XIV. from the Death of Cardinal Mazarine in 1661 to the Peace of Nimègue in 1678," 3 vols. 12mo. It is, as might be expected, more the work of a courtier than of a faithful historian; yet Voltaire speaks with applause of his relation of the conquest of Franche-Comté. Pellisson engaged with great zeal in what was called in France *la grande affaire*, namely, the conversion of heretics. It is to his credit that he disapproved of the dragooning system of proselyting; and he seems to have relied much more on the judicious distribution (which was entrusted to him) of the third of the savings destined by the king for rewards to such as should conform to the established religion. He also employed his pen in controversy, and wrote "Reflexions sur les Differences de la Religion," and "Traité de l'Eucharistie," works composed with art, and in a laudable tone of moderation. Pellisson was made a master of requests, and passed all the latter part of his life in great credit and prosperity. As, in Roman-catholic countries, the last scene of a man's life is generally thought of more consequence than all the preceding part, it was the cause of much regret, and some scandal, that he died (in February 1693) without confession or the usual sacraments. It is probable, however, that this circumstance was rather owing to an unconsciousness of his own danger till too late, than to any doubts respecting his adopted faith. Besides the works above mentioned, he wrote several pieces in verse and prose, among which were, 6. An Abridgment of the Life of Anne of Austria. 7. Lettres Historiques, being a journal of the king's journeys and encampments. 8. Recueil de Pieces galantes. 9. Poésies Chrétiennes et Morales. His poetry is but indifferent; his prose is often eloquent and forcible. *Bayle. Voltaire Siecle de Louis XIV.*

PELLITORY, *f.* An herb. See PARIETARIA.

The *pellitory* healing fire contains,
That from a raging tooth the humour drains. *Tate's Cowley.*

PELLITORY, Bastard. See ACHILLEA.

————— of Spain. See ANTHEMIS.

————— of the Wall. See PARIETARIA.

PELLMELL', *adv.* [*peste-meste*, Fr.] Confusedly; tumultuously; one among another; with confused violence.—The battle was a confused heap: the ground unequal; men, horses, chariots, crowded *pellmell*. *Milton's Hist. of Eng.*

He knew when to fall on *pellmell*,
To fall back and retreat as well.

Hudibras.

PELLO'NIA, in mythology, a goddess invoked at Rome, when her votaries wished to be delivered from their enemies, or from any thing that annoyed them.

PELLOUTIER (Simon), pastor of the French Protestant church at Berlin, member and librarian of the academy in that capital, and ecclesiastical counsellor, was born in 1694 at Leipzig, of a family originally from Lyons. He filled with reputation the posts confided to him, and obtained a high character for erudition by his work entitled "Histoire des Celtes, et particulièrement des Gaulois et des Germains, depuis les Temps Fabuleux jusqu'à la Prise de Rome par les Gaulois." Of this work, which is replete with learned and curious research, the best edition is that of M. de la Bastide, Paris, 1770, in eight vols. 12mo. and two vols. 4to. Pelloutier also enriched the Memoirs of the Berlin Academy, with a number of valuable papers. He died in 1757, universally esteemed for his learning and beneficence.

PELLU'CID, *adj.* [*pellucidus*, Lat.] Clear; transparent; not opaque; not dark.—If water be made warm in any *pellucid* vessel emptied of air, the water in the vacuum will bubble and boil as vehemently as it would in the open air in a vessel set upon the fire, till it conceives a much greater heat. *Newton's Optics.*

PELLUCID'ITY, or PELLUCIDNESS, *f.* Transparency; clearness; not opacity.—The air is a clear and pellucid medium, in which the insensible particles of dissolved matter float, without troubling the *pellucidity* of the air; when on a sudden by a precipitation they gather into visible misty drops that make clouds. *Locke.*—We consider their *pellucidness* and the vast quantity of light, that passes through them without reflection. *Keil.*

PELLUSIN', a town of France, in the department of the Rhone and Loire: twelve miles east of St. Etienne.

PELO'DES, in ancient geography, a port of Epirus, between the gulf of Buthrotori and the promontory of Thyamis.—Also, a gulf of Asia, in Susiana.

PEL'ONIA, *f.* in botany. See ANTIRRHINUM.

PELON'TIUM, a town of Spain, in the Tarragonensis and country of the Lingones. *Ptolemy.*

PELOPE, a town of Asia Minor, in Lydia, on the confines of Phrygia. *Steph. Byz.*

PELOPIDAS, a celebrated Theban general. See the article GREECE, vol. viii. p. 209-16.

PELOPONNE'SIAN, *adj.* Belonging to the Peloponnesus.

PELOPONNE'SUS, a celebrated peninsula, which comprehends the most southern part of Greece. It received this name from Pelops, who settled there, as the name indicates (the Island of Pelops). It had been called before *Argia*, *Pelagja*, and *Argolis*; and, in its form, it has been observed by the moderns highly to resemble the leaf of the plane-tree. Its present name is *Morea*, which seems to be derived either from the Greek word *μορεα*, or the Latin *morus*, which signifies a "mulberry-tree," which is found there in great abundance. See GRÆCIA ANTIQUA, vol. viii. p. 378.

The Peloponnesus was conquered, some time after the Trojan war, by the Heraclidæ, or descendants of Hercules, who had been forcibly expelled from it. The inhabitants of this peninsula rendered themselves illustrious like the rest of the Greeks by their genius, their fondness for the fine arts, the cultivation of learning, and the profession of arms; but in nothing more than by a celebrated war which they carried on against Athens and her allies for twenty-seven years, and which from them received the name of the Peloponnesian war; for a full account of which, see the article GREECE, vol. viii. p. 879-94. The Peloponnesus scarcely extended 200 miles in length, and 140 in breadth. It was separated from Greece by the narrow isthmus of Corinth, which, as being only five miles broad, Demetrius, Cæsar, Nero, and some others, attempted in vain to cut, to make a communication between the bay of Corinth and the Saronic Sinus.

PE'LOPS, a celebrated prince, son of Tantalus king of Phrygia. His mother's name was Euryanassa, or according to others Euprytone, or Eurytemista, or Dione. He was murdered by his father, who wished to try the divinity of the gods who had visited Phrygia, by placing on their table the limbs of his son. The gods perceived his perfidious cruelty, and they refused to touch the meat, except Ceres, whom the recent loss of her daughter had rendered melancholy and inattentive. She ate one of the shoulders of Pelops; and therefore, when Jupiter had had compassion on his fate, and restored him to life, he placed a shoulder of ivory instead of that which Ceres had devoured. This shoulder had an uncommon power, and it could heal, by its very touch, every complaint, and remove every disorder. Some time after, the kingdom of Tantalus was invaded by Trös king of Troy, on pretence that he had carried away his son Ganymedes. This rape had been committed by Jupiter himself; the war, nevertheless, was carried on; and Tantalus, defeated and ruined,

ruined, was obliged to fly with his son Pelops, and to seek a shelter in Greece. This tradition is confuted by some who suppose, that Tantalus did not fly into Greece, as he had been some time before confined by Jupiter in the infernal regions for his impiety, and therefore Pelops was the only one whom the enmity of Tros persecuted.

Pelops came to Pisa, where he became one of the suitors of Hippodamia, the daughter of king Cœnomaus, and he entered the lists against the father, who promised his daughter only to him who could outrun him in a chariot-race. Pelops was not terrified at the fate of the thirteen lovers, who before him had entered the course against Cœnomaus, and had, according to the conditions proposed, been put to death when conquered. He previously bribed Myrtilus, the charioteer of Cœnomaus, and therefore he easily obtained the victory. According to some authors, the horses which drew Pelops's chariot had wings, and they had been given to him by Neptune; the meaning of which is, if we believe Pindar and Palæphatus, that Pelops made use of a ship with sails to carry off Hippodamia.

When Pelops had established himself on the throne of Pisa, Hippodamia's possession, he extended his conquests over the neighbouring countries, and from him the peninsula, of which he was one of the monarchs, received the name of Peloponnesus. Pelops, after death, received divine honours; and he was as much revered among all the other heroes of Greece, as Jupiter was above the rest of the gods. He had a temple at Olympia, near that of Jupiter, where Hercules consecrated to him a small portion of land, and offered to him a sacrifice. The place where this sacrifice had been offered was religiously observed, and the magistrates of the country yearly, on coming into office, made there an offering of a black ram. During the sacrifice, the foothsayer was not allowed, as at other times, to have a share of the victim, but he alone who furnished the wood was permitted to take the neck. The wood for sacrifices, as may be observed, was always furnished by some of the priests, to all such as offered victims, and they received a price equivalent to what they gave. The white poplar was generally used in the sacrifices made to Jupiter and to Pelops.

The children of Pelops by Hippodamia were Pitheus, Troezen, Atreus, Thyestes, &c. besides some by concubines. The time of his death is unknown, though it is universally agreed, that he survived for some time Hippodamia. See HIPPODAMIA, vol. x.

The era of Pelops's arrival in Greece must have been about the 110th or 120th year before the Trojan war. Among other fatalities of Troy, it is said that it could not be taken by the Greeks, unless they had the bones of Pelops; and they therefore sent for them to Pisa where he had been interred. The vessel was shipwrecked in its return; and some time after a peasant found upon the shore the shoulder of that prince, and hid it under the sand. The Elæans having gone to the temple of Delphos to consult the oracle, in order to be delivered from the plague, the priests ordered them to go and dig up the bones of Pelops; and, perhaps in memory of this event, they made an ivory shoulder, which they consecrated to Ceres, and the Pelopidæ bore it afterwards upon their ensigns.

PELO'RIA, in antiquity, feasts instituted and celebrated by the Thessalians. They had a considerable affinity with the Saturnalia; for in these the masters served while their servants sat at table, as in the Chronia celebrated at Athens in honour of Chronos, or Saturn. At the festival of the Peloria, public entertainments were made for strangers, and even for slaves, who were served by their masters: and it is said, that the practice, as well as the feast, originated from this circumstance, that one Pelorus was the person who first gave intimation to Pelægus, that by means of an opening in the valley of Tempè the waters of Deucalion's deluge were removed; which intelligence gave that prince so much joy, that he

regaled Pelorus in a magnificent manner, and insisted upon serving him at table.

PELO'RUS, in ancient geography, now Cape Faro, one of the three great promontories of Sicily. It lies near the coast of Italy; and received its name from Pelorus, the pilot of the ship which carried Hannibal away from Italy. This celebrated general, as it is reported, was carried by the tides into the streights of Charybdis; and, as he was ignorant of the coast, he asked the pilot of his ship the name of a promontory which appeared at a distance. The pilot told him, it was one of the capes of Sicily; but Hannibal gave no credit to his information, and murdered him on the spot on the apprehension that he would betray him into the hands of the Romans. He was, however, soon convinced of his error; and therefore, to pay honour to his memory, he gave him a magnificent funeral, and ordered that the promontory should bear his name, and from that time it was called Pelorum. Some contend that this account is false, and observe that it bore that name before the age of Hannibal.

PELO'SO, a town of Italy, in the Cadurin: seven miles north-east of Cadora.

PELOUAILLE, a town of France, in the department of the Mayne and Loire: five miles north-east of Angers, and fourteen west of Baugé.

PELO'W, a town of Ava, on the left bank of the river Ava: fifteen miles from Prone.

PELT, *f.* [*pellis*, Lat.] Skin; hide.—The church is fleeced, and hath nothing but a bare *pelt* left upon her back. *Bp. Hall's Contempl.*—They used raw *pelts* clapped about them for their clothes. *Fuller's Holy War.*—The camel's hair is taken for the skin or *pelt* with the hair upon it. *Brown's Vulg. Err.*

A scabby tetter on their *pelts* will stick,
When the raw rain has pierc'd them to the quick. *Dryd.*

The quarry of a hawk all torn. *Ainsworth.*—A blow from something thrown; a stroke.—George hit the dragon such a *pelt*! *Ballad of St. George for England.*

To PELT, *v. a.* [*spoltern*, Germ. *Skinner*. Contracted from *pellet*; Mr. Lye. Or from *pellere*, Lat. to drive or push away.] To strike. It is generally used of something thrown, rather with teasing frequency than destructive violence.—Obscure persons have insulted men of great worth, and *pelled* them from coverts with little objections. *Atterbury.*

Do but stand upon the foaming shore,
The chiding billows seem to *pelt* the clouds. *Shakespeare.*

To throw; to cast:

My Phillis me with *pelled* apples plies,
Then tripping to the woods the wanton hies. *Dryden.*

PELT'-MONGER, *f.* [*pellio*, Lat.] A dealer in raw hides.

PELT'TA, *f.* [Greek.] A kind of buckler, used among the ancients. The *pelta* was small, light, and more manageable than the *parma*. It appears from Virgil, and other authors, that the *pelta* was the buckler used by the Amazons; and Xenophon observes, that the *pelta* of the Amazons was shaped like a leaf of ivy. Pliny, speaking of the Indian fig-tree, says its leaves are of the width of the Amazonian *pelta*. Servius on the *Æneid* says, the *pelta* resembled the moon in her first quarter. This small shield, or buckler was used by the Macedonians, Cretans, Africans, and ancient Spaniards. Those who carried shields of this description were called *peludos*.

PELT'Æ, in ancient geography, a town of Asia, in Phrygia. This town was well peopled, and situated at the distance of ten parasangs from Celenes. Cyrus sojourned here three days, and was a spectator of the Lupercalia which Xenias of Arcadia celebrated by sacrifices and games at which the prizes were curryscombs of gold. This town is not mentioned by Xenophon, Strabo, Ptolemy, or Stephanus of Byzantium.

PELTAN' (Theodore Anthony), a learned Jesuit in the

the 16th century, was born at Pelta, in the diocese of Liege, whence he derived his surname, but in what year we are not informed. He became a member of the Society of Jesus in the year 1552; and acquired celebrity by his proficiency in the Latin, Greek, and Hebrew, languages, and his knowledge of philosophy and divinity. When Albert duke of Bavaria founded the University of Ingoldstadt, in 1556, he was appointed professor of Greek and Hebrew literature in that seminary, and discharged the duties of his office with uncommon applause. At different periods he was admitted to the subordinate degrees in the faculty of divinity, and in 1562 proceeded Doctor. Immediately afterwards he was called to the theological chair, which he filled with great reputation till the year 1574; when he retired to the college belonging to his order at Augsburg, where he spent his time in laborious study and writing till his death, which took place in the year 1584. He was the author of a work entitled "Theologia Naturalis, et Theologia Mystica;" together with numerous doctrinal and controversial Treatises, Theses, Propositions, &c. and sundry translations from Greek into Latin. After his death were published from his manuscripts, 2. *Catena Græcorum Patrum in Proverbia Salomonis, Latine facta*, 1604, 8vo. 3. *Commentarii ac Paraphrasis in Proverbia Salomonis*, 1606, 4to. *Sotwelli Bibl. Script. Soc. Jesu.*

PELTA'RIA, *f.* [from the form of the seed-vessel, round and flat, like the *pelta*, or round shield.] In botany, a genus of the class tetradynamia, order siliculosa, natural order of siliquosæ, cruciformes, or cruciferæ. Generic characters—Calyx: perianthium four-leaved; leaflets ovate, concave, erect, coloured, deciduous. Corolla: four-petalled, cruciform; petals obovate, entire, flat, with claws shorter than the calyx. Stamina: filaments six, awl-shaped; of these two opposite, shorter, the length of the calyx; antheræ simple. Pistillum: germ roundish, compressed; style short; stigma simple, blunt. Pericarpium: silicle entire, suborbiculate, compressed flat, one-celled, not opening. Seed one to three, roundish, compressed-flat, emarginate.—*Essential Character.* Silicle entire, suborbiculate, compressed-flat, not opening. There are two species.

1. *Peltaria alliacea*, or garlic-scented peltaria: leaves embracing, oblong, undivided. This is a biennial plant, and generally dies soon after the seeds are perfected. It rises with an upright branching stalk, about a foot high. Leaves heart-shaped, smooth. White flowers terminate the stalk in form of umbels. It is a native of stony mountainous places in Austria, near the lofty Schneeberg. It was introduced into our gardens in the time of Clusius, as he himself mentions; and is still preserved, for the sake of curiosity, in botanical collections; flowering in May and ripening seed a month or six weeks later. The herb when bruised has an unpleasant garlic scent somewhat like that of *Erysimum alliaria*. The seeds are bitter and acrid.

2. *Peltaria Capensis*, or Cape peltaria: stem-leaves quinate-pinnate, linear, somewhat fleshy. Stem upright, branched, round, even, a foot high, leafy. Petals of the flowers white, subemarginate, four times as big as the calyx, spreading, sessile. Seeds in the centre as in *Clypeola*, solitary in each cell, compressed. Native of the Cape of Good Hope.

Jussieu reduces this genus to *Clypeola*, and he is followed by Lamarck; but *P. Capensis* (Linn. Suppl. 296.) has, as Willdenow well observes, a pouch of two cells, with distinct valves and a membranous partition. Its habit is like a *Heliophila*. Whatever it may be, it is no *Peltaria*.

PELTATE, or TARGET-SHAPED, *adj.* in botany, having the stalk inserted in the disk of the leaf, and not in the edge.

PELTER, *f.* A pinch-penny; one withered with vetousness: a mean paltry wretch. *Not now in use.*

PELTING, *adj.* "This word in Shakespeare signifies,

I know not why, mean; paltry; pitiful." Dr. Johnson.—"The word is not peculiar to Shakespeare: it is used by writers before and after him; and appears to have been common." Todd.—They shall not suffer, that any of these light wanderers in markets, and *pelting* sellers, which carry about and sell pinnes, points, and other small trifles, whom they call pedlars, to set out their wares to sale, either in the church-yeardes, or in the porches of churches. *Booke of Certaine Canons, &c.* 1571.—Abused and baffled by every *pelting* paultry lust. *Hammond.*

Could great men thunder, Jove could ne'er be quiet;
For every *pelting* petty officer
Would use his heaven for thunder. *Shakespeare.*

PELTING, *f.* Assault; violence:

Poor naked wretches wheresoe'er you are,
That bide the *pelting* of this pitiless storm,
How shall your houseless heads, and unfed sides,
Your loop'd and window'd raggedness, defend you!
Shakespeare.

PELTRY, *f.* [*peltric*, old Fr.] Furs or skins in general.—The profits of a little traffick he drove in *peltry*. *Smollet.*

PELTU'NUM, in ancient geography, a town of Italy, in the territory of Samnium.

PEL'UA, a town of Illyria, on the route from Sirmium to Salonæ, between Salva and Æquum, according to the Itinerary of Antonine.

PELU'CHE, or **FELUD'SJE**, a small island in the north-west part of the gulf of Persia, near the coast of Arabia: ten miles east of Koueit. Lat. 29. 45. N. lon. 48. E.

PEL'VIS, *f.* [Lat. a basin.] A large irregular bony cavity, open above and below, and forming the inferior end of the trunk of the human body. At the upper and back part its parietes support the vertebral column, and they are sustained below and towards the front by the thighs, to which they transmit the weight of the body; thus a well-marked space, which measures the immediate base of support of the trunk, is left between the plane of the limbs and of the spine. In a well-formed individual, the pelvis divides the body into two equal halves: that is, if a line be drawn across its middle, the upper and lower portions of the body have the same length. This rule, however, is subject to some exceptions: the lower limbs are imperfectly developed in the fœtus; and, in unusually tall or short adult individuals, the lower extremities or the trunk exceed the just proportion.

The pelvis is symmetrical, but of a figure not easily defined. It forms, by its upper portion, a cavity nearly oval in the transverse direction, expanded at the sides, and hollowed out in front, communicating by an elliptic opening, called the superior aperture, with its lower portion, which is much smaller in size, and ends below by an opening called the inferior aperture.

The position of the pelvis is oblique, the back part being considerably higher than the front: this obliquity is well seen in the superior aperture, which slants very manifestly from above downwards and forwards: the inferior aperture looks downwards and backwards. Soemerring states, that in the erect attitude the last bone of the coccyx is an inch higher than the inferior edge of the symphysis pubis; and that the promontory of the sacrum is higher than the same point, by the whole depth of the sacrum and coccyx. The axis of the upper or broad part of the pelvis is nearly perpendicular; that of the lower or smaller division slants from above downwards, and from before backwards. It is said to correspond to a line drawn from the apex of the os coccygis to the umbilicus. This line would cut the level of the pelvis nearly at a right angle; that is, the meeting of the two lines would form an angle of 75 degrees in front, and of 105 behind. The weight of the trunk being obliquely transmitted to the thighs, in consequence of this inclination of the pelvis, it follows, says Bichat, that the latter is the seat of a decomposition of motion in this transmission,

mission, proportioned to the degree of inclination, which is about thirty-five or forty degrees at the upper part, where we can easily estimate it by the line, which extends from the sacro-vertebral articulation to the upper edge of the symphysis pubis.

The capacity of the pelvis differs remarkably in man and woman. It is manifestly larger in the latter in every direction: thus the two iliac crista, the two anterior and the two posterior spines, the cotyloid cavities, the tuberosities of the ischia, &c. &c. are further apart. These are all transverse measurements; and those from before backwards are greater, as we may see in measuring from the sacrum to the pubes, from the anterior to the posterior spine, from the sacro-iliac articulation to the foramen ovale, &c. The oblique measurements, from one side to the other, are also larger in the female. The superior aperture often exhibits deviations from the accustomed arrangement, in the diminution of its diameters subsequently to birth; and these are generally caused by rachitis, which exerts its effects more on the antero-posterior than on the transverse or oblique diameters, because the weight of the upper parts, transmitted by the spine, is the principal exciting circumstance.

The breadth of the pelvis in the female produces some difficulties in progression; but the passage of the child in parturition is facilitated. It performs an important part in this function, besides having the same offices as in man, viz. those of forming the basis of support to the trunk, and of containing and protecting the viscera.

The comparative height of the pelvis in the male and female is exactly the inverse of the breadth. The measurement from the crista of the ilium to the tuberosity of the ischium, the depth of the symphysis pubis, and the length of the canal formed by the smaller pelvis, are considerably greater in men than in women. There are some individual varieties in the dimensions of the pelvis, but they depend very little on stature. Parturition is as easy in small as in large women, although the former frequently produce very large children. See the article *PARTURITION*, vol. xviii. p. 691.

The pelvis is formed of few but very broad bones, united in such a manner as not to admit of motion on each other: it can be moved therefore only all together, and not partially. Four bones enter into its composition: two posterior, symmetrical, and placed on the middle line, are the sacrum and coccyx; two anterior and irregular, transmit to the thigh-bones the weight of the trunk, which they have received from the sacrum; they are the ossa innominata. The sacrum and coccyx, placed at the back of the pelvis, form a continuation of the vertebræ, and are constructed on a mode similar to that of the vertebræ. In most quadrupeds this prolongation of the spine is much more extensive, and forms the tail, which goes considerably beyond the anus; while in man, that opening is situated a little farther than the end of the coccyx.

The organs contained in the cavity of the pelvis are excellently protected from all external shocks. The kind of arch formed by the ossa pubis in front, the thick muscles, the hip-joints, and the trochanter, at the sides, and the muscular masses of the spine behind, constitute an effectual provision for the resistance of injury. The projection of the ossa innominata beyond the sacrum behind, protects the latter bone in cases of blows or falls on his part of the pelvis. See the article *ANATOMY*, vol. i. p. 548, 617. and *PARTURITION*, vol. xviii. p. 691.

PE'LUS, in ancient geography, the name of an island, situated in the vicinity of that of Chios.—Also, a mountain of Italy, in Etruria.—Also, a torrent of Sicily.

PE'LUS, a town of Persia, in the province of Mecran: fifty-four miles north-north-east of Kieh.

PELU'SIUM, in ancient geography, a town of Egypt, at the eastern extremity of the lake Menzalé, near one of the mouths of the Nile, and, according to Strabo, about two miles from the sea. Its name, which in Greek fig-

Vol. XIX. No. 1322.

nifies *mud*, proves its situation to be in the midst of lakes and marshes; as does also the Hebrew term *Sin*, by which the prophet Ezekiel denominates it; and also the *Tinch* of the Arabians. The period of its foundation, as well as that of the other ancient cities of Egypt, is lost in the obscurity of time. It flourished long before Herodotus. As it commanded the entrance of the country on the side of Asia, the Pharaohs rendered it a considerable fortress: one of them raised a rampart thirty leagues in length, from the walls of this town to Heliopolis. This rampart, which covered Pelusium, did not, however, stop Cambyfes, who attacked it with a formidable army. Cambyfes, after a bloody battle, in which he slaughtered his enemies, entered Pelusium in triumph. Herodotus, who visited Pelusium some years after the conquest of Cambyfes, says that he surveyed the plain where the two armies had fought, and found it covered with human bones collected in heaps; those of the Persians on one side, and those of the Egyptians on the other. Pelusium, after passing under the dominion of Persia, was taken by Alexander. The brave Antony, general of cavalry under Gabinius, took it from his successors; and Rome restored it to Ptolemy Auletes. Pompey, after the fatal battle of Pharsalia, took refuge at Pelusium; but he had scarcely landed on the shore, when he was murdered. The assassins cut off his head, sent it to Cæsar, and left his body naked on the shore. Pelusium was often taken and pillaged, during the wars of the Romans, the Greeks, and the Arabs; but, in spite of her disasters, she preserved, to the time of the crusades, her riches and her commerce. The Christian princes, having taken it by storm, sacked it. It never again rose from its ruins, and the inhabitants went to Damietta.

Farama, founded by the Arabs, a little to the eastward of Pelusium, took place of it. But this town did not long subsist, for it was destroyed in the 13th century. It had a mausoleum, which some have erroneously supposed to be the tomb of Galen, but which in reality was that of Pompey, placed by Pliny at some distance from Mount Cæsus, in the vicinity of which are the ruins of Farama. See *Savary's Travels in Egypt*.

PELU'SO, a small island in the Mediterranean, near the coast of Natolia. Lat. 36. 45. N. lon. 28. 36. E.

PE'LYN, a village in Cornwall. See *LESTWITHEL*.

PEMAQUID', a bay on the coast of Maine, containing several small islands. Lat. 43. 45. N. lon. 69. 30. W.

PEMAQUID' POINT, a cape on the coast of Maine. Lat. 43. 37. N. lon. 69. 30. W.

PE'MAR, a town of Sweden, in the province of Fiåland: twelve miles east of Abo.

PEMA'RO, a town of Etruria: fifteen miles east-south-east of Leghorn.

PEM'BA, a province of Congo, bounded on the north by the province of Sundi, on the east by Batta, on the south by Bamba, and on the west by Songo. Some divide the province into two; one called the province of St. Salvador, and the other the marquise of Bamba, from the chief towns. The land is generally fertile, particularly towards the east. See *BAMBA*, vol. ii.

PEM'BA, or *PENDA*, an island in the Indian Sea, near the coast of Africa; about 100 miles in circumference, governed by a king, tributary to the Portuguese. Lat. 5. 55. S. lon. 42. E.

PEM'BA BA'Y, a bay of the Indian Sea, on the coast of Africa. Lat. 13. S.

PEM'BERTON, a village in Lancashire. The number of inhabitants 2309, of whom 1366 are employed in trade and manufactures: two miles south-south-west of Wigan.

PEM'BREY, a village and district in South Wales. The earl of Aghburnham has reclaimed 500 acres of fine rich marsh-land from the constant overflow of the tide at this place. The length of the bank is two miles and a half; in many parts it is 12 feet high, and the base 84 feet wide. Sept. 1818.

PEM'BRIDGE, a town in the county of Hereford, on the

the Arrow; with a manufacture of woollen cloth, a weekly market on Tuesday, and fairs May 12 and Nov. 22. The number of houses, in the year 1821, was 288, and of inhabitants 1138. It is fifteen miles north-north-west of Hereford, and 145 north-west of London. Lat. 52.19. N. lon. 2.48. W.

PEM'BRIDGE POINT, a cape on the east coast of the Isle of Wight. Lat. 50.42. N. lon. 1. 56. W.

PEM'BROKE, a township of America, in Plymouth county, Massachusetts; thirty miles south by east from Boston; incorporated in 1752, and containing 2051 inhabitants. Some vessels have been built here.—Also, the *Suncook* of the Indians, a township of Rockingham county, New Hampshire, on the east side of Merrimack river, opposite to Concord; incorporated in 1759, and containing 1153 inhabitants.

PEM'BROKE, a borough and market town in the county of Pembroke, South Wales, situated on a singular neck of land, dividing the small estuary of Down-Pool, which flows from Milford-haven. It is the county-town; and, next to Caermarthen, is one of the largest and richest towns in the southern division of the principality. The period of its foundation is unknown; but it is certainly of great antiquity, and is supposed to have derived its name from the British word *Penfro*, signifying a cape, or promontory. It was anciently fortified, and protected by a most magnificent castle, the vast ruins of which still give it an appearance of uncommon grandeur; and was likewise defended by a strong wall, still nearly entire, on the northern side, where it is flanked by numerous bastions of great thickness and strength. Through this wall were formerly three gates, on the east, north, and west, sides; besides a small postern on the south side, leading to the marsh. Of these gates, that facing the north is the only one now standing; the other two having been long since destroyed. The east gate, which remained in Leland's time, is described by him as consisting of solid iron, and as being highly ornamented and fortified.

The corporation of Pembroke is composed of a mayor and council, two bailiffs and serjeants at mace, and about 1500 burgesses. The mayor holds a court every fortnight for the decision of civil causes arising within his jurisdiction. Here are also held the petty sessions for the hundred of Castle-Martyn. The markets are on Wednesday and Saturday; and the fairs on the 14th of May, Trinity Monday, St. Peter's day old style, and 25th of September. Pembroke, in conjunction with the neighbouring boroughs of Tenby and Wiston, sends one member to the British parliament: the mayor is the returning officer. The voters are estimated at 500 in number; and these boroughs have been represented by the family of Owen, of Orielson-house, barts. and by persons nominated by them, ever since the restoration of Charles II. in 1660. This family having become extinct in the direct male line, their estates have been bequeathed to John Lord, esq. a grandson in the female line, who has assumed the name of Owen, and was created a baronet in 1813. This gentleman is at present member for the county, and patron of this district of boroughs.

According to the population-returns of 1811, this town contained 501 houses, and 2415 inhabitants; in 1821 it had 4925 inhabitants. The houses are ranged principally in one long street, which extends from east to west along the ridge of a hill, and is terminated by the castle at the west end; bearing in general appearance, but on a smaller scale, a strong resemblance to the towns of Edinburgh and Stirling in Scotland. The public buildings are a town-hall, a free grammar-school, and two parochial churches, dedicated to St. Mary and St. Michael. St. Mary's church stands near the centre of the town, and consists of a nave, chancel, and north aisle, with a small chapel to the south. St. Michael's bears evident marks of great antiquity. The architecture is a rude specimen of the Norman style, the arches being massive, and round-

ed, and entirely destitute of ornament. Both these churches are consolidated with that of Monckton in one vicarage, the impropriation and presentation of which belong to viscount Hereford, as proprietor of Monckton-priory and its estates. Attached to St. Michael's was a chapel, or hospitium, dedicated to St. Mary Magdalen, the ruins of which are now vulgarly known by the name of the Marlan's Chapel. St. Mary's had likewise its chapel, called St. Anne's; but this edifice is now nearly demolished.

The castle, as already mentioned, forms the western extremity of the town, occupying a rocky termination of the ridge on which it is placed. It is a noble ruin, and exhibits, in certain points of view, one of the finest subjects for the pencil which Wales can boast of. The fortrefs, according to Caradoc of Llancarvon, was founded in 1092, by Arnulph de Montgomery, son to the earl of Shrewsbury, on the site of a more ancient British work. It seems, however, to have received great additions in the reigns of Henry I. and Giraldus even refers its foundation to that period; though he acknowledges the existence of another much more slender erection of anterior date. During the wars with the Welsh it was frequently besieged; but, owing to its great artificial strength, and almost impregnable natural position, it seems to have resisted successfully all the efforts of the assailants to reduce it. Oliver Cromwell also besieged it in person, and compelled its garrison to surrender, after a long and vigorous attack. From the period of its surrender, Pembroke castle has been much neglected, and is now so ruinous as to be uninhabitable. It is divided into two parts, called the inner and outer wards; the former of which comprises the keep and the state apartments; and the latter, the buildings formerly appropriated to the garrison; though over the principal gateway from the town, and within it, there are also some very handsome apartments. Here, according to Leland, was "the chambre where king Henri VII. was born, in knowlege whereof a chimney is new made, with the arms and badges of king Henri VII." This honour, however, is traditionally given to a room in a very splendid suite of apartments built over "the marvellous vault, entitled the Wogan, or Hogan," which is cut out of the solid limestone rock, and forms one of the most extensive and lofty excavations of its kind in Great Britain. Its figure approaches that of a circle, the diameter from north and south being 76 feet 8 inches, and from east to west 57 feet 4 inches. The natural opening, which was of great width, is built up, and contracted into a small door-way, that appears to have been once strongly barricaded. Above are the marks of four loop-hole windows, and of another door-way, now stopped up. Of the uses to which this vault was applied there is no account upon record, but it was most likely a dépôt for stores of every kind; "the stuffura of the garrison." At its south-east corner is an adit, traditionally said to communicate with Tenby; and under the south-east bastion of the castle is another very curious passage, in some parts spacious, and in others extremely narrow, which has been explored to a considerable distance, but its termination is not known. This last is doubtless, however, in a great measure a natural duct; apertures of a similar kind frequently appearing in most limestone rocks. It is supposed by some to penetrate under the keep that rears its proud head in the centre of this magnificent ruin, terminating, as Leland observes, "with a rose of stone, almost in conum, the toppe whereof is keverid with a flat millstone." This building is 75 feet in height to the dome, and in girth 163 feet 7 inches at the base, the mean thickness of the wall being about 14 feet. It is divided into four stories.

Pembroke is distant from Caermarthen thirty miles, Haverfordwest ten, Narbeth fifteen, Tenby ten, Coheston two, Jameston four, St. Florence eight, Lamphay two, Hundleon two, Pwllchrochan six, Templeton twelve, Hubberstone eight, Angle ten, Lawrenny four, Manerbear

bear five, Hodgeston four, Stackpool four, Jefferston nine, and from London 237 west. Lat. 51. 37. N. lon. 5. 0. W.

On the south-east side of the town of Pembroke is the village of Monckton, so called from its having been the site of an ancient priory, founded by William Marshall about the year 1120, as a cell to the Benedictine abbey of St. Martin at Sayes, in Normandy. Part of the priory-church is still entire, as is likewise the prior's mansion; but the other buildings are in a state of great decay. From the varied style of the church, it has evidently been erected at different periods. That portion of it which is now appropriated to public worship, is completely modernized within, and scarcely a vestige of its former ornaments remains. This structure has long been the burying-place of the Owens of Orielson, and probably also of their predecessors the Wyrriots, as some early monuments of the latter family still appear here.

The village of Castle-Martyn is situated about three miles to the westward of Pembroke. This place was formerly adorned with a magnificent castle, erected by some Norman chieftain of the name of Martyn, on the site of an extensive British earthen-work. Few vestiges of that pile now remain, but they appear to have been pretty considerable in the time of Leland.—Between this village and the county-town is a furzy moor, called Dry-Burrow, which is covered with tumuli, similar to those on the downs of Wiltshire.—Northwards from the moor stands Orielson, the seat of the Wyrriot and C-wen families; and beyond it is the village of Pwllcrochon, memorable for a skirmish between the royal and parliamentary forces, in March 1648. In the church are several ancient monuments, in honour of the Benegers of Bangeston.—In the adjoining parish of Rhôfcrowther is Jestington, the residence of a branch of the royal family of Wales previous to the conquest: it is now the property of the family of Meares.—Further to the westward is the village of Nangle, which was formerly a place of very considerable consequence, and had a castle attached to it, some vestiges of which are still visible near the extreme point of the curved promontory, which forms the bay of Nangle.

Cressely, the seat of John Hensleigh Allen, esq. M. P. for the town, is situated about two miles and a half to the west of Pembroke. The house occupies an elevated site, overlooking the river Cresswell. Beyond this, on the same road, stands Carew-castle, one of the most conspicuous features of this county, and celebrated as the residence of characters of great distinction at different eras. It was a royal residence, and formed part of the dowry of Nesta, daughter of Rhys ap Tewdor, who married Gerald de Windsor, lieutenant to Henry I. after the outlawry of Arnulph de Montgomery. The descendants of this lady took the name of Carew, and continued to possess the castle till the reign of Henry VIII. when it reverted to the crown, and was granted to sir John Perrot. In the time of the rebellion it was garrisoned for the king, and withstood a long siege; but, after the ill success of the royalists at Tenby, it surrendered upon quarter. Subsequent to that period it has been suffered to go to decay, and now constitutes a most magnificent and picturesque ruin. Its form is that of a quadrangle, with a court in the centre, and an immense bastion at each exterior angle. The architecture of this pile belongs to various ages, but a great part of it is undoubtedly coeval with the original structure. The north front is peculiarly grand and majestic, and can boast of windows "than which nothing more nobly magnificent is known in the kingdom." On the south-west side appear a number of old towers, all differing from each other in height, diameter, and form. On three sides this castle is bounded by water, but to the south was formerly a very extensive deer-park, the outer wall of which is yet apparent in many places, though it is divided into several distinct inclosures, in one of which sir Rhys ap Thomas held a tilt and tournament, which was the first show of the kind recorded to have been exhibited in Wales. Near this spot

stands one of the early crosses, richly ornamented with true-love knots, &c. and having an inscription upon it, which, though often copied, and submitted to the examination of the curious, has never yet been accurately deciphered. The church here contains several ancient monuments, with effigies and inscriptions in memory of various members of the Carew family.

Lamphey, or Lanfey, was once the favourite palace of the bishop of St. David's. The ruins of this palace are situated a short distance out of the road (on the north side) between Pembroke and Tenby. They occupy an extensive plot of ground; and though, literally speaking, in ruins, and every part uninhabitable, yet large and comparatively perfect portions of the principal buildings are left standing, the plain substantial walls of which are covered with thick masses of luxuriant ivy. The great hall towards the south is plain both within and without, and appears never to have been richly ornamented; but the arches of its windows and doors have well-carved mouldings, and an arched parapet extended round the building. The original entrance-gateway is entire, excepting its roof. The lower part has a modern inclosure, and is used for the purposes of a shed. But the most ornamental portion of these ruins is the chapel, a short distance from the north-east angle of the hall, which still retains its east window with the tracery uninjured. Towards the east end of the hall is the kitchen, with a large circular chimney, strongly maintaining its erect position above the ruins of surrounding walls. There are numerous other offices and buildings distributed over a large uneven area of ruins; but none are ornamented more than, and few of them so much as, those described: from which it appears that this noble palace, when perfect, had but little architectural decoration to enrich its spacious walls, and was greatly inferior to the residence in the city, though perhaps superior to any other of the episcopal palaces.

Stackpool-court, the seat of lord Cawdor, also deserves mention. It is built on the site of a former castellated structure, and is certainly one of the most splendid modern mansions in Wales. It has two fronts, and is surrounded by very extensive and well-wooded pleasure-grounds, which are further adorned by a beautiful lake, and most luxuriant gardens. The estuary of Stackpool being the only safe and commodious landing-place on this coast, it was much frequented by the predatory chieftains of ancient times, and particularly by earl Harold, some of whose successes are supposed to be commemorated by three large upright stones, which are fixed here at the distance of about a mile from each other. *Beauties of England and Wales. Wilkes's British Directory. Oldfield's Repr. Hist. Gent. Mag.* April 1820.

PEM/BROKESHIRE, one of the southern counties of Wales, is bounded on the south by the Bristol Channel, on the west and north by St. George's Channel, and on the north-east and east by the counties of Cardigan and Caermarthen. It is irregular in its form, and deeply intersected throughout its extensive coast by bays and havens. Its extreme length from north to south is about 35 miles, and its greatest breadth from east to west 29. According to the most accurate surveys, its superficial content amounts to 335,600 acres. According to the population report of 1811, this county is divided into the hundreds of Castle-Martyn, Dewisland, Dungleddy, Kemess, Kilgerron, Narberth, and Roofe; and contains the city of St. David, and three towns, Pembroke, Haverfordwest, and Tenby; it also comprises 142 parishes, and 3 hamlets. The number of houses in 1811 was stated to be 13,024, inhabited by 60,615 persons, viz. 27,453 males, and 33,162 females. The population in 1821 had increased to 74,009 persons. The amount of assessment under the property-tax in 1806 was 322,700*l.* and the amount of money raised for the maintenance of the poor in 1803, was 13,213*l.* at the rate of 11*s.* 8*d.* in the pound. The average scale of mortality, according to the registered

registered burial for ten years, appears to have been as 1 to 70 of the existing population.

At a very remote period this county formed part of the kingdom of Demetia, or Dyvet, which subsisted as an independent monarchy till conquered by Ethelwolf king of England. Brodhmael, king of Demetia, is mentioned as one of the princes who assisted Cassibelanus in compelling Julius Cæsar to evacuate Britain. How far this ancient kingdom extended is uncertain; some supposing it to have comprised the three counties of Cardigan, Caernarthen, and Pembroke; and others, that it was confined to the last-mentioned county only. In the time of the Danish incursions, this county suffered more injury than perhaps any other in the principality. Among the chieftains who commanded in these depredations were Hubba and Ivar, or Inguar, both of whom are described by the old writers as men of the "most dreadful ferocity, and unheard-of courage."

The name of Pembrokeshire, or rather Pembrochshire, was first given to this county shortly after the Norman conquest, and was evidently derived from that of the town. In later times, Milford, a port in this county, is remarkable as having been the landing-place of Henry earl of Richmond, afterwards king Henry VII. when he came from Brittany to wrest the throne of England from the usurper Richard III. During the era of the civil wars in the reign of Charles I. several of its castles, particularly those of Pembroke and Roch, were garrisoned for the king, and withstood long and obstinate sieges in the royal cause. Some skirmishes likewise appear to have been fought within Pembrokeshire at the same period, and with various success. See MILFORD-HAVEN, vol. xv. p. 370.

A considerable tract of Pembrokeshire, consisting of the country which lies west of Milford-haven, and between that bay and the Irish Sea, is called by the Welch *Rhos*, which signifies a large green field. King Henry I. settled in this district a colony of Flemings, who came over into England upon an inundation of the sea, which drowned a considerable part of the Low Countries. These Flemings, being a warlike people, and proving very faithful to the crown of England, were a great check upon the Welch, who often attempted to turn them out and recover their country, but without success; for the Flemings maintained their ground, and *Rhos* is at this day inhabited by their descendants, whose language and customs still differ from those of the Welch.

The aspect of this county presents an almost continued succession of swells, or easy slopes; but there are no mountainous ridges, excepting one which runs from the coast near Fishguard to the borders of Caernarthenshire. These hills are locally denominated "The Mountains," and the inhabitants distinguish the country with reference to them; the north side being said to be "above the mountains," and the south side "below the mountains." The central portion of this ridge is known by the name of Percelly, and its highest summit by that of Cwmkerwyn: it commands a view over the whole county. Another high point is called Carn-Englie, as tradition says, from a giant who occupied it as his place of habitation. Vrenny-Vawr, or Vryn-Vawr, is also of considerable altitude and size, as its name imports; the words *Vryn Vawr* signifying in English the Great Hill. The climate of Pembrokeshire is temperate. Rains are perhaps more frequent here than in any part of England, and are particularly violent during westerly winds. Frosts are neither intense nor of long continuance; nor does snow usually lie upon the ground more than two or three days.

Few counties are better watered with rivers, or are more abundantly supplied with excellent springs. The names of the chief rivers are the Tivy, the Clethy, and the Dougledye. The Tivy is more properly a river of Caernarthenshire. The name of the Clethy is a corruption of the ancient British name *gledheu*, "a sword." This

river rises at the foot of the hill called Vrenny Vawr, some miles east of Newport; and, running south, falls into the mouth of the Dougledye, and its conflux with a bay of the sea near Pembroke, called by the English Milford-haven, but by the Welch *Aber dau Gledheu*, or the Haven of Two Swords. The name of the Dougledye is also a corruption of the original British name *Dau Gledheu*, two swords. It rises some miles north-east of the city of St. David's, and, running south-east, and passing by Haverfordwest, falls with the river Clethy into Milford-Haven, as mentioned already. The less considerable rivers of this county are the Cwch, which divides Pembrokeshire from Cardiganhire; the Nevern, which flows by Newport; and the Gwain, which falls into the sea at Fishguard.

The mineralogical products of Pembrokeshire are coal, limestone, freestone, and that "species of marble called pudding-stone." No metallic ores, except iron, we believe, have yet been discovered here; at least none of any consequence in a commercial estimate. Some mineral springs, particularly one in the parish of Fishguard, however, are strongly tinged with that metal; and on the Trefin are several works of iron and tin. The soil is various, but in general tolerably fertile. The state of agriculture, however, is defective; and, though much improved within the last few years, it is still susceptible of great amelioration. Woods are rather scarce in this county, particularly towards the western coast, where, being much exposed to the winds blowing from the sea, they are shorn in a very curious manner. Cattle are reared in considerable numbers, and a large quantity of butter is made, both for home-consumption and for exportation.

Pembrokeshire cannot boast of being either a manufacturing or a trading county; though it possesses manifest advantages, for commerce at least, in its numerous natural harbours and great extent of coast. Haverfordwest is the only town within its limits which has a cotton-manufactory of any consequence; and all the attempts hitherto made for the introduction of the linen-business have completely failed. Milford and Fishguard alone can justly claim the appellation of trading-ports; and even in these towns the exports and imports are extremely limited; but they are certainly susceptible of great augmentation, with a very little exertion and expense. Indeed we have no doubt, but that, if the spirit of manufacturing and commercial enterprise were once properly excited and fostered, Pembrokeshire would, from its natural advantages of situation, soon become the trading emporium of Wales. At Milford has lately been established a South-Sea whaling, which is in a flourishing condition; and we are happy to observe, that the same thing may be affirmed of the herring-fishery of Fishguard, though it might be improved to an almost unlimited extent.

There is a peculiarity in the dress of the Pembrokeshire women, who, even in the midst of summer, wear a heavy cloth gown; and, instead of a cap, a large handkerchief wrapt over their heads, and tied under their chin. This custom is certainly peculiar to Pembrokeshire; for in the other parts of Wales the women as well as the men, wear large beaver hats, with broad brims flapping over their shoulders.

Pembrokeshire was formerly a county palatine within Wales, and its earl was *comes palatinus*, and had *jura regalia*. Its jurisdiction was taken away by the statute 27 Henry VIII. which enabled it to send one knight of the shire, and two burgeses, one for Pembroke, &c. and one for Haverfordwest. The political interest in this county has been disputed between lord Cawdor and sir John Owen. At the general election in 1812, there was a contest between sir John Owen and the hon. Mr. Campbell, eldest son of lord Cawdor, which terminated in favour of the former, who has maintained his seat ever since, although lord Milford had represented the county in the eight preceding parliaments, and was always chosen in opposition to the Owen interest.

Pembrokeshire abounds with objects of antiquarian curiosity and interest, of almost every kind and era. Druidical circles and cromlechs are frequent, of which the principal are those near Cattle-Hendrev, Drewson, Trellys, Long-house, Lech-y-dribedd, Pentre-Evan, and Cattle-Martyn. Single stone monuments are also numerous, particularly along the coast, where they are conjectured to have been raised as memorials of predatory battles. The great Roman road to Menapia, St. David's, enters the county near Llandewi-Velfry, and proceeds by Haverford-west and Roch-Castle, almost on the same line with the present turnpike-road from Caer-marthen, which it crosses at different points. Another Roman road led from the great road to the station called Ad-Vicifimum. But the most important antiquities are its castles, of which there are nineteen mentioned as belonging to princes and great barons. Some of the churches in this county are likewise objects worthy the attention of the antiquary. The cathedral and palace of St. David's are particularly entitled to attention. See SAINT DAVID'S; also Norris's Architectural Antiquities of Wales, 4to. Fenton's Historical Tour in Pembrokeshire, 1811. Cambrian Register for 1796. Camden's Britannia, vol. ii. British Directory, vol. iv. and Universal Magazine for April 1766.

PEMIGEWASSET, a river of New Hampshire, which, united with the Winipisokee, forms the Merrimack river.

PEMISSISQUEWAK'EE, a river of the district of Maine, which runs into the sea in lat. 44. 23. N. lon. 68. 20. W.

PEMNAGUR', a fort of Hindoostan, in Bahar: thirty-one miles north-west of Durbungah. Lat. 26. 29. N. lon. 85. 43. E.

PEMPHIS, *f.* in botany, a genus of plants, so named by Forster from *πεμψις*, a globule, in allusion to the globular protuberance of the germen above the calyx, or of what, in Linnæan language, is the receptacle of the flower. This genus consists of but one species, which is the *LYTHRUM pemphis*, already described in vol. xiii. p. 849.

PEN, *f.* according to Camden, originally signifies a high mountain, which was thus called among the ancient Britons, and even the Gauls. And hence that tall range which parts Italy and France is called *Apennines*.

PEN is often used for a pound, or head of water artificially kept up. Hence *Pen Stock*, a sort of sluice or flood-gate placed in the water of a mill-pond, or a canal, to retain or let it go at pleasure.

PEN, *f.* [*penna*, Lat.] An instrument for writing. — He remembers not that he took off *pen* from paper till he had done. *Fell*.

Eternal deities!

Who write whatever time shall bring to pass,
With *pens* of adamant on plates of brass. *Dryden*.

He takes the papers, lays them down again;
And, with unwilling fingers, tries the *pen*. *Dryden*.

Feather; [*penna*, old Fr. Old also, in this sense, in our own language; and still so used in the north of England. Wicliffe employs it.] — The proud peacock, overcharg'd with *pens*. *B. Jonson's Staple of News*.

The *pens* that did his pinions bind,
Were like main-yards with flying canvas lin'd. *Spenser*.
Wing; though even here it may mean *feather*.

Feather'd soon and fledg'd,
They summ'd their *pens*; and, soaring the air sublime,
With clang despis'd the ground. *Milton's P. L.*

[From *pennan*, Sax.] A small inclosure; a coop. — The cook was ordered to dress capons for supper, and take the best in the *pen*. *L'Esrange*.

Ducks in thy ponds, and chickens in thy *pens*;
And be thy turkeys numerous as thy hens. *King*.

As long as people wrote upon tables covered with wax, they were obliged to use a style or bodkin made of bone, metal, or some other hard substance; but, when they began to write with coloured liquids, they then employed a reed, and afterwards quills or feathers.

It is rather astonishing, that we are ignorant what kind of reeds the ancients used for writing, though they have mentioned the places where they grew wild, and where, it is highly probable, they grow still. Besides, we have reason to suppose, that the same reeds are used even at present by all the oriental nations; for it is well known, that among the people of the east old manners and instruments are not easily banished by new modes and new inventions. Most authors who have treated on the history of writing have contented themselves with informing their readers that a reed was employed; but that genus of plants called by the ancients *calamus*, and *arundo*, is more numerous in species than the genus of grasses, to which the corn of the ancients belongs; and it might perhaps be as difficult to determine what kind of reed they employed for writing, as to distinguish the species of grain called *far*, *alica*, and *avena*.

The most beautiful reeds of this kind grew formerly in Egypt; near Cnidus, a city and district in the province of Caria, in Asia Minor; and likewise in Armenia and Italy. Those which grew in the last-mentioned country, seem to have been considered by Pliny as too soft and spongy; but his words are so obscure, that little can be gathered from them; and, though the above places have been explored in latter times by many experienced botanists, they have not supplied us with much certain information respecting this species of reed. As the old botanists give no characterising marks sufficiently precise, Linnæus was not able to assign any place in his system to the *arundo scriptoria* of Bauhin.

Chardin speaks of the reeds which grow in the marshes of Persia, and which are sold and much sought after in the Levant, particularly for writing. He has even described them; but his account has been of no service to enlarge our botanical knowledge. Tournefort, who saw them collected in the neighbourhood of Teflis, the capital of Georgia, though his description of them is far from complete, has taught us more than any of his predecessors. We learn from his account, that this reed has small leaves, that it rises only to the height of a man, and that it is not hollow, but filled with a soft spongy substance. He has characterised it, therefore, in the following manner in his System of Botany: *Arundo orientalis, tenuifolia, caule pleno, ex qua Turcæ calamos parant*. The same words are applied to it by Miller; but he observes that no plants of it had ever been introduced into England. That the best writing-reeds are procured from the southern provinces of Persia is confirmed by Dapper and Hanway. The former says, that the reeds are sown and planted near the Persian gulf in the place mentioned by Chardin, and gives the same description as that traveller of the manner in which they are prepared.

The circumstance expressly mentioned by Tournefort, that these writing-reeds are not entirely hollow, seems to agree perfectly with the account given by Dioscorides. It is probable that the pith dries and becomes shrunk, especially after the preparation described by Chardin, so that the reed can be easily freed from it in the same manner as the marrowy substance in writing-quills is removed from them when clarified. Something of the like kind seems to be meant by Pliny, who says, that the pith dried up within the reed, which was hollow at the lower end, but at the upper end woody and destitute of pith. The flowers of this reed were employed instead of feathers for beds, and also for caulking ships. Forskal only tells us that a great many reeds of different kinds grow near the Nile, which serve to make hedges, thatch, and wattled-walls, and which are used for various other purposes.

These reeds were split, and formed to a point like our quills; but certainly it was not possible to make so clean

and fine strokes, and to write so long and so conveniently with them, as one can with quills. The use of them, however, was not entirely abandoned when people began to write with quills, which in every country can be procured from an animal extremely useful in many other respects.

Some assert, from a passage of Juvenal, that quills were used for writing in the time of that poet; but what he says is only a metaphorical expression, such as has been employed by Horace and various ancient writers. Others have endeavoured to prove the antiquity of writing-quills from the figure of the goddess Egeria, who is represented with a book before her, and a feather in her right hand; but the period when this Egeria was formed is not known, and it is probable that the feather was added by some modern artist. No drawings in manuscripts, where the authors appear with quills, are of great antiquity. Among these is the portrait of Aristotle, in a manuscript in the library of Vienna, which, as expressly mentioned at the end, was drawn at Rome in the year 1457; and we have great reason to think that the artist delineated the figure for ornamenting his work, not after an ancient painting, but from his own imagination.

If we can give credit to the anonymous author of the History of Constantius, extracts from which have been made known by Adrian de Valois, the use of quills for writing is as old as the fifth century. We are informed by this author, who lived in the above century, that "Theodoric, king of the Ostrogoths, was so illiterate and stupid, that during the ten years of his reign he was not able to learn to write four letters at the bottom of his edicts. For this reason the four letters were cut for him in a plate of gold, and, the plate being laid upon paper, he then traced out the letters with a pen." The western empire was governed, almost about the time of Theodoric, by the emperor Justin, who also could not write, and who used in the like manner a piece of wood having letters cut in it; but with this difference, that, in tracing them out, he caused his hand to be guided by one of his secretaries.

The oldest certain account however known at present respecting writing-quills, is a passage of Isidore, who died in the year 636, and who, among the instruments employed for writing, mentions "reeds and feathers:" "Instrumenta scribæ calamus et penna. Ex his enim verba paginis insiguntur; sed calamus arboris est, penna avis, cujus acumen dividitur in duo; in toto corpore unitate servata." *Origines*, vi. 13.

Another proof of quills being used in the same century, is a small poem on a writing-pen, to be found in the works of Althelmus, called sometimes also Aldhelmus, Adelhemus, and Adelmus. This writer, descended of a noble family, was the first Saxon who wrote Latin, and who made the art of Latin poetry known to his countrymen, and inspired them with a taste for compositions of that kind. He died in the year 709. The poem is as follows:

De Penna scriptoria.

Me pridem genuit candens onocrotalus albam
Gutturæ qui patulo forbet in gurgite lymphas.
Pergo ad albentes directo tramite campos,
Candentique viæ vestigia cærule linquo,
Lucida nigritis fuscans anfractibus arva.
Nec fatis est unum per campos pandere callem;
Semita quin potius milleno tramite tendit,
Quæ non errantes ad cœli culmina vexit.

The author does not, speak here of a goose-quill, but of a pelican's, (*onocrotalus*, adopted from the Greek word, compounded of *ovos*, an ass, and *κροταλο*, a rattle, from the gurgling in the throat or pouch,) which, at any rate, may be as good as that of a swan.

In the eighth century writing-pens are mentioned by Alcuinus, who at that period, in the time of Charlemagne, was of service in extending literary knowledge. He

composed poetical inscriptions for every part of a monastery, among which there is one even for a privy, and another for a writing-study. Speaking of the latter, he says that "no one ought to talk in it, lest the pen of the transcriber should commit a mistake."

After the above period, proofs occur which place the matter beyond all doubt. Mabillon saw a manuscript of the Gospels, which had been written in the ninth century under the reign of St. Louis, in which the evangelists were represented with quills in their hands. The same author mentions a like figure of the eleventh century. In the twelfth century, Peter de Clugny, who by scholastic writers is called *Venerabilis*, and who died in 1157, wrote to a friend, exhorting him to assume the pen instead of the plough, and to transcribe instead of tilling land. In short, writing-quills are often called *calami* by ancient and modern authors who wrote good Latin; and it is probable that this word is employed by older writers than Isidore to signify writing-pens, where, for want of other proofs, we understand reeds.

Notwithstanding the great advantage which quill-pens have over reeds for writing, the latter however seem to have continued long in use even with the former. Men of letters, well versed in diplomatics, assure us, from comparing manuscripts, that writing-reeds were used along with quills in the eighth century, at least in France; and that the latter first began to be common in the ninth. The papal acts, and those of synods, must however have been written with reeds much later. In convents they were retained for texts and initials, while, for small writing, quills were every-where employed.

We can allow little credit to a conjecture supported merely by a similarity of the strokes in writing, because it is probable that people at first would endeavour to write in as strong and coarse a manner with quills as had been before done with reeds, in order that the writing might not seem much different from what was usual; and with quills one can produce writing both coarse and fine. Meiners, however, refers to a passage in a letter of Reuchlin, which removes all doubt on the subject. When this worthy man, to whom posterity is so much indebted, was obliged to fly by the cruelty of his enemies, famine, and the plague, and to leave behind him all his property, he was supplied with the most common necessaries by Pirkeheimer. Among other articles the latter sent to him, in the year 1520, writing-materials, good paper, penknives, and, instead of peacocks-feathers which he had requested, the best swan-quills. That nothing might be wanting, he added also proper reeds, of so excellent a sort, that Reuchlin considered them to be Egyptian or Cnidian. These reeds at that period must have been scarce and in great request, as it appears by some letters of Erasmus to Reuchlin, that the former received three reeds from the latter, and expressed a wish that Reuchlin, when he procured more, would send some of them to a learned man in England, who was a common friend to both.

Whatever may have been the cause, about the year 1433 writing-quills were so scarce at Venice, that it was with great difficulty men of letters could procure them. We learn at any rate, that the well-known Ambrosius Traversarius, a monk of Camaldule, sent from Venice to his brother, in the above year, a bunch of quills, together with a letter, in which he said, "They are not the best, but such as I received in a present. Show the whole bunch to our friend Nicholas, that he may select a quill; for these articles are indeed scarcer in this city than at Florence."

"Had the ancients been acquainted with the art of converting quills into writing-pens," says Mr. Professor Beckmann, "they would undoubtedly have dedicated to Minerva, not the owl, but the goose." We think so too; yet there are some men among us, as likely to rival the goose in understanding as in usefulness, who prefer writing, or trying to write, with an iron pen, or a steel pen,

or a silver pen, because these, they say, do not wear out. But suppose they *do* wear away, (as what does not?) who is to mend them? These pens cost from a shilling to half-a-crown apiece, the price of a score, or even a hundred, of quills or pens, which *can* be mended, and which are so obedient under the knife, that they can be made hard or soft, so as to suit any hand, or any kind of character, small or large, round or square, thick or thin; and the celerity with which quills are converted into pens is astonishing. It is recorded, that an usher at Rugby-school made 2000 pens in little more than eight hours. This was in the year 1813. The man's name was Thacker.

To PEN, *v. a.* [pret. and part. pass. *penmed.*] To write. It probably meant at first only the manual exercise of the pen, or mechanical part of writing; but it has been long used with relation to the style or composition.—I would be loth to cast away my speech; for, besides that it is excellently well *penne'd*, I have taken great pains to con it. *Shakespeare's Tw. Night.*—He frequented sermons, and *penmed* notes with his own hand. *Hayward's Edw. VI.*—The precepts, *penmed* or preached by the holy apostles, were as divine and as perpetual in respect of obligation. *White.*—The digesting my thoughts into order, and the setting them down in writing, was necessary; for, without such strict examination as the *penning* them affords, they would have been disjointed and roving ones. *Digby on the Soul.*

Twenty fools I never saw
Come with petitions fairly *penne'd*;
Desiring I should stand their friend.

Swift.

[Preter. and part. pass. *pent.*] To coop; to shut up; to incage; to imprison in a narrow place.—Away with her, and *pen* her up. *Shakespeare.*—The plaister alone would *pen* the humour already contained in the part, and forbid new humour. *Bacon.*—The glass, wherein it is *penne'd* up, hinders it to deliver itself by an expansion of its parts. *Boyle.*—The prevention of mischief is prescribed by the Jewish custom; they *pen* up their daughters, and permit them to be acquainted with none. *Harvey on Consumptions.*

My heavy son
Private in his chamber *pens* himself. *Shakespeare.*
Their armour help'd their harm, crush'd in and bruise'd,
Into their substance *pent.* *Milton's P. L.*

As when a prowling wolf,
Whom hunger drives to seek new haunt for prey,
Watching where shepherds *pen* their flocks at eve
In hurdled cotes, amid the field secure,
Leaps o'er the fence with ease into the fold. *Milton's P. L.*

PEN. See PEN SELWOOD.

PEN AN'GLAS, a cape of South Wales, on the north coast of the county of Pembroke. Lat. 51. 57. N. lon. 4. 59. W.

PEN Y DAR'RAN. See vol. xv. p. 164.

PEN DINAS, a cape of Wales, on the north coast of St. Bride's Bay. Lat. 51. 48. N. lon. 5. 10. W.

PEN PARK. See vol. iii. p. 414.

PEN SELWOOD, a village in the county of Somerset, on the borders of Wiltshire and Dorsetshire, on an elevated situation, near the river Stour. In the year 658, a battle was fought here between the Saxons and the Britons, which proved in favour of the former, and in so decisive a manner, that the Britons never after made head against their enemies. In the year 879, the Danes are said to have been defeated here by king Alfred: in the year 1001, a few of king Ethelred's troops were defeated by the Danes; and in the year 1016, the Danes were defeated here by king Edmund. It is four miles north-east of Wincanton, 106 west of London.

PENNA (John), an able French mathematician, was descended from a noble family at Aix in Provence, and born at Moustiers, in the diocese of Riez, about the year 1530. He distinguished himself by his proficiency in the

Latin and Greek languages, and philosophy; but the bent of his genius particularly directed him to the study of the mathematical sciences. Ramus had been his tutor in the belles-lettres, and is said to have been inspired by his pupil with a taste for mathematical studies, and to have prosecuted them under his instructions. M. de Thou says, that they both taught at the same time in the Collège de Presles. About the year 1556, he was appointed Professor of Mathematics in the Collège Royal; and, according to some writers, his post was a professorship-extraordinary, created out of compliment to his extraordinary merit, and suppressed after his death. He published a Latin version of the Catoptrics of Euclid, with a curious Preface, explaining and illustrating the uses of the cylindrical mirror; the Optics of the same geometrician; Euclidis Elementa Musices; Sectio Regular Harmonicæ, in Greek and Latin; and a Latin version accompanying the Greek text of The Spherics of Theodostus, 1558, 4to. He also wrote some papers on the Mechanics of Hero, and the Geometry of Euclid, which have not been given to the public. This very promising young mathematician was prematurely cut off by a violent fever in 1560, when only about thirty years of age. *Teiffier's Eloges des Hommes Savans.*

PENNA, in geography. See PEENE.

PENNA COVA. See PEGNA COVA, p. 473.

PENAC, a town of Naples, in Abruzzo Citra: nine miles east-south-east of Civita Borella.

PENÆ'A, *f.* [received that appellation from Linnæus, in memory of the learned *Peter Pena*, a native of Jouques, near Aix, in Provence; who afforded great assistance to Lobel, in the composition of his "Adversaria." Plumier had already consecrated a plant to his honour, which Linnæus reduced to POLYGALA; see that article.] In botany, a genus of the class tetrandria, order monogynia. Generic characters—Calyx: perianthium two-leaved: leaflets opposite, lanceolate, concave, equal, coloured, shorter by half than the corolla, loose, deciduous. Corolla: one-petalled, bell-shaped: border four-cleft, spreading a little, much shorter than the tube; segments sharp. Stamina: filaments four, awl-shaped, extremely short, placed on the tube of the corolla between the divisions of it, upright, naked; antheræ upright, flattish, emarginate both ways. Pistillum: germen ovate, four-cornered; style four-cornered by four membranaceous longitudinal wings; stigma cruciform, blunt, permanent. Pericarpium: capsule four-cornered, furnished with the style, four-celled, four-valved. Seeds: two, somewhat oblong, blunt.—*Essential Character.* Calyx two-leaved; corolla bell-shaped; style quadrangular; capsule four-cornered, four-celled, eight-seeded.

There are nine species. They are shrubs, rugged below with the vestiges of fallen leaves, leafy above; leaves opposite, crosswise, sessile, approximating imbricately in a four-fold row, the upper ones near the flowers like scales and coloured, whence the calyx in some species is as it were many-leaved and imbricated; flowers terminating, sessile, solitary or several heaped together; fruit as in the order of Acanthi, but four-celled. Perhaps this genus may be allied to them; but, having been hitherto little examined except in dried specimens, the *natural order* of the genus Penæa must yet remain uncertain. The species are all natives of the Cape of Good Hope.

1. Penæa sarcocolla, or ovate-leaved penæa: leaves ovate, somewhat rhomboid, acute; bractes wedge-shaped, pointed, coloured; calyx-leaves linear. This is an humble much-branched bushy shrub. The leaves are about half an inch long, of a pale tawny glaucous hue in the dried plant, their mid-rib rather convex. Flowers few together, at the tops of the branches, rather longer than the leaves, red. It has been generally believed that the substance called *sarcocolla*, or flesh-glue, is an exudation from the flowers of this plant; but there is very good reason to doubt the truth of the opinion. It was first taken up by Linnæus, and has been maintained ever since upon

upon the authority of his name. Professor Thunberg has published an account of the genus *Penæa* in the Berlin Magazine for 1807. The species all grow at the Cape of Good Hope, and have been seen no where else. The *P. farcocolla* grows on the mountains of Hottentot Holland, and in those below the west side of the Table Mountain. Now Thunberg, who was on the spot, expressly affirms that farcocol is neither collected nor known in that country. It would have some tendency to throw light upon the plants that yield several resins and gum-resins with the history of which we are at present unacquainted, if any wholesale druggist, or merchant, in London, who is in the habit of importing these articles, would state the countries from which they are brought.

2. *Penæa mucronata*, or heart-leaved *penæa*: flowers terminating, leaves acuminate smooth. Style four-cornered. Leaves on the stems and branches frequent, sessile. Flowers at the ends of the branches, heaped together, red.

3. *Penæa marginata*, or margined *penæa*: leaves cordate margined, flowers lateral. This is a stiff shrub, with the branches commonly in threes. Leaves opposite or in threes, subsessile, bluntish, shining, with the edge curved back, the size of box-leaves. Flowers among the leaves, subsessile, not longer than the leaves, white.

4. *Penæa lateriflora*, or side-flowering *penæa*: leaves ovate, flowers lateral sessile. Stems red, with elongated branches. Leaves sessile, exactly ovate, even, sharpish, quite entire, almost keeled under the base, longer than the interstices. Flowers in the axils of the leaves, yellow, the length of the leaves; calyx four-leaved, yellow, scarious, the length of the leaves. Willdenow doubts whether this be distinct from the preceding.

5. *Penæa tomentosa*, or downy-leaved *penæa*: leaves ovate tomentose, flowers lateral. Of this we have no description.

6. *Penæa fucata*, or painted *penæa*: leaves rhomb-ovate; bractes wedge-shaped acute, coloured. Branches very numerous, round; branchlets angular. Leaves ovate, narrower at the base, acute, spreading, even. Flowers purple, in terminating bundles; bractes smaller than the leaf, purple.

7. *Penæa squamosa*, or scaly *penæa*: leaves rhomb-wedge-shaped, fleshy; bractes fringed, glutinous, larger than the leaves; segments of the corolla reflexed. Distinguished by its large terminal flowers, enveloped in dark-red, glutinous, broad, densely-fringed, bractes. The leaves most resemble the first species, but their mid-rib is depressed, not prominent, and their colour in a dried state very dark. Linnæus at first marked his specimen farcocolla, then resinosa, and finally squamosa, under which last appellation he described this fine plant. It may, perhaps, yield a gum, as well as the first species. The corolla seems to be white or yellowish; its tube is above an inch long; the segments of the limb ovate, obtuse, reflexed.

8. *Penæa fruticulosa*, or shrubby *penæa*: leaves somewhat oblong blunt, bractes orbiculate acute. This is a little shrub with round branches. Leaves oval or somewhat oblong, thickish, veinless, remote. Floral leaves small, rhomb-orbiculate, or orbiculate-acute; flowers at the ends of the branches, subsolitary, on very short peduncles, sharpish.

9. *Penæa myrtoidea*, or myrtle-leaved *penæa*: leaves lanceolate. Branches upright round red. Leaves sessile clustered even, like those of *Myrtus tarentina*, scarcely nerved underneath. Flowers terminating, subsolitary, surrounded by sharp green bractes, under which are two small leaves; calyx acute, green, not at all coloured.

Loureiro has added two species, natives of CochinChina: *Penæa nitida*, which he thinks is allied to Linnæus's *P. myrtoidea*; and *Penæa scandens*, to *P. marginata*. He allows that they are not conformable to Linnæus's generic character: and indeed they certainly belong to another genus. See POLYGALA.

PEN'AL, *adj.* [Fr. from *pena*, Lat.] Denouncing pu-

nishment; enacting punishment.—Gratitude plants such generosity in the heart of man; as shall more effectually incline him to what is brave and becoming than the terror of any *penal* law. *South*.—Used for the purposes of punishment; vindictive.—Adamantine chains and *penal* fire. *Milton's P. L.*

PENAL'ITY, *f.* Liableness to punishment; condemnation to punishment.—Many of the ancients denied the Antipodes, and some unto the *penalty* of contrary affirmations; but the experience of navigation can now assert them beyond all dubitation. *Brown*.

PEN'ALTY, *f.* Punishment; censure; judicial infliction.—Political power is a right of making laws with *penalties* of death, and consequently all less *penalties*, for preserving property, and employing the force of the community in the execution of the laws. *Locke*.

Beneath her footstool, science groans in chains,
And wit dreads exile, *penalties*, and pains. *Pope's Dunciad*.

Forfeiture upon non-performance:

Lend this money, not as to thy friend,
But lend it rather to thine enemy,
Who if he break, thou may'st with better face
Exact the *penalty*. *Shakespeare's Merch. of Ven.*

PENAL'VA, a town of Portugal, in the province of Beira: nine miles north of Coimbra.

PENAMOU'SHILY, a town of Hindoostan, in the circar of Rajamundry: forty-two miles east of Rajamundry.

PEN'ANCE, *f.* [*penance*, *penéance*, old Fr. for *penitence*.] Infliction either public or private, suffered as an expression of repentance for sin.—No penitentiary, though he enjoined him never so straight *penance* to expiate his first offence, would have counselled him to have given over pursuit of his right. *Bacon*.—A Lorain surgeon, who whipped the naked part with a great rod of nettles till all over blistered, persuaded him to perform this *penance* in a sharp fit he had. *Temple*.

And bitter *Penance*, with an iron whip,
Was wont him once to disple every day. *Spenser's F. Q.*

Mew her up,
And make her bear the *penance* of her tongue. *Shakesp.*

The scourge
Inexorable, and the torturing hour
Calls us to *penance*. *Milton's P. L.*

Repentance.—Seeking to bring forth worthy fruits of *penance*. *Commination, Comm. Prayer*.

PENANCE is one of the seven sacraments of the Romish church. Besides fasting, alms, abstinence, and the like, which are the general conditions of penance, there are others of a more particular kind; as the repeating a certain number of ave-marys, paternosters, and credos, wearing a hair-shirt, and giving one's self a certain number of stripes. In Italy and Spain it is usual to see Christians almost naked, loaded with chains and a cross, and lashing themselves at every step.

This kind of penance is enjoined by the church, for sins of omission or of commission. But in the very early ages men practised penance and mortification for no other reason than because they believed that every indulgence was sinful; that whatever gratified the senses, however apparently innocent, must be injurious to the soul; that the ties of natural affection weaned the heart from God; that the duties of social life must be abandoned by those who regarded their own salvation; and that, in proportion as man inflicted privations and torments upon himself, he pleased his Creator.

The extravagancies which grew out of this system might appear incredible, if they were not as well authenticated as any facts in history. Some shut themselves up in cells so low that they could not stand upright in them, and of such dimensions that they could neither lie at length, nor place themselves in any but painful positions.

Others

Others took up their abode in tombs, like the demoniacs; or dwelt in dens with wild beasts; or made dens for themselves, and burrowed in the ground. Men and women lived promiscuously in the deserts, with no other covering than what mere decency required, bare to the sun, and the wind, and the sand-showers. These persons renounced all such food as was used by their fellow-creatures, and grazed and browsed upon herbs and shrubs; for which reason they were called *Βοσχοί*. They even affected to appear like beasts, by going upon their hands and knees; and like beasts they fled from the sight of man, and betook themselves to the most inaccessible places for concealment. If this system had continued a few generations, it might have been seen how far it is possible for man to degrade his physical as well as his intellectual nature; he would have degenerated into an animal little superior to the ape or baboon, and more loathsome than either.

St. Pior always walked while he was eating; because (to use his own words) "he did not consider eating as a business for which time was to be set apart, but as a thing to be done when it did not interrupt his avocations." St. Pachomius, in order that he might sleep as little as possible, and with the least possible comfort and convenience, never allowed himself to lie down, nor even to recline against any thing that might support him, but sat upon a stone in the middle of his cell. And among the rules which, according to the historians of the Romish church, were given to him by an angel, and are the first code of monastic laws, is one whereby the monks are enjoined in like manner to sleep sitting, and not recumbent. Beradat used for his clothing a close sack of skins, which had no other opening than one small one for his mouth, and another for his nose.

The female saint, Eufraxia, belonged to a convent containing a hundred and thirty nuns, not one of whom ever washed their feet, and the very mention of a bath was an abomination among them: "De balneo verò superfluum est loqui; audientes enim vehementer vituperabant, confusionis et opprobrii plenam consentis, vel solam illius mentionem, et tanquam rei abominabilis, nec auditam quidem volebant tolerare." St. Macarius, (for all these madmen are saints!) having one day killed a gnat which had bitten him, was struck with compunction at the sight of the insect's blood, and by way of atonement went into the marshes, and there for six months exposed himself to all winged and creeping insects, till every part of his flesh was swollen and ulcerated with their bites. Sozomen relates of him, that he had so hardened his body by austerities, that the very beard could not make way through his skin. This personage, when in the full odour of filth and rags, returned one day to his convent, humbled and mortified by the sense of his own inferiority, exclaiming, "I am not yet a monk, but I have seen monks!" for he had fallen in with two or three wretches stark naked.

The English reader is familiar with the extraordinary history of St. Simeon Stylites. "This godly man, while yet in the flesh, imitated the life of the angels, withdrew himself from earthly things, forced nature, which ever inclineth downwards, aspired to things heavenly, and placed himself between earth and heaven, on the top of a pillar. He, together with the angels, praised the Lord, lifted up the prayers of men, and offered them to God, and brought down the mercy of God to make men partakers thereof." Such is the language of Evagrius! His celebrity long survived him. A church was built round the pillar upon which "this earthly and incarnate angel led his heavenly life; and every year, on the saint's day, a star was exhibited playing round the pillar." Evagrius says he himself had seen it, and does not intimate the slightest suspicion of the trick. His body was removed to Antioch, from whence the emperor Leo would have translated it to Constantinople; but the people of Antioch represented, "that the fortifications of their city

had been thrown down by an earthquake, and therefore they had brought thither the holy body of Simeon, that it might be to them instead of a wall."

The same freaks and follies of the human mind, the same diseases of the moral and intellectual nature, have shown themselves in all ages: the Romish church has had the dexterity to turn them to account. In her service there was a place for every one, faint or sage, the painful student and the expert sophist, the haughtiest temper and the humblest, knave, madman, and idiot, all had their uses, and were employed with excellent advantage to the papacy. When, by some lucky combination of events, a monk had attained that sort of influence which enabled him to institute a reform, it suited the policy of the church, and his order also, to accredit the fables forged by himself and his accomplices, and propagated by vulgar credulity; to canonize the fanatic who during his life had been an object of contempt to all his brethren; and to publish for edification the strangest pranks and the most disgusting actions of insane and grovelling superstition.

The most remarkable fanatic of the time we are speaking of was the personage known by the name of St. Dominic the Cuirassier, because of an iron cuirass which he wore next his skin, and which was never taken off till it was necessary to replace it by a new one. Dominic had been intended for an ecclesiastical life; but, when he received priest's orders, his parents presented a furred robe to the bishop who ordained him; and Dominic, conceiving that he had thus incurred the guilt of sinning, not only refrained from performing mass, but resolved to do penance for the crime as long as he lived. For this purpose he entered into the Congregation Santa Croce de Fonte Avellana, the most extravagant of all the orders which had been produced by reforming the system of St. Benedict. The monks of this congregation never touched either wine or oil, and during five days in the week only bread and water; they were never allowed to speak, except for a short time on Sundays, and then only concerning spiritual things; they went barefoot, and each day after evening-service, they flogged one another. In those days it was believed that a sinner might be flogged into a saint, as it has been supposed, within our own memory, that a dunce might be whipped into a scholar. But, besides the general utility of flagellation as a means of obtaining the favour of heaven, the actual value of stripes, the price at which they were taken by the score in the treasury of good works, had been settled, according to the most minute and accurate calculation. This well deserves to be explained.

It is a point of faith, say the Catholics, that every mortal sin deprives the sinner of the grace of God, and makes him liable to eternal punishment; but, if he repents and confesses, the mercy of God is so great, that he restores the grace which had been forfeited, and commutes for temporal punishment that which should else have been eternal. How long a time a soul has to remain in purgatory for one mortal sin, or for many, whether for one year, ten, twenty, or more, is what the divine majesty has revealed to none: the popes, however, have granted indulgencies, by some of which they remitted a certain number of years of purgatory, by others half the term, and by others the whole. The monks of Fonte Avellana had determined that thirty psalms said or sung, with an accompaniment of one hundred stripes to each psalm, making in all three thousand, would be received as a set-off for one year of purgatory; the whole psalter, with the full compliment of fifteen thousand stripes, would redeem five years from the same vast crucible; and twenty psalters with three hundred thousand stripes, fairly entered in the recording angel's book, would be equal to a receipt in full for an hundred years of fire and torments in the world to come. This scale was sanctioned (if not formally approved) by the popes.

Dominic the Cuirassier was ambitious above all men in laying up treasure of this kind in heaven; and to a man

of his temper it was a great excitement to know that he was working by the piece. He tasked himself ordinarily at ten psalters and thirty thousand lashes a-day, at which rate he would have redeemed three thousand six hundred and fifty years of purgatory per annum; and, as Dominic is said never to have committed any other sin in his life than that of consenting to the present of the furred robe, one year of such discipline might have been thought full measure and overflowing for that offence. But, in addition to this regular allowance, he used to petition his superior in Lent for a supplementary task of an hundred years; and then his day's work was two psalters and a half, with thirty-four thousand five hundred stripes. Even this did not satisfy the ambitious Dominic. He was already creditor to a large amount in the angel's books; but no good works can be lost; all that was over and above the sum necessary for his own redemption from purgatory would go to the great sinking fund of the holy Catholic church; and Dominic therefore continued to flog himself with more spirit than ever, for the good of his fellow-creatures. He entreated and obtained, during another Lent, the imposition of a thousand years; and St. Pietro Damiano affirms, that in these forty days he actually recited the psalter two hundred times, and insisted upon himself sixty millions of stripes, working away during the recitation with a scourge in each hand. This was in addition to his regular task; and I neither know, says Yepes, how his head should have been capable of repeating so many psalms, nor how his arms could have had strength to give him so many blows, nor how his flesh, not being of iron, could have endured so inhuman a battery. In him, however, increase of appetite grew by what it fed on; and like our pedestrians, who go on walking hour after hour, till they ascertain the utmost exertion which their abused strength is capable of enduring, he, in an heroic mood, determined once to flog himself, in the jockey phrase, again in time. In this noble feat, he so far outdid all his former outdoings, that beginning in the evening, and singing and flogging through the day and night, at the end of twenty-four hours he had gone through the psalms twelve times, began them a thirteenth time, and proceeded as far as Beati quarum, the 32d psalm; the quota of stripes being 183,100, thereby reducing purgatory-stock in the amount of sixty-one years, twelve days, and thirty-three minutes, to a fraction.

With regard to the authenticity of this account, it rests upon the authority of Pietro Damiano, saint and cardinal; and he relates it from his own personal knowledge, in an epistle to pope Alexander II. It is laid down as an axiom by Ambrosia Morales, that whatever one saint relates of another, is to be implicitly believed; and Calmet, living in a less credulous age and country, premising that the statement appears incredible, says, that after seeing it confirmed by St. Pietro Damiano, "there ought to be no further hesitation;" *la chose ne doit faire aucune difficulté*. It seems, however, that certain awkward doubts respecting the possibility of Dominic's exploits obtruded themselves upon the minds of those who were very desirous of believing them if they could. It appears, upon calculating the great achievement of the four-and-twenty hours, that if during the whole of that time he had given himself two blows (that is, one with each hand, for he always used both) in every second, the number would have been 172,800, being 10,300 short of the stated amount. Padre Maestro Castaniza supposes that Dominic's cats had ten tails each, and that every tail was reckoned; but this mode of reckoning would favour so much of vain-glory, not to say deceit, that other writers reject the solution, as derogatory both to the saint and his canonized biographer. They therefore agree with Castaniza, that "the divine grace which the Almighty imparts to his servants produces in them marvellous effects, however weak they may be by nature;" and so they take the sum total without scruple. But the

saying *Credo quia impossibile est*, will not pass current out of the pale of Catholicism; and a Protestant may be allowed to ask, how Dominic contrived to reckon the stripes while he was singing the psalms? Another question will have already occurred to the reader, was Dominic in his cuirass all the while? if he were, he might have laid on as lustily as Sancho upon the trees, and kept a whole skin. But the cardinal mentions that he stripped himself for the work. What, then, becomes of the assertion that the cuirass was never taken off till it was worn out? The story bears the stamp of fraud as well as of folly and madness; and the church, which has accredited it by canonizing the man, whether knave or fool, or both, thereby encouraging the grossest superstition and the most absurd practices, is implicated in the imposture.

As the mythology of Greece was less gross than that of Egypt, and that of Egypt less so than that of India; so the penances and self-tortures of the Hindoo fakeers; yogeys, and saniassees, exceed in extravagance and folly every thing that we have related above. See the article HINDOOSTAN, vol. x. p. 148-52.

PENANCE, in our common law, is an ecclesiastical punishment, used in the discipline of the church of England, and affecting the body of the penitent; by which he is obliged to give a public satisfaction to the church for the scandal he hath given by his evil example. In the case of incest or incontinency, the offender is usually enjoined to do a public penance in the cathedral, or parish-church, or public market, barelegged and bareheaded, in a white sheet, and to make an open confession of his crime in a prescribed form of words, which is augmented or moderated according to the quality of the fault, and the discretion of the judge. So in smaller faults and scandals, a public satisfaction or penance, as the judge shall decree, is to be made before the minister, churchwardens, or some of the parishoners, respect being had to the quality of the offence, and circumstances of the fact, as in the case of defamation, or laying violent hands on a minister, or the like. And, as these censures may be moderated by the judge's discretion, according to the nature of the offence, so also they may be totally altered by a commutation of penance: and it hath been the ancient privilege of the ecclesiastical judge to admit that an oblation of a sum of money for pious uses shall be accepted in satisfaction of public penance. But penance must be first enjoined, before there can be a commutation; or otherwise it is a commutation for nothing. Linwood and other canonists mention three sorts of penance: viz. private, enjoined by any priest in hearing confession; public, enjoined by the priest for any notorious crime, either with or without the bishop's licence according to the custom of the country; and solemn, the particulars of which are prescribed by the constitution of archbishop Peckham. By the statute of "Circumspecte agatis," (13 Edw. I. stat. 4.) the king to his judges sendeth greeting: Use yourselves circumspectly concerning the bishops and their clergy, not punishing them if they hold plea in court-christian of such things as be mere spiritual; that is, to acts of penance enjoined by prelates for deadly sin, as fornication, adultery, and such like; for the which sometimes corporal penance, and sometimes pecuniary is enjoined, (2 Roll. Rep. 384.) in which cases the spiritual judge shall have power to take knowledge, notwithstanding the king's prohibitions. By the statute of "Articuli Cleri," (9 Edw. II. stat. 1. c. 2.) if a prelate enjoins a penance pecuniary to a man for his offence, and it be demanded, the king's prohibition shall hold place; but, if prelates enjoin a penance corporal, and they which be so punished will redeem upon their own accord such penance by money; if money be demanded before a spiritual judge, the king's prohibition shall hold no place. And by the same statute, (c. 3.) if any lay violent hands on a clerk, the amends for the peace broken shall be before the king, and for the excommunication before a prelate, that corporal penance may be enjoined; which if the offender will redeem of his own

own good will, by giving money to the prelate, or to the party grieved, it shall be required before the prelate, and the king's prohibition shall not lie.

PEN'AR VAL'LI, *f.* in botany. See ZANONIA.

PENAT', a town of Hindoostan: thirty miles south-south-east of Agra.

PEN'ATES, in the ancient mythology, a term applied to all the domestic gods, whom the ancients adored in their houses: whence they are ordinarily confounded with the lares. See LAR.

Authors are not all agreed about the origin of the *dii penates*, who were properly the tutelary gods of the Trojans, and were only adopted by the Romans, who gave them the title of penates.

The penates seem to have originated in a vulgar opinion which prevailed very generally amongst mankind, that the manes of their ancestors took pleasure after death to dwell in their houses, where indeed they were frequently interred, and where their pictures used to be preserved in the places that were most respected. After having been accustomed to consider them under the character of illustrious persons, they by degrees paid them respect and homage, they then implored their assistance, and lastly they succeeded to the worship and religious ceremonies. The penates were therefore the manes of their ancestors, which St. Augustine (de Civ. Dei. ix. 11.) maintains, on the authority of Apuleius and Photinus; and in process of time they were associated with all the other gods without distinction.

The statues of these gods were made not only of wax, as some authors pretend, but indifferently of all sorts of materials, even of silver itself: they were consecrated in the most secret places; altars were erected to them, lamps kept burning, and symbols added, all of them expressive of vigilance. Anciently children were offered to them in sacrifice; but Brutus, who expelled the Tarquins, discontinued this barbarous practice; and from that time nothing was offered to them but wine, incense, fruits, and sometimes bloody victims, lambs, sheep, &c. their statues were likewise crowned with festoons of garlic and poppy. In the public sacrifices offered to the penates, they sacrificed to them a sow. It was in the time of the Saturnalia that they celebrated the festival of the lares and penates; and there was a day besides in each month set apart for the worship of these domestic gods. At the temple consecrated to these gods in Rome, there was set apart for them a holiday, which was observed with much solemnity; and this was the second of the kalends of January, or the last day of December. To this were added the games called Compitalia. Indeed, the respect paid to the penates was so great, that no important enterprise was undertaken without consulting them: their figures were even sometimes carried about in journeys, as we learn from Apuleius: "Wherever I go," says he, "I always carry with me in my journey the figure of some god."

Authors have conjectured, that the idols which Jacob brought from the house of Laban his father-in-law, and which the Scripture denominates "teraphim," were gods penates, whose worship was propagated afterwards into Phrygia, and transmitted from thence into Greece and into Italy. This, it is confidently asserted, was their true origin.

PENATO'LEN, a town of Chili: twenty miles east of St. Yago de la Nueva Estremadura.

PENATOOR, a town of Hindoostan, in the Carnatic: eight miles west of Gingee.

PENAUTI'ER, a town of France, in the department of the Aude: three miles north-west of Carcassonne.

PEN'BRAY, a cape on the fourth coast of Wales, in the Bristol Channel; three miles south of Kidwelly.

PENBUGHTO'E HEAD', a cape of South Wales, on the north coast of the county of Pembroke. Lat. 51. 56. N. lon. 5. 5. W.

PENCA'DER, a village of South Wales, in the county

of Caermarthen. In the year 1038 a battle was fought here between Griffith prince of North Wales, and Howel prince of South Wales, in which the latter was defeated. Howel's wife was made prisoner, and the prince himself very narrowly escaped. It is ten miles south-south-west of Llanbeder.

PENCAR'ROW, a cape in the English Channel, on the fourth coast of Cornwall: two miles east from the river Fowey.

PEN'CIL, *f.* [*penicillum*, Lat.] A small brush of hair which painters dip in their colours.—There are *penicils* of various kinds, and made of various matters; the most usual are of badgers and squirrels hair, those of swans down, and those of boars bristles; which last are bound to a stick, bigger or less according to the uses they are destined for; and, when large, are called *brushes*. The others are inclosed in the barrel of a quill. The ancients, M. Felibien observes, had *penicils* made of little pieces of sponge; whence, doubtless, the story of the painter, who, not able to express the foam of a horse, succeeded by throwing the sponge at the picture. *Chambers*.—Black lead (Graphites) laid between two grooved slips of cedar, and then cut to point.—Black lead in fine powder may be readily mixed with melted sulphur; and, though the compound remains fluid enough to be poured into moulds, it looks nearly like the coarser sorts of black lead itself. This was probably the method by which prince Rupert is said to have made black lead run like a metal in a mould, so as to serve for black lead again. The German black-lead *penicils*, and those which are hawked about among us, are prepared in this manner: their melting or softening, when held in a candle, or applied to a red-hot iron, and yielding a bluish flame, with a strong smell like that of brimstone, discovers their composition. *Penicils* of this kind are hard and brittle, and cut or scratch the paper or wood, instead of marking them. The true English *penicils* are formed of black lead alone, sawed into slips, which are fitted into a groove made of the softest wood, as cedar, and another slip of wood glued over them. These *penicils*, however, are of different quality, on account of different sorts of the mineral being fraudulently joined together in one *penicil*, the fore-part being commonly pretty good, and the rest of an inferior kind. To avoid these inconveniences, some take the finer pieces of black lead itself, which they saw into slips, and fix for use in port-crayons. *Lewis's Commerce of Arts*.—A black-lead pencil is certainly a very neat and convenient instrument; and we may join in the prayer or thanksgiving of an old Nubian, who saw Mr. Waddington using his pencil: "Praised be God, the Creator of the World, who has taught man to inclose ink in the centre of a bit of wood." Waddington and Hanbury's Journal of a Visit to Ethiopia, 1822.—Any instrument of writing without ink. A little flag or streamer; [*pennoncel*, old Fr.] *Obsolete*.—She made him wear a *penicell* of her sleeve. *Chaucer's Tr. and Cress.*

To PEN'CIL, *v. a.* To paint:

Smooth forehead, like the table of high Jove,
Small *penicill'd* eyebrows like two glorious rainbows.

Trag. of Soliman and Perjada, 1599.

PENCK, a town of Germany, in the principality of Culmbach: four miles north-east of Bayreuth.

PEN'CKUM, a town of Anterior Pomerania: thirteen miles south-west of Old Stettin, and forty-four north-north-west of Custrin. Lat. 53. 15. N. lon. 14. 20. E.

PEN'CO. See CONCEPTION, vol. v. p. 13.

PEN'DANT, *f.* [French.] A jewel hanging to the ear:

Some thrid the mazy ringlets of her hair,
Some hang upon the *pendants* of her ear.

Pope.

Any thing hanging by way of ornament:

Unripe fruit whose verdant stalks do cleave
Close to the tree, which grieves no less to leave

The

The smiling *pendant* which adorns her so,
And until autumn on the bough should grow. *Waller.*

The part of a watch to which the chain or ribbon is hung. A pendulum. *Obsolete.*—To make the same *pendant* go twice as fast as it did, or make every undulation of it in half the time it did, make the line, at which it hangs, double in geometrical proportion to the line at which it hanged before. *Digby on the Soul.*—A small flag in ships.

PENDAR'RYE, a town of Hindooftan, in Oude: seventeen miles north-west of Kairabad.

PENDAR'TY, a town of Hindooftan, in the Carnatic: eight miles east of Ongole.

To PENDE, *v. a.* To hang up; to pen; to shut up. *Chaucer.*

PEN'DENCE, or PENDENCY, [from *pendeo*, Lat.] Slopeness; inclination.—The Italians give the cover a graceful *pendence* or slopeness, dividing the whole breadth into nine parts, whereof two shall serve for the elevation of the highest top or ridge from the lowest. *Wotton on Architecture.*—Suspense; delay of decision.—The judge shall pronounce in the principal cause, nor can the appellant allege *pendency* of suit. *Ayliffe.*

PENDE'NE-VOW', on the north coast of Cornwall, near Penzance, has an unfathomable cave under the earth, into which the sea flows at high water. The cliffs between this and St. Ives glitter, as if they had store of copper, of which there is abundance hereabouts within land.

PENDEN'NIS CAS'TLE. See FALMOUTH, vol. vii.

PEN'DENT, *adj.* [*pendens*, Lat. some write *pendant*, from the Fr.] Hanging:

I sometimes mournful verse indite, and sing
Of desperate lady near a purling stream,
Or lover *pendent* on a willow tree.

Philips.

Quaint in green she shall be loose enrob'd
With ribbons *pendant*, flaring about her head. *Shakespeare.*

Jutting over:

A *pendent* rock,
A forked mountain, or blue promontory. *Shakespeare.*
Supported above the ground:

They brought, by wondrous art
Pontifical, a ridge of *pendent* rock
Over the vex'd abyss.

Milton's P. L.

PENDEN'TIVES, *f.* in architecture, are those parts in the angles, between the arches of the nave, which spring from a point, and gradually advance in a concave direction to receive the circular entablature of the cupola. Or, if we suppose a circle inscribed within a square, the curvilinear triangles cut off will be the plans of the *pendentives*.

PEN'DENTNESS, *f.* The state of being *pendent*.

PENDERA'CHI, or ERE'GRI, a seaport town of Asiatic Turkey, on the Black Sea, anciently Heraclea, governed by a *cadî*; at one time episcopal: 100 miles east of Constantinople. Lat. 41. 36. N. lon. 31. 18. E.

PEN'DICE. See PENTICE.

PENDIL'HO, a town of Portugal, in the province of Beira: twelve miles south-east of Lamego.

PEN'DING, *adj.* [*pendente lit.*] Depending; remaining yet undecided.—A person, *pending* suit with the diocesan, shall be defended in the possession. *Ayliffe.*

PEN'DLETON, a village in Lancashire, with a population of 3611, including 226 employed in trade and manufactures: two miles west of Manchester.

PEN'DLETON, a county of Virginia, in America, bounded north-west by Randolph, and south by Rockingham, counties; watered by the south branch of the Patowmack. It contains 4239 free inhabitants, and 202 slaves. Its chief town is Frankford.—Also, a district of South Carolina, on the Keowee and Savannah rivers; containing 22,897 inhabitants, of whom 3485 are slaves: fifty-two miles west of Cambridge.—Also, a county of

Kentucky, containing 2940 people, of whom 346 are slaves.

PEN'DOUN, a town of Birmah: twelve miles south of Raynangong.

PENDRAG'ON CAS'TLE. See KIRKBY STEPHEN, vol. xi. p. 761.

PENDULOSITY, or PEN'DULOUSNESS, *f.* [from *pendulous*.] The state of hanging; suspension.—His slender legs he encreas'd by riding; that is, the humours descended upon their *pendulosity*, having no support or suppedaneous stability. *Brown's Vulg. Err.*

PEN'DULOUS, *adj.* [*pendulus*, Lat.] Hanging; not supported below.—Bellerophon's horse, fram'd of iron, and placed between two loadstones with wings expanded, hung *pendulous* in the air. *Brown's Vulg. Errors.*—The grinders are furnished with three roots, and in the upper jaw often four, because these are *pendulous*. *Ray.*

All the plagues that in the *pendulous* air
Hang fated o'er men's faults, light on thy daughter. *Shak.*

Doubtful; unsettled.—In a *pendulous* state of mind. *Atterbury.*

PEN'DULUM, *f.* [*pendulus*, Lat. *pendule*, Fr.] Any weight hung so as that it may easily swing to and fro, of which the great law is, that its oscillations are always performed in equal time:

Upon the bench I will so handle 'em,
That the vibration of this *pendulum*
Shall make all taylor's yards of one
Unanimous opinion.

Hudibras.

For a full explanation of the theory of pendulums, see the article HOROLOGY, vol. x. p. 307 & seq. We shall add here only two particulars which have since occurred to our notice.

1. Professor Bridge has calculated the following little Table, on a supposition that the length of a seconds pendulum is 39¹/₂ inches in latitude 52°, which is taken as his standard; and he has given the lengths corresponding not only to six different latitudes, but to four different heights, six at the earth's surface, and at one, two, and three, miles of elevation respectively.

Latitude.	Length of Pendulum at the Earth's Surface.	One Mile above the Earth.	Two Miles above the Earth.	Three Miles above the Earth.
At the Equator	39°060	39°036	39°013	38°997
Lat. 30°	39°115	39°091	39°068	39°052
45	39°170	39°146	39°122	39°107
52	39°200	39°176	39°152	39°137
60	39°225	39°201	39°177	39°161
At the Pole	39°281	39°257	39°233	39°218

Thus we see that the greatest variation in the length of a pendulum vibrating at three miles above the equator, and on the earth's surface at the pole, is only .284 of an inch, which affords but a small scale for determining either altitudes or the figure of the earth, to both which purposes the observed variations in the lengths of the pendulum have been proposed as a measure.

2. When a pendulum of a given length has been observed to gain or lose a certain quantity daily, it is convenient, in making the adjustment for exact time, to have some concise theorem as a guide to bring it to the point desired, at one trial, in all cases, which theorem professor Bridge has given in these words: "Multiply twice the length of the pendulum by the number of seconds gained or lost, and divide the result by the number of seconds in a day; the quotient will give the number of inches, or parts of an inch, by which the pendulum is to be lengthened or shortened." Suppose the gain of a seconds pendulum to be three minutes, or 180", in a solar day; then $\frac{39\frac{1}{2} \times 2 \times 180''}{86400} = .16\frac{2}{3}$ parts of an inch, is the quantity, in this case, by which the pendulum



P E N E L O P E .



1. The Horned Turkey Pheasant. 2. The Quon. 3. The Yucru. 4. The Morant.

pendulum must be lengthened to measure mean time ; but, if the three minutes had been lost with a half-second pendulum, then $\frac{9.8 \times 2 \times 180}{36400} = .041$ of an inch, or the

fourth part of the former gain, will be the quantity by which the said pendulum will require to be shortened. This rule is not only short in its application, but easy to be remembered.

PENEL'LA, a town of Portugal, in the province of Beira : fifteen miles south-east of Coimbra.

PEN'EDON, a town of Portugal, in the province of Beira : nineteen miles north-east of Viseu.

PENEL'OPE, a celebrated princess of Greece, daughter of Icarus, and wife to Ulysses king of Ithaca. Her marriage with Ulysses was celebrated about the same time that Menelaus married Helen ; and she retired with her husband to Ithaca, against the inclination of her father, who wished to detain her at Sparta, her native country. She soon after became mother of Telemachus, and was obliged to part with great reluctance from her husband, whom the Greeks obliged to go to the Trojan war. The continuation of hostilities for ten years made her sad and melancholy ; but, when Ulysses did not return like the other princes of Greece at the conclusion of the war, her fears and her anxieties were increased. As she received no intelligence of his situation, she was soon beset by a number of importuning suitors, who wished her to believe that her husband was shipwrecked, and that therefore she ought no longer to expect his return, but forget his loss, and fix her choice and affections on one of her numerous admirers. She received their addresses with coldness and disdain ; but, as she was destitute of power, and a prisoner as it were in their hands, she yet flattered them with hopes and promises, and declared that she would make choice of one of them as soon as she had finished a piece of tapestry on which she was employed. The work was done in a dilatory manner ; and she baffled their eager expectations, by undoing in the night what she had done in the day-time. This artifice of Penelope has given rise to the proverb of *Penelope's web*, which is applied to whatever labour can never be ended. The return of Ulysses after an absence of twenty years, however, delivered her from fears, and from her dangerous suitors.

Thus Penelope is described by Homer as a model of female virtue and chastity ; but some more modern writers dispute her claims to modesty and continence, and they represent her as the most debauched and voluptuous of her sex. According to their opinions, therefore, she liberally gratified the desires of her suitors, in the absence of her husband, and had a son whom she called *Pan*, as if to show that he was the offspring of "all" her admirers. Some however suppose that Pan was son of Penelope by Mercury, and that he was born before his mother's marriage with Ulysses. See PAN. After the return of Ulysses, Penelope had a daughter, who was called Ptoiporthe ; but, if we believe the traditions that were long preserved at Matinea, Ulysses repudiated his wife for her incontinence during his absence, and Penelope fled to Sparta, and afterwards to Mantinea, where she died and was buried. After the death of Ulysses, according to Hyginus, she married Telegonus, her husband's son by Circe, by order of the goddess Minerva. Some say that her original name was Arnea, or Amirace ; and that she was called Penelope, when some river-birds called Penelopes had saved her from the waves of the sea, when her father had exposed her. Icarus had attempted to destroy her, because the oracles had told him that his daughter by Peribœa would be the most dissolute of her sex, and a disgrace to his family.

PENEL'OPE, *f.* the TURKEY PHEASANT ; a genus of birds of the order gallinæ. Generic characters—Bill naked at the base ; head covered with feathers ; chin naked ; tail with twelve feathers ; legs without spurs.

This beautiful genus of birds partakes of the form and nature of the Meleagris (turkey), the Phasianus

(pheasant), and Crax (curassow). It was instituted by Gmelin in his last edition of the *Sylt. Naturæ* ; so that the six species of which it consists have been selected from the Linnæan genera we have mentioned. See the article MELEAGRIS, vol. xv. p. 49.

1. *Penelope fatyra*, the horned turkey-pheasant : two horns on the head ; body red, with ocellated spots. This elegant and singular bird derives its name from two protuberances which grow from its head like horns, which are of a beautiful blue colour, a cylindrical shape, blunt at their ends, reclined backwards, and consisting of a substance resembling callous flesh. It has not that round circle about its eyes which occurs in the pheasants, and is sometimes dotted with black ; the space which furrounds the eyes is shaded with black hairs, like feathers. Under this space, and from the bottom of the lower mandible, grows a kind of gorget, consisting of loose skin, which falls down and floats freely on the throat and the upper part of the neck ; this gorget is black in the middle, and is sprinkled with a few straggling hairs of the same colour. It is marked with wrinkles ; so that it appears to admit of extension in the living animal, and can be inflated or contracted at pleasure ; like the caruncles of the turkey-cock : the lateral parts are blue, with some spots of orange, and without any hair on the outer surface ; but the inside, which applies to the neck, is shaded with little black feathers, as well as that part of the neck which it covers. The crown of the head and fore part of the body are of a beautiful red, and the hind-part of a dusky orange. Over the whole bird, including even the tail and the wings, are a profusion of pellucid spots, furrounded with black, and dispersed with considerable regularity. These spots are round on the fore-part, and oblong or shaped like tears of pearl on the hind-part, with the point turned towards the head. In size this bird is between a fowl and a turkey, and shaped very much like the latter : " the legs (Edwards says) resemble those of the cock pheasant, being armed, like them, with sharp spurs." If so, it is wrongly placed in this genus.

The female, contrary to the usual ordination of nature in the plumage of birds, is nearly if not quite as beautiful as the male. It is but of late date that these birds have been known in England. The male was first figured by Edwards, in his *Gleanings of Natural History* ; and the female appeared only in 1798, in Mr. Pennant's *View of Hindoostan* ; from the British settlements in which country it was brought by Sir Elijah Impey, on his return to England. The principal distinction of this sex is, that it has not the horns, so conspicuous in the male. The feathers on the front of the head, and part of the neck, are of a silky texture, black, glossed with ultramarine blue ; the feathers on the hind head are a beautiful crimson, forming a tuft or crest flowing backward. The neck, the breast, the belly, and thighs, are of the same glowing crimson colour, which, as well as the back and wings, are spangled with the same pearly tears as in the male, though less numerous on the wing-coverts : the back and wings, and smaller tail-feathers, are of a rich orange ground, marked with minute black lines or bars ; the tip of the tail black. These birds are by no means common in Hindoostan, though frequently seen in paintings done in India ; where the male is called *gingee moory*, or marbled bird ; and the female *moory mammooree*, or the bright bird.

2. *Penelope cristata*, the crested penelope, or quan : an upright crest on the head ; temples violet. Marcgrave was the first who noticed this curious bird. Several ornithologists, copying him, have ranged it with the pheasants : whilst Brisson, Edwards, and Latham, have classed it with the turkey. It is rather larger than a fowl : length two feet six inches ; bill two inches long, and black ; irides dull orange ; sides of the head covered with a naked purplish blue skin, in which the eyes are placed ; beneath the throat, for an inch and a half, the skin is loose, of a fine red colour, and covered only with a few hairs ; the top of the head is furnished with long feathers, which

the bird can erect as a crest at will. The general colour of the plumage is brownish black, glossed with copper in some lights; but the wing-coverts have a greenish and violet gloss: the quills mostly incline to purple. The fore part of the neck, breast, and belly, are marked with white spots; the thighs, under tail-coverts, and the tail, brownish black: the legs are red, and destitute of spurs; claws black. Some of these birds are observed to have little or no crest, and are supposed to be *females*. It inhabits Brazil, where it is often made tame. It frequently utters a noise not unlike the word *jaeu*. The flesh is much esteemed.

Dr. John Latham, of Romsey, in a most elaborate Essay on the Tracheæ of Birds, read before the Linnæan Society in 1797, has noticed wherein some species of this genus differ from the ordinary conformation in that particular. But he previously observes, that "in most birds the natural shape of the trachea, *aspera arteria*, or windpipe, by all which names this part is known, is that of a regularly-uniform cylinder of equal diameter, or nearly so, throughout, from its rise at the root of the tongue to its entrance into the hollow of the thorax, sternum, or breast-bone, where it divides into two branches called bronchiæ, which ramify into air-vessels which compose the two lobes of the lungs. This, I say, is the general mode of construction: but ornithologists pretty far back have noticed nature's deviation from this usual structure, both in respect to the various curvatures of the windpipe itself, as well as the difference of some from others in respect to conformation; but their sentiments were penned in too vague a manner to determine much thereon, not answering the purpose further than to stimulate our future researches. As far as the deviation from a cylindrical shape is concerned, it is observable that the peculiar difference in structure is seen only in the male sex, the female not having the least enlargement, or increased cavity, as will hereafter be mentioned: but to what purpose nature has intended this, is, I believe, at present unknown to us. Some authors have given as their opinion, that the enlargement of the trachea in males, whenever it happens, serves to increase the tone of voice; and that this sex is enabled, by means of it, to cry out more forcibly than those birds which have no such construction of parts, an instance of which is pointed out in the golden-eye duck, the Latin name of which (*Anas clangula*) has been given to it from this supposed circumstance. In respect to what assistance such a construction of parts as above said may afford to the tone of the voice, I will not venture here to affirm; for it cannot be denied that some birds are able to utter very loud sounds without such aid, witness the cock, peacock, and others. We see Nature's operations and admire them in course, yet cannot always comprehend the utility of her works; and this seems one of her designs concerning which we are not at all clear.

"In the quan, or guan, the windpipe not only descends much lower on the breast, but at the bottom part it doubles upwards for at least one-third of its length. It differs also in another particular; for, instead of making a descent on the left side, it passes down on the right, and, contrary to the others, returns upwards, and goes into the cavity of the thorax over the left clavicle."

3. Penelope Cumanensis, the Cayenne penelope, or yacou: blackish; crest and first quill-feathers white. This is also larger than a fowl. The bill black; the head-feathers long and pointed, forming a crest, which can be erected at pleasure; irides pale rufous; space round the eyes naked, of a bluish colour, and not unlike that of a turkey: it has also a naked membrane, or kind of wattle, of a dull black; the blue skin comes forward on the bill, but is not liable to change colour like that of the turkey. The plumage has not much variation; it is chiefly brown, with some white markings on the neck, breast, wing-coverts, and belly; the tail is pretty long, and even at the end; legs red. This is found at Cayenne, but is a rare bird, being met with only in the interior parts, or

about the Amazons country: though it is in much greater plenty up the river Oyapoc, especially towards Camoupi: and indeed those that are seen at Cayenne are mostly tame ones; for it is a familiar bird, and will breed in that state, and mix with other poultry. It makes its nest on the ground, and hatches its young there, but is at other times mostly seen on trees. It will frequently erect its crest, when pleased or taken notice of, and likewise spread the tail upright, like a fan, in the manner of the turkey. It has two kinds of cry; one like that of a young turkey, the other more plaintive: the first of these is thought by the Indians to express the word *couyavoit*, the other *yacou*,

4. Penelope marail, the green penelope, or marail: upper surface green; naked orbits and legs red; throat naked, speckled with white. This species is of the size of a fowl, and not unlike it in shape. The bill and irides blackish; space round the eye bare, and of a pale red; chin, throat, and fore-part of the neck, barely covered with feathers: but the throat itself is bare, and the membrane elongated to half an inch more; both this, and the skin round the eyes, change colour, and become deeper and thicker when the bird is irritated: head-feathers longish, so as to appear like a crest when raised up, which the bird often does when agitated; at which time it also erects those of the whole head, and so disfigures itself as to be scarcely known. The general colour of the plumage is a greenish black; the fore-part of the neck tipped with white. The wings are short; the tail long, even at the end, and can be lifted up and spread out like that of a turkey; the legs and toes of a bright red; claws crooked, and somewhat sharp. This species is common in the woods of Guiana, at a distance from the sea, though it is much less known than could be imagined. They are generally found in small flocks, except in breeding-time, when they are only seen by pairs, and then frequently on the ground, or on low shrubs; at other times on high trees, where they roost. The female makes her nest on some low bushy tree, as near the trunk as possible, and lays three or four eggs. When the young are hatched, they descend with their mother, after ten or twelve days. The mother acts as other fowls, scratching on the ground like a hen, and brooding the young, which quit their nurse the moment they can shift for themselves. They have two broods in a year; one in December or January, the other in May or June. The young birds are easily tamed, and seldom forsake the places where they have been brought up; they need not be housed, as they prefer roosting on tall trees to any other place. Their cry is not inharmonious, except when irritated or wounded, when it is harsh and loud. The flesh is much esteemed.

Buffon supposes this bird to be the female of the yacou, or at least a variety; but that this cannot be, the anatomical inspection will at once determine. The windpipe of this bird has a singular construction, passing along the neck to the entrance of the breast, where it rises on the outside of the flesh, and, after going a little way downwards, returns, and then passes into the cavity to the lungs. It is kept in its place on the outside by a muscular ligament, which is perceivable quite to the breast-bone. This is found to be the case in both male and female, and plainly proves that it differs from the yacou, whose windpipe has been already described.

If this be the bird mentioned by Fermin, in his history of Guiana, he says that the crest is *uneiform*, and of a black-and-white colour; and observes that they are very scarce at Surinam. Bancroft mentions a bird of Guiana by the name of *marrodee*, which, he says, is wholly of a brownish black; the bill the same; legs grey. These, he says, are common, and make a noise not unlike the name given it, perching on trees. The Indians imitate their cry so exactly as to lead to the discovery of the place the birds are in, by their answering it. The flesh of them is like that of a fowl. This is probably a variety of our species.

The figures on the annexed Plate correspond with the four species above described.

5. Penelope pipile, the piping curassow: back brown spotted with black, belly black; caruncle on the chin blue. This species was discovered by Jacquin; and is readily distinguished by its hissing or piping noise. The skin is bare on the neck, and of a dull green, with a blue caruncle on its throat. The head is partly black, and partly white; and adorned with a short crest, similar to, though smaller than, the other species. The irides are black, and the space round the eyes white: the belly and vent is white; but the back and wing-coverts are brown, waved or spotted with deep black; legs and feet inclined to red. It is about the size of a common fowl; and is found in Guiana and Brazil; but is a scarce bird.

6. Penelope vociferans, the crying curassow: brown; bill and breast blue, belly whitish. This bird was first introduced by Fernandez, who gives a very slight description; viz. "that the bill is bluish; the back brown; the breast blue; and the belly of a whitish brown; and that it is of the same size with the others." It inhabits Mexico, and cries like other fowls, or rather like the whole family of the poultry-yard together; for it is so loud and continual, that one of these often makes more noise than all the rest of them put together. The Mexican name *chachalacumetl*, signifies crying bird. It is said to frequent mountainous places, where it brings up its young. This last has been removed by Dr. Turton to the end of the genus CRAX.

PENE'OS, or SALAM'PRIA, a river of Thessaly, which runs into the Egean Sea twenty miles east of Larissa. See PENEUS.

PENERARIUS, *f.* in old records, a standard-bearer, the officer who bore the banner.

PENETRABILITY, *f.* Susceptibility of impression from another body.—There being no mean between penetrability and impenetrability, passivity and activity, they being contrary; therefore the infinite rarefaction of the one quality is the position of its contrary. *Cheyne's Phil. Principles.*

PENETRABLE, *adj.* [Fr. *penetrabilis*, Lat.] Such as may be pierced; such as may admit the entrance of another body:

Let him try thy dart,
And pierce his only penetrable part. *Dryden.*

Susceptive of moral or intellectual impression:

I am not made of stone,
But penetrable to your kind entreaties. *Shakespeare.*

PEN'ETRAIL, *f.* [*penetrabilia*, Lat.] Interior parts. *Not in use.*—The heart resists purulent fumes, into whose penetrails to insinuate some time must be allowed. *Harvey.*

PEN'ETRAL, *f.* The inner open part of a house. *Cole.*

PEN'ETRA'LE, *f.* A sacred room or chapel in private houses, which was set apart for the worship of the household gods among the ancient Romans. In temples also there were *penetrabilia*, or apartments of distinguished sanctity, where the images of the gods were kept, and certain solemn ceremonies performed.

PEN'ETRANCY, *f.* Power of entering or piercing.—The subtilty, activity, and penetrancy, of its effluvia, no obstacle can stop or repel, but they will make their way through all bodies. *Ray on the Creation.*

PEN'ETRANT, *adj.* Having the power to pierce or enter; sharp; subtle.—The food, mingled with some dissolvent juices, is evacuated into the intestines, where it is further subtilized, and rendered so fluid and penetrant, that the finer part finds its way in at the freight orifices of the lacteous veins. *Ray.*—Having power to affect the mind.—A modest and friendly style doth suit truth; it, like its author, doth usually reside (not in the rumbling wind, nor in the shaking earthquake, nor in the raging fire, but) in the small still voice: founding in this, it is most audible, most penetrant, and most effectual. *Barrow's*

Serm. 4 on Tit. iii. 2.—The learned writings of St. Austin, St. Hierom, &c. [and] penetrant and powerful arguments. *Boyle's Style of H. Script.*

To PEN'ETRATE, *v. a.* [*penetro*, Lat. *penetrer*, Fr.] To pierce; to enter beyond the surface; to make way into a body.—Marrow is, of all other oily substances, the most penetrating. *Arbuthnot on Aliments.*

Thy groans
Did make wolves howl, and penetrate the breasts
Of ever-angry bears. *Shakespeare's Tempest.*

To affect the mind. To reach the meaning.—There shall we clearly see the uses of these things, which here were too subtle for us to penetrate. *Ray.*

To PEN'ETRATE, *v. n.* To make way:
Court-virtues bear, like gems, the highest rate
Born where heav'n's influence scarce can penetrate:
Though the same sun, with all-diffusive rays,
Smile in the rose, and in the diamond blaze,
We praise the stronger effort of his power,
And always set the gem above the flower. *Pope.*

To make way by the mind.—If we reached no farther than metaphor, we rather fancy than know, and have not yet penetrated into the inside and reality of the thing. *Locke.*

PENETRA'TION, *f.* The act of entering into any body:

It warms
The universe, and to each inward part
With gentle penetration, though unseen,
Shoots invisible virtue even to the deep. *Milton's P. L.*

Mental entrance into any thing abstruse.—A penetration into the abstruse difficulties and depths of modern algebra and fluxions, is not worth the labour of those who design either of the three learned professions. *Watts.*—Acuteness; sagacity.—The proudest admirer of his own parts might consult with others, though of inferior capacity and penetration. *Watts.*

PEN'ETRATIVE, *adj.* Piercing; sharp; subtle.—Let not air be too gross, nor too penetrative, nor subject to any foggy noisomeness from fens. *Wotton.*—Acute; sagacious; discerning:

O thou, whose penetrative wisdom found
The South-sea rocks and shelves, where thousands drown'd.
Swift's Miscellanies.

Having the power to impress the mind:

Would'st thou see
Thy master thus with pleacht arms bending down
His corrigible neck, his face subdu'd
To penetrative shame? *Shakespeare.*

PEN'ETRATIVENESS, *f.* The quality of being penetrative.

PENEUS, in ancient geography, a river of Thessaly, rising on mount Pindus, and falling into the Thermean gulf, after a wandering course, between mount Ossa and Olympus, through the plains of Tempè. It received its name from Peneus, a son of Oceanus and Tethys. The Peneus anciently inundated the plains of Thessaly, till an earthquake separated the mountains Ossa and Olympus, and formed the beautiful vale of Tempè, where the waters formerly stagnated. From this circumstance, therefore, it obtained the name of *Araxes*, from *αραξωω*, to cleave. The present name of *Salampria* is ancient, as, according to Eustathius, this river was in his time called *Salimprias*, a name, according to Hesychius, of Greek origin, *σαλαβρη* and *σαλαμβρη*, signifying the "openings of gates."

Most authors are of opinion, that Deucalion's deluge was occasioned by the river Peneus. To this purpose, Herodotus observes, "It is said that Thessaly once was nothing but a lake, being environed on all sides with hills. The country which lies between those hills is what they call Thessaly, which is watered with plenty of rivers, the chief

chief of which are the Peneus, the Apidanus, the Onchones, the Eripeus, and the Panito. These five rivers, falling down from the neighbouring mountains, after having run through the low country, disembogue themselves into the sea by a very narrow canal, where they all unite, and make but one great river, which retains the name of Peneus. They tell us farther, that before the canal was made, these rivers flooded the whole country, and turned it into a great lake; but that, Neptune having formed that great canal, all the waters retired." Peneus, on account of its beauty, was an object of worship. Daphne, the daughter of the Peneus, according to the fables of the mythologists, was changed into a laurel on the banks of this river. This tradition arises from the quantity of laurels which grow near the Peneus. *Ovid's Met.* i. 452, &c.

PENGEHUR', a town of Persia, in the province of Mecran: 130 miles north of Kidge, and 180 east-north-east of Kieh.

PENGHIU'M, a town of the Birman empire, at the confluence of a small river with the Irawaddy: near Yayingnangheum, or Earth-oil creek.

PEN'GUIN, *f.* [from the Welch *pen*, head, and *guin*, white.] See *APTENODYTES*, vol. i.—This bird was found with this name, as is supposed, by the first discoverers of America; and *penguin* signifying in Welch a white head, and the head of this fowl being white, it has been imagined that America was peopled from Wales; whence Hudibras: "British Indians nam'd from *penguins*." Grew gives another account of the name, deriving it from *pinguis*, Lat. fat: "The *penguin* is so called from his extraordinary fatness; for, though he be no higher than a large goose, yet he weighs sometimes sixteen pounds; his wings are extreme short and little, altogether unuseful for flight, but by the help whereof he swims very swiftly." Grew's Museum.—But it is as unlikely that the American Indians should derive the name of a bird from the Latin as from the Welch.—The isle is three miles about, in which we saw abundance of *penguins*, in Welch "white-heads," agreeable to their colour. *Sir T. Herbert's Travels*.—There are very many great lazy fowls upon and about this island, with great coal-black bodies, and very white heads, called *penguins*. *Terry's Voy. to the East Indies*, 1655.—A fruit. See *BROMELIA penguin*.—The *penguin* is very common in the West Indies, where the juice of its fruit is often put into punch, being of a sharp acid flavour: there is also a wine made of the juice of this fruit, but it will not keep good long. *Miller*.

PEN'GUIN I'SLAND, a small island near the coast of New Holland, at the entrance into Adventure Bay. Lat. 43. 21. N. lon. 147. 33. E.

PEN'GUIN I'SLAND, a small island near the Cape of Good Hope, a little to the north of Table Bay.

PEN'GUIN I'SLAND, an island near the south coast of Newfoundland. Lat. 47. 22. N. lon. 56. 45. W.

PEN'GUIN I'SLAND, a small island near the coast of Patagonia, abounding in seals and penguins: nine miles south-east of Port Desire.

PEN'GUIN ISLAND, one of the New Shetland Islands lately discovered! No official accounts of the discovery of this antarctic country has yet been made public; and it is said that no official account is meant to be promulgated from that high branch of government to which such matters more immediately belong. This report is, however, we trust, inaccurate. Since the second voyage of the *William*, a journal of which voyage has been published in the *Literary Gazette*, it appears that two Russian frigates on a voyage of discovery circumnavigated the *New Shetland Islands*, (for islands it is said this supposed antarctic land is;) and the *Sandwich Land* of Capt. Cook proved also to be an island. From the whole of these discoveries it results, as far as is hitherto known, that a very lucrative trade in seals may be carried on, as the sea swarms with these animals, which are of great size, full of oil, and have the finest fur. In other respects ani-

mal existence is limited in variety, though not in the number of particular species. The shores are covered with penguins, which even dispute possession with the human visitors. There are gulls, albatrosses, and one land-bird about the size of a pigeon. The sea-elephant also inhabits these dreary parts; whales are also numerous, but extremely poor. No small fish were caught or seen; and the only conchological products on the shores were the empty shells of limpets.

One of these islands has been named *PENGUIN ISLAND*: the latitude of anchorage was ascertained to be 62. 6. S. at the south-east end of the island; the longitude where the jack was planted, 58. 7. W. variation of the needle, 23. 59. E. In *George's Bay*, so named in honour of his majesty, on account of its being the first part in which the British flag was hoisted, the tides rise pretty regularly from 14 to 16 feet, and appear to be entirely influenced by the winds. The coast at the bottom of the bay consists of high snow-cliffs. Notwithstanding the sterility of the land, there is a slight soil at the back of the watering-place, a mixture of sand and mould, by digging into which, not more than a foot in depth, water was found. The swampy land was covered with a sort of grass and moss, both of which abound in great quantities, and are all that deserves to be called vegetation. No land-animal, except birds, was seen. Snow of a reddish tint was seen here, as in the arctic regions: the cause of this colour the observers could not account for; it could not be occasioned by the soil, since under the chief place where the snow was found there ran a very rapid stream of considerable depth, and the voyagers were then passing over valleys filled with snow. The stones and rocks consisted principally of white and brown granite and lime-stone, together with some varieties, of which specimens were preserved.

PEN'HA GARCIA. See *PEGNA GARCIA*.

PEN'IA, in mythology, the goddess of Poverty and mother of Love.

PENJANG'. See *PANJANG*.

PEN'IBLE, *adj.* [French.] Painful. *Chaucer*.

PEN'ICHE, a seaport town of Portugal, in Estremadura situated on a peninsula which runs into the Atlantic. It is fortified, and defended by a citadel; it contains three parishes, and about 2800 inhabitants. This town is sometimes called *New Lisbon*: thirty-nine miles north-north-west of Lisbon, and thirty-four west of Santarem. Lat. 39. 20. N. lon. 9. 5. W.

PENICIL'LA, *f.* A lozenge, a form of medicine.

PENICIL'LUS, *f.* A tent, a medicated roll to be put into a deep wound or ulcer.

PENIDIUM, *f.* A form of medicine prepared from clarified sugar.

PENI'EL. See *PENUEL*.

PENJEKO'REH, a town of Candahar, in Cabulistan: eight miles west of Mashanger.

PENJEKO'REH, a river of Asia, which runs into the Sewad about five miles south of the town of Penjekoreh.

PEN'IGK, or PENIG, a town of Saxony, and capital of a lordship in the principality of Schonburg, which is a Saxon fief, on the Muldau. Here is a manufacture of woollen stuffs and a pottery: thirty-eight miles west of Dresden, and twenty-eight south-south-east of Leipzig. Lat. 50. 52. N. lon. 12. 35. E.

PEN'ING, a town of Bavaria, in the principality of Aichstatt: nine miles east-north-east of Aichstatt.

PENIN'NAH, *f.* [Heb. a pearl.] The second wife of Elkanah, the father of Samuel. Peninnah had several children, (1 Sam. i. 2, 3, &c.) but Hannah, who afterwards was mother of Samuel, was for a great while barren. Peninnah, instead of giving the glory to God, the author of fruitfulness, was elevated with pride, and insulted her rival Hannah. But, the Lord having visited Hannah, Peninnah was thereupon humbled; and some interpreters think that God took away her children from her, or at least that she had no more after this time, according

ording to the words of the song of Hannah, (1 Sam. ii. 5.) "The barren hath born seven, and she that hath many children is waxed feeble."

PENIN'SULA, f. [*penè insula*, Lat. *peninsula*, Fr.] A piece of land almost surrounded by the sea, but joined by a narrow neck to the main.—A side of Milbrook lieth the *peninsula* of Infwork, on whose neckland standeth an ancient house. *Carew*.—Spain, from its situation, is generally called, by way of distinction, the *Peninsula*. *James's Mil. Dict.*

PENIN'SULA POINT, a cape on the west coast of the island of Mindoro. Lat. 12.40. N. lon. 120.56. E.

PENIN'SULATED, adj. Almost surrounded by water.—The mountains, the river Neath, and its shady banks, form a beautiful back-ground and contrast to the bold craggy shore, and the broken *peninsulated* knolls, which not infrequently project from it. *Wyndham's Tour*.

PENINUS, in mythology, a god acknowledged by the Penini, inhabitants of the Alps, from whom that chain of mountains derived its name: as we learn from Livy, Dec. 3. xi. 38. Guichenon, in his History of Savoy, has preserved the inscription that was upon the pedestal of a fine statue, that represented this god under the figure of a young man naked, in these terms, "L. Lucilius Deo Penino Optimo Maximo donum dedit." Cato and Servius (in 3 Æn.) say, that this was not a god, but a goddess, whom the one calls Penina, and the other Apenina; but both the figure and the inscription express the contrary. The statue of that god was afterwards carried off, and that of Jupiter put in its place. Nevertheless, the worship of Peninus was not abolished, but the mountaineers continued to pay adoration to him. Some say that this god was Jupiter himself, which they infer from the epithets "Optimus Maximus;" but others say that he was the Sun; and that the carbuncle upon the statue, called Peninus's eye, was the same with that of Osiris, who, in Egypt, represented the Sun.

PENISAA'RI, an island of the Baltic, three versts long, and distant six versts from LavanSaari, which see. It is inhabited only by a few families, and has no water-springs.

PENISCO'LA, a town of Spain, in Valencia, situated on the coast of the Mediterranean, surrounded on three sides by the sea, and difficult of access by land: twenty-four miles south of Tortosa, and 195 east of Madrid. Lat. 40.24. N. lon. 0.24. E.

PENISHE'HR, or **PENJESHEHR**, a town of Candahar, and capital of a district, in the Cabulistan, on the east side of the Hindoo-Kho Mountains: forty-six miles north of Cabul. Lat. 35.16. N. lon. 68.24. E.

PEN'ISTONE, or **PENNISTON**, a small market-town, in the West Riding of Yorkshire, situated eight miles west-south-west from Barnsley. The market is on Thursday, but it is little frequented. Here are four annual fairs, which are chiefly noted for the sale of moor-sheep. The town is environed with dreary moors, especially to the westward, where nothing presents itself to the eye but bleak and barren mountains, covered with heath or ling. Penistone, according to the population returns, contains 115 houses, and 515 inhabitants. The church is a large structure; and near the centre of the town is a well-endowed grammar-school. *Beauties of England and Wales*, vol. xvi.

PEN'ITENCE, or **PENITENCY, f.** [*penitence*, Fr. *pœnitentia*, Lat.] Repentance; sorrow for crimes; contrition for sin, with amendment of life or change of the affections.—Where *penitency*, not disturb'd may grieve. *Taylor's Hog hath lost his Pearl*.

Death is deferr'd, and *penitence* has room
To mitigate, if not reverse, the doom.

Dryden.

PENITENCE is sometimes used for the discipline, or punishment, attending repentance; more usually called *penance*. It also gives title to several religious orders, consisting either of converted debauchees and reformed

VOL. XIX. No. 1323.

prostitutes, or of persons who devote themselves to the office of reclaiming them. Of this latter kind is the

Order of Penitence of St. Magdalen, established about the year 1272 by one Bernard, a citizen of Marseilles, who devoted himself to the work of converting the courtizans of that city. Bernard was seconded by several others; who, forming a kind of society, were at length erected into a religious order by pope Nicholas III. under the rule of St. Augustine. Father Gesnay says, that they also made a religious order of the penitents, or women they converted, giving them the same rules and observances which they themselves kept.

Congregation of Penitence of St. Magdalen at Paris, owed its rise to the preaching of one Tiferan, a Franciscan, who converted a vast number of courtizans about the year 1492. Louis duke of Orleans gave them his house for a monastery; or rather, as appears by their constitutions, Charles VIII. gave them the hotel called Bochaigne, whence they were removed to St. George's chapel in 1572. By virtue of a brief of pope Alexander, Simon bishop of Paris, in 1497, drew up for them a body of statutes, and gave them the rule of St. Augustine. It was necessary, before a woman could be admitted, that she had first committed the sin of the flesh. None were admitted who were above 35 years of age. Till the beginning of the 17th century, none but penitents were admitted; but, since its reformation by Mary Alvequin, in 1616, none have been admitted but maids, who however still retain the ancient name penitents.

PENITENT, adj. Repentant; contrite for sin; sorrowful for past transgressions, and resolutely amending life.—The proud he tam'd, the *penitent* he chear'd. *Dryden*.

Much it joys me

To see you become so *penitent*.

Shakespeare.

PEN'ITENT, f. One sorrowful for sin.—The repentance, which is formed by a grateful sense of the divine goodness towards him, is resolved on while all the appetites are in their strength: the *penitent* conquers the temptations of sin in their full force. *Rogers*.—One under censures of the church, but admitted to penance.—The counterfeit Dionysius describes the practice of the church, that the catechumens and *penitents* were admitted to the Lessons and Psalms, and then excluded. *Stillingfleet*.—One under the direction of a confessor.

PENITENTS, an appellation given to certain fraternities of persons distinguished by the different shape and colour of their habits. These are secular societies, who have their rules, statutes, and churches, and make public processions under their particular crosses or banners. Of these there are more than a hundred, the most considerable of which are as follow: The White Penitents, of which there are several different forts at Rome, the most ancient of which was constituted in 1264; the brethren of this fraternity every year give portions to a certain number of young girls, in order to their being married: their habit is a kind of white sackcloth, and on the shoulder is a circle, in the middle of which is a red-and-white cross. Black Penitents, the most considerable of which are the Brethren of Mercy, instituted in 1488 by some Florentines, in order to assist criminals during their imprisonment, and at the time of their death: on the day of execution, they walk in procession before them, singing the seven penitential psalms and the litanies; and, after they are dead, they take them down from the gibbet and bury them; their habit is black sackcloth. There are others whose business it is to bury such persons as are found dead in the streets: these wear a death's head on one side of their habit. There are also blue, grey, red, green, and violet, penitents; all of whom are remarkable for little else besides the different colour of their habits. Mabillon tells us, that at Turin there are a set of penitents kept in pay to walk through the streets in procession, and cut their shoulders with whips, &c.

Penitents of the Name of Jesus, a congregation of religious

Y

religious

ligious at Seville in Spain, consisting of women who had led a licentious life, founded in 1550. This monastery is divided into three quarters: one for professed religious; another for novices; a third for those who are under correction. When these last give signs of a real repentance, they are removed into the quarter of the novices, where, if they do not behave themselves well, they are remanded to their correction. They observe the rule of St. Augustine.

Penitents of Orvieto, are an order of nuns, instituted by Antony Simoncelli, a gentleman of Orvieto, in Italy. The monastery he built was at first designed for the reception of poor girls abandoned by their parents, and in danger of losing their virtue. In 1662 it was erected into a monastery, for the reception of such as, having abandoned themselves to impurity, were willing to reform, and consecrate themselves to God by solemn vows. Their rule is that of the Carmelites. These religious have this in peculiar, that they undergo no novitiate. All required is, that they continue a few months in the monastery in a secular habit; after which they are admitted to the vows.

PENITENTIAL, *adj.* Expressing penitence; enjoined as penance.—Is it not strange, that a rational man should adore leeks and garlic, and shed *penitential* tears at the smell of a deified onion. *South.*

I have done penance for contemning love,
Whose high imperious thoughts have punish'd me
With bitter fasts and *penitential* groans. *Shakespeare.*

PENITENTIAL, *f.* [*penitenciel*, Fr. *penitenciale*, low Lat.] A book directing the degrees of penance.—The *penitential*, or book of penance, contained such matters as related to the imposing of penance, and the reconciliation of the person that suffered penance. *Ayliffe.*—There are various *penitentials*, as the Roman *penitential*, that of the venerable Bede, that of pope Gregory III. &c. *Chambers.*

PENITENTIARY, *adj.* Relating to the rules and measures of penance.—There needed no other *penitentiary* tax. *Bp. Bramhall's Schism Guarded.*

PENITENTIARY, *f.* [*penitencier*, Fr. *penitenciarus*, low Lat.] In the ancient Christian church, a name given to certain presbyters or priests, appointed in every church to receive the private confessions of the people, in order to facilitate public discipline, by acquainting them what sins were to be expiated by public penance, and to appoint private penance for such private crimes as were not proper to be publicly censured.—Upon the loss of Urbin, the duke's undoubted right, no *penitentiary*, though he had enjoined him never to straight penance to expiate his first offence, would have counselled him to have given over pursuit of his right, which he prosperously re-obtained. *Bacon.*—At the court of Rome, an office in which are examined and delivered out the secret bulls, graces, or dispensations relating to cases of conscience, confessions, &c.—An officer, in some of their cathedrals; vested with power from the bishop to absolve in certain cases. The pope has at present his grand penitentiary, who is a cardinal, and the chief of the other penitentiary priests established in the church of Rome, who consult him in all difficult cases. He presides in the penitentiary, dispatches dispensations, absolutions, &c. and has under him a regent and twenty-four proctors.—The great *penitentiary* with his counsellors prescribes the measure of penance. *Ayliffe.*—A penitent; one who does penance.—A prison restrained John Northampton's liberty, who, for abusing the same in his unruly mayoralty of London, was condemned hither as a perpetual *penitentiary*. *Carew.*—To maintain a painful fight against the law of sin is the work of the *penitentiary*. *Hammond.*—One kind of Franciscan.—Many other reformations have been from time to time of the Franciscans, as by the Minims, Recollects; *Penitentiaries*, Capuchins, &c. *Weaver.*—A place where penance is enjoined; as the *Penitentiary* at Milbank.

PENITENTLY, *adv.* With repentance; with sorrow for sin; with contrition.

PENITENTNESS, *f.* The state of being penitent.

PENK, a river of England, in the county of Stafford, which runs into the Sow about a mile below Stafford.

PENKE'MAS POINT, a cape or headland on the west coast of Wales, and north point of the county of Pembroke, at the mouth of the Tivy, four miles below Cardigan.

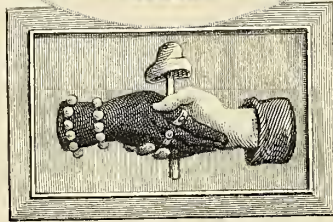
PEN'KNIFE, *f.* A knife used to cut pens.—Some schoolmen, fitter to guide *penknives* than swords, precisely stand upon it. *Bacon.*—We might as soon fell an oak with a *penknife*. *Holyday.*

PENK'RIDGE, a market-town in Staffordshire, seated on the river Penk, whence its name is supposed to have been derived, at the distance of six miles to the south of Stafford. It is of very great antiquity, and, according to Camden, was the site of the Roman station *Pennocrucium*, mentioned in the Itinerary of Antoninus; but Plot, Stukeley, and Horsley, place that station at the neighbouring village of Stretton; and Salmon transfers it to Oldbury in Warwickshire. However, though thus entertaining different opinions respecting the actual position of *Pennocrucium*, all these authors agree in considering the present town of Penkridge as the immediate offspring of the deserted station. Some Roman remains were discovered here about the middle of the last century; and, among other smaller articles, a brass head of the bolt of a catapult.

Penkridge is but a small mean-looking town. The inhabitants are principally engaged in different departments of the iron-trade. The market-day is Tuesday; and there are, besides, two fairs annually; one on the 30th of April; and the other, on October 10, for horses; and to this fair is brought a prodigious number of the finest and most beautiful horses that can any where be seen, from Yorkshire, the bishoprick of Durham, and all the horse-breeding counties in England. It may be marked for the greatest horse-fair in the world for horses of value, especially saddle-horses; though there are great numbers of fine large stone-horses for coach and draft sold likewise.

The church of Penkridge, *olim* Pencriz, is mentioned in the charter of king Stephen and the bull of pope Lucius, as given to the bishop and churches of Coventry and Lichfield, in the same manner with Wolverhampton and Stafford, which were notoriously royal free chapels, or colleges, and which makes it probable that this of Pencriz might be of the same nature. The advowson of the church and the manor were granted by one Hugh Houise to the archbishop of Dublin and his successors, which gift was confirmed by king John, anno regni 17; and in process of time that archbishop was always dean of this church, and had the collation of all the prebendaries, who were thirteen in number about 26th Henry VIII. when they were valued at 106l. 15s. The grant of king John to the archbishop of Dublin bears date 13th Sept. 1216, and is done away by the 1st Edward VI. 1547, by which act colleges and chantries were vested in the crown. King John's charter makes no mention how this church came to be endowed and became collegiate. Here was some foundation before the conquest; and it seems to have been collegiate temp. Hen. II. and it undoubtedly was so 20 Edw. I. In the time of Edw. III. that king gave to John de St. Paul the prebend of St. Michael in the free chapel of Pencrich, Dec. 6, 1337; and he protected Wm. de Killeley in the prebend of Cauk (perhaps rather Cank) in the chapel of Pencrich.

The church (a view of which was drawn and engraved by T. Donaldson for Shaw's History of Staffordshire, but never published) is dedicated to St. Michael; and at the dissolution was granted, 2 Edw. VI. to John earl of Warwick; and, 4 & 5 Phil. and Mary, to Wm. Riggs and Wm. Buckbird. Penkridge church is a large handsome fabric of stone, in the gothic style of architecture; the general exterior



WILLIAM PENN.

Engraved for the Encyclopædie Louthensis July 1823.

exterior appearance is magnificent, the walls being ornamented with small pinnacles and battlements; and contains sundry monumental memorials of the Littletons of Teddesley and Pileworth, barts, which title became extinct on the death of the third sir Edward, May 17, 1812, at the age of 84. Edward John Littleton, esq. of Teddesley, (about a mile from Penkridge,) who inherited the property, is son-in-law to the marquis of Wellesey, and M. P. for the county of Stafford: he possesses the great tythes of the parish. This church, or free royal chapel, has within its jurisdiction four chapels, Dunstan, Coppenhall, Sharehill, and Stretton.

Here is a charity school for twelve boys and eight girls. In 1819 two excellent school-rooms for the children of this and the neighbouring parishes, and a house for the master and mistress, were built by the above-named E. J. Littleton, esq. The schools are on the Madras system, and the whole of the expence defrayed by him.

According to the parliamentary returns of the population in 1821, the parish of Penkridge contained 1136 males and 1166 females; total of persons, 2302. Penkridge is ten miles from Wolverhampton, twenty-two from Newcastle-under-line, twenty-four from Birmingham, fifty-eight from Manchester and 129 north-west from London. Lat. 52. 43. N. lon. 2. 7. W.

West of Penkridge is the village of Whiston.—East of Penkridge is Wulaston.—Burton is near Penkridge: it had an abbey, built in 1004.

Cank, or Cannock, with its forest, is on the south of the Trent, near Penkridge. Here is an iron ore, called *cannock-stone*; the workmen call it yellow share. The village of Cank is near five miles south of the wood.

Sharehill is a small village belonging to the parish of Penkridge, two miles from Cannock. At the north and south entrance of this place are two square entrenchments, the area of the largest about one rood; they are generally supposed to have been Roman encampments, which their proximity to the Watling-street road seems to favour. The body of the church was rebuilt about sixty years since; only the tower and a few monuments were preserved from the old church, which are of very old date, and on them are several curious inscriptions.

Lapley, a small village to the south of this town, is distinguished as the site of an alien priory for black monks, which was annexed as a cell to the abbey of St. Remigius at Rheims, on whom it was bestowed by Aylmer, earl of Chester and Mercia, in the time of Edward the Confessor. At its suppression by Henry V. its site and possessions were given to the college of Tong. The church belonging to this priory is still standing, and is now the parochial place of worship. It has a handsome tower, which rises between the chancel and the body of the church.

Near this village is Stretton, mentioned above as the supposed site of Pénnochrucium. An elegant seat here, belonging to the family of Monckton, was anciently the property of the Congreves, ancestors to the celebrated dramatic poet of that name. The Roman road, called the Watling street, passes close to the south side of the village. *Tanner's Notitia Monastica. Camden's Britannia. Beauties of England and Wales, vol. xiii. British Directory, vol. iv. v.*

PEN'KUM, a town of Anterior Pomerania, surrounded with walls in the year 1190. It has often suffered greatly by war and fire: fifteen miles south-west of New Stettin, and forty-three north-north-west of Cultrin. Lat. 53. 19. N. lon. 14. 20. E.

PEN'LAU LEN'GAU, a river of Austria, which flows from Lake Alben, and runs into the Traun four miles south-west of Wels.

PEN'LEE POINT, a cape in the English Channel, on the south coast of the county of Cornwall, west of the entrance into Plymouth Sound.

PEN'MAEN MAUR, a large and lofty mountain of Caernarvonshire, North Wales, rises with a rapid ascent

from the southern shore of the Menai river. Its summit is about 1540 feet above the level of the sea. On the top is an ancient British fortress called Braich y Dinas; also a *bardie*, or Druidical circle of upright and prostrate stones. Near the base of the mountain, on the north side, is a turnpike-road from Aberconway to Bangor, &c. which was formed, with much difficulty and expence, about the year 1772. In some parts it is constructed on arches thrown across fissures, and in other parts it hangs over a steep and lofty precipice about 200 feet above the sea, and presents a terrific appearance to the traveller. A wall has been built to guard against dangers.

PEN'MAN, *f.* One who professes the art of writing.—I shall speak of this master and accountant, [E. Powell,] not only as a dexterous *penman*, but also as a scholar very well versed in the classical learning. *Masseys Orig. and Progress of Letters.*—An author; a writer.—The four evangelists, within fifty years after our Saviour's death, consigned to writing that history, which had been published only by the apostles and disciples; the further consideration of these holy *penmen* will fall under another part of this discourse. *Addison on the Chr. Religion.*

And thou, the *penman* of my historie,
Prepare sad verse for my sad tragedie. *Mir. for Mag.*

PEN'MAN HEAD, a cape of Scotland, on the north coast of Aberdeenshire. Lat. 57. 37. N. lon. 2. 9. W.

PEN'MAN ROSS, a mountain in Denbighshire, North Wales, near which there is a narrow dangerous road to St. Afaph.

PEN'MANSHIP, *f.* The use of the pen; art of writing.—In 1664 he [Cocker] published his Guide to *Penmanship. Masseys Orig. and Progress of Letters.*

PEN'MARCH POINT, a cape on the west coast of France, situated on the south of a bay, which takes its name from the town of Audierne: eighteen miles south-west Quimper, fifteen south-south-east of Audierne. Lat. 47. 48. N. lon. 4. 17. W.

PEN'MARCH ROCKS, rocks near the west coast of France, and south-east coast of the department of the Finistere, east of Penmarch Point. Lat. 47. 48. N. lon. 4. 6. W.

PENMOR'SA, a village in Carnarvonshire, North Wales, with three fairs; Aug. 20, Sept. 5, and Nov. 12.

PENN (Sir William), an admiral of England, and one of the commanders at the taking of Jamaica, was born at Bristol, 1621. Being addicted from his youth to the sea, he became a captain at twenty-one; and, after several intermediate promotions was made admiral in the first Dutch war, at thirty-two years of age. In 1665 he came home, and was chosen member of parliament for Weymouth, not without hereby incurring the displeasure of the republican government, by which he was committed for a while to the Tower, on a charge of quitting his command without leave, to the hazard of the army. Upon the restoration of the monarchy, he was made a commissioner of the admiralty and navy, governor of the town and fort of Kinsale, vice-admiral of Munster, and one of the council of that province. After sustaining the chief command, under the duke of York, in the victory over the Dutch in 1665, he took leave of the sea, but continued in his other employments till 1669, when, growing infirm, he retired to Wanstead, in Essex, and died there the year following. He is said to have acquitted himself, in his several high offices, with honour and fidelity.

PENN (William), an illustrious person among the Quakers, and founder of the colony of Pennsylvania, was the only son of the admiral above mentioned, by his wife Margarete, daughter of John Jasper, a merchant of Rotterdam. He was born in London, in the vicinity of the Tower, 14th October, 1644. His father gave him a liberal education, induced, no doubt, to greater care in the finishing of it, by prospects of his son's advancement at court, where he himself was in high favour. But the mind of the son was formed for other pursuits; and, before he had passed his twelfth

twelfth year, was already glowing with a sensibility to religion, which eventually unfitted him for the employments of a corrupt court, and gave him to others of a more honourable and beneficent nature. He was placed first at Chigwell school in Essex; then at a private academy on Tower Hill, with the advantage besides of a tutor; and lastly, in 1660, entered a gentleman commoner of Christ-Church college. He continued at Oxford two years, and was intimate with Robert Spencer, afterwards earl of Sunderland, and with John Locke. Though fond at this time of youthful sports, he had strong religious impressions; and, together with some other students withdrew from the national way of worship to hold private meetings, at which they preached and prayed among themselves. This conduct gave great offence to the heads of the college; and a large fine, with suitable admonitions, were imposed upon the young nonconformist. Just at this critical period, an order was unluckily received from court to resume the use of the surplice, which it seems had been discontinued almost ever since the period of the Reformation, and the sight of this unfortunate vestment "operated," as Mr. Clarkson expresses it, "so disagreeably on William Penn, that he could not bear it; and, joining himself with some other young gentlemen, he fell upon those students who appeared in surplices, and tore them every-where over their heads." This, we conceive, was not quite correct, even as a Quaker proceeding; and was but an unpromising beginning for the future champion of religious liberty. Its natural consequence, however, was, that he and his associates were, without further ceremony, expelled from the university; and, when he went home to his father, and attempted to justify by argument the measures he had adopted, it was no less natural that the good admiral should give him a box on the ear, and turn him out at the door.

The patience of young Penn held out under this rough treatment, until (parental affection taking place of anger, and possibly suggesting the expedient) his father concluded to send him, in company with some persons of rank, on a tour to France. This took place in 1662. Here, though he spent some time in study under the celebrated Protestant preacher Moses Amyraut, the very different conversation of other associates at length diverted his thoughts from religion. He had however acquired the language, together with the polished manners, of the French, when, in 1664, he was recalled by his father from Turin, to which place he had proceeded from Saumur, the residence of Amyraut. The admiral joyfully received his son, concluding the main point (of his fitness for promotion) was now gained. He was admitted of Lincoln's Inn to study the law, where he continued till the breaking out of the pestilence; soon after which, being now twenty-two years of age, his father put under his management a considerable estate in Ireland, and he went to reside in that kingdom.

In solitude, the religious struggle in Penn's breast revived. On the one hand, natural vivacity, personal accomplishments, and the respect and favour of his friends, attracted his regard to the present world: on the other, devotion, and an indelible sense of duty, fixed his contemplations on the next. He had been affected, about ten years before this time, by the preaching of Thomas Loe, a Quaker; and, being at Cork, was informed of a meeting for worship, then about to be convened, as it seems, by desire of the same person. Penn attended it, and Loe delivered a discourse, beginning with the words, "There is a faith that overcomes the world, and there is a faith that is overcome by the world;" on which he is said to have expatiated with much clearness and energy. His doctrine agreeing with the previous experience and present disposition of Penn, he now inclined to enter into a communion with the Quakers, and from this time constantly attended their meetings. At one of these held at Cork, November 1667, he, with many others, was apprehended by order of the mayor, who would have liberated Penn upon his giving bond for his good behaviour; but

the latter, deeming the meeting no misdemeanour, refused bond, and was sent to prison with the rest. He wrote a few lines to the earl of Orrery, containing exceptions to the mayor's proceedings, an argument against persecution, and a request "for the speedy release of all" who had been committed on the occasion. The earl contented himself with ordering Penn's discharge.

His father, being informed by a nobleman of his acquaintance of the danger his son was in of being proselyted to Quakerism, remanded him home, and was readily obeyed. Penn had now again to pass through the ordeal of parental displeasure; and in this a principal object seems to have been, his continuance in the exterior of his education, or, as his biographer has it, in the customs and fashions of the age. But so fixed was he in the resolution to follow what he esteemed a manifestation of the will of God in his conscience to the contrary, that, although he behaved on these occasions with Christian meekness and filial affection, neither threats nor entreaties could move his constancy. The honour of the hat (in these times a matter of no light esteem) was especially contended for by the punctilious admiral; who, at last, would have tolerated his son in other instances of nonconformity, on condition that he should be uncovered before the king, the duke of York, and himself. Penn took time to consider of this proposal in secret; he even made it a subject of fasting and supplication to God to be directed aright; and he at length deliberately refused the terms. This was sacrificing much to sincerity and consistency in his profession; for his father, upon this, finding his hopes of the *courtier* at an end, could no longer endure the *son* in his presence, and he was a second time driven from the paternal mansion. His integrity was now put to a severe proof: it appears, that he found a shelter among his adopted friends the Quakers, while his mother privately supplied his wants. At length the admiral relented, so far as to wink at his return to the family; and when, in consequence of being found at religious meetings (by the state then called seditious conventicles), he was at any time imprisoned, would privately use his influence to get him released.

The talents of Penn were soon devoted to the support of the doctrine he had espoused. He became a preacher among the Quakers, and published, in 1668, on their behalf, a piece entitled "Truth exalted." Another occasion, however, more important in its consequences, presently occurred. A preacher named Thomas Vincent, irritated by the going over of two of his hearers to the Quakers, accused the latter of holding erroneous doctrine concerning the Trinity. A dispute was held in consequence, in a meeting-house belonging to a presbyterian congregation in London, chiefly between Vincent on the one part, and George Whitehead, an eminent Quaker, on the other; but the dispute ended for the present to the satisfaction of neither side. In prosecution of the controversy thus raised, Penn wrote a piece with the following title: "The sandy Foundation shaken, or those so generally believed and applauded Doctrines, of one God subsisting in three distinct and separate Persons; the Impossibility of God's pardoning Sinners; a plenary Satisfaction; the Justification of impure Persons by an imputative Righteousness; refuted from the Authority of Scripture and right Reason." The dispute with Vincent had excited much attention. This publication did more; it stirred up the vindictive spirit of intolerance. It was evil spoken of, says Sewel, the historian of the Quakers; and not long after Penn was committed to the Tower; and, as some thought, not without his father's being acquainted with it, perhaps to prevent a worse treatment. From what quarter this was apprehended we shall see presently; for Penn being thus secured in the Tower, and denied the access of his friends, his servant one day brought him word (as it seems, from the admiral) that the bishop of London was resolved he should either publicly recant, or die a prisoner. His reply evinced a mind unterrified at the

the prospect of sufferings, which he considered as inflicted for conscience sake: and he began to occupy his solitude with religious compositions, the most considerable among which was a practical treatise on the Christian religion, entitled "No Cross No Crown." In this work his contemporary, Dr. Henry More, says, he has treated the subject of a future life, and the immortality of the soul, with a force and spirit equal to most writers. It has passed through many editions.

After near seven months' duration, Penn wrote to the secretary of state, lord Arlington, requesting to be heard in his own defence before the king, and complaining warmly of the manner in which his sentiments had been misrepresented by his enemies. In this letter several just and noble sentiments occur. He tells his lordship, "that he is at a loss to imagine how a diversity of religious opinions can affect the safety of the state, seeing that kingdoms and commonwealths have lived under the balance of divers parties. He conceives that they only are unfit for political society, who maintain principles subversive of industry, fidelity, justice, and obedience; but to say that men must form their faith of things proper to another world according to the prescriptions of other mortal men in this, and, if they do not, that they have no right to be at liberty or to live in this, is both ridiculous and dangerous. He maintains that the understanding can never be convinced by other arguments than what are adequate to its own nature. Force may make hypocrites, but can make no converts, &c. &c." He now likewise published a short piece, entitled "Innocency with her open Face, presented by way of Apology for the Book entitled The Sandy Foundation shaken." He here says, "that which I am credibly informed to be the greatest reason of my imprisonment, and of that noise of blasphemy which hath pierced so many ears of late, is my denying the divinity of Christ, and divesting him of his eternal Godhead; which most busily has been suggested, as well to those in authority, as maliciously insinuated among the people." In confutation of which charges, he proceeds to prove from Scripture the Godhead of Christ. Both of these tracts were republished in the collection of his works, in folio, 1771; and the reader, who desires to obtain a just view of his sentiments on the several controverted points, will do well to compare them with each other, and with his doctrinal works at large. Soon after this explanatory defence, Penn was liberated from the Tower; and went to Ireland, where he seems to have been occupied for twelve months in the care of his father's estate, and in various services to his friends, the Quakers; after which he returned to England.

In the year 1670, the Quakers, being persecuted by some magistrates under the act against conventicles, were forcibly kept out of their meeting-house in Gracechurch-street. They met as near it as they could, in the street, agreeably to their practice in such cases; and their firmness herein eventually procured them the free exercise of their right. On the occasion alluded to, Penn, preaching in the street, was apprehended by warrant from sir Samuel Starling, lord-mayor, and committed to Newgate. At the next sessions at the Old Bailey he was indicted, along with William Mead, another eminent Quaker, for meeting in, and conspiring to preach to, an unlawful and tumultuous assembly. He made, says his biographer, a brave defence, discovering both the free spirit of an Englishman, and the undaunted magnanimity of a Christian; in so much that, notwithstanding the most partial frowns and menaces of the bench, the jury acquitted them both. It ought to be added, that this jury exhibited an instance of firm persevering justice under most tyrannical and indecorous treatment by the court, worthy of the notice and remembrance of every Englishman. *They were fined forty marks each for the verdict which they had brought in, and ordered to be imprisoned till the fines were paid.* But this dangerous assumption of power was afterwards adjudged illegal by the court of Common Pleas, on which

occasion the chief justice Vaughan distinguished himself by a very able speech in vindication of the rights of juries. The trial of Penn and Mead is inserted in the collection of Penn's Works, and has been also published separately. (See Monthly Mag. Mar. 1811.)

Not long after this event admiral Penn died, perfectly reconciled to his son, to whom he left an estate of 1500l. per annum. Penn engaged about this time in a public dispute, at Wycombe, with Jeremy Ives, a celebrated Baptist, on the universality of a divine light in the minds of men; which doctrine Ives undertook to disprove, but seems to have quitted the field to his antagonist immediately after stating his argument. In the month called February, 1670-1, Penn was again committed, on the pretext of preaching publicly, to Newgate, where he remained six months. It is observable that he had recently published a piece in favour of liberty of conscience, and another entitled "A reasonable Caveat against Popery;" the one probably offensive to the intolerant clergy, the other to the court. At his commitment he held a spirited dialogue on persecution with sir John Robinson, lieutenant of the Tower; at the close of which, the latter calling for an officer with a file of musketers, "No, no," said Penn, "send thy lacquey, I know the way to Newgate."

Early in 1672 he married Gulielma Maria, daughter of sir William Springett, formerly of Darling in Sussex. He settled at Rickmanworth, Herts, continuing to render service, both by preaching and writing, to the religious cause in which he was now engaged for life. Nor did he neglect an attention to the interests of his country, but published, in this year, a pamphlet entitled "The proposed Comprehension soberly and not unseasonably considered;" and, in 1675, a larger work, the title of which is, "England's present Interest considered, with Honour to the Prince and Safety to the People, in Answer to this one Question, What is most fit, easy, and safe, at this juncture of Affairs, to be done for quieting of Differences, allaying the Heat of contrary Interests, and making them subservient to the Interest of the Government, and consistent with the Prosperity of the Kingdom?"

The year 1675 made a commencement of Penn's connexion with the North-American colonies. A moiety of the province of New-Jersey having been granted by Charles II. to sir George Berkeley, he sold his interest in it to one Billinge, a Quaker, who, being embarrassed in his circumstances, transferred his right in trust to William Penn and two others, for payment of his debts. Through their means, that moiety, named West New-Jersey, became settled principally by Quakers; and, through the prudent conduct of the trustees and settlers, it soon put on the appearance of a flourishing colony, which it has ever since maintained.

In 1677, Penn, in company with George Fox, Robert Barclay, and others, went over to Holland, and assisted at a general meeting of the *Friends* in those parts, held for the purpose of settling their religious discipline; and, those at Dantzic being under persecution, Penn wrote, in their name, an Address to the King of Poland, with a Confession of Faith, and a request that he would interpose for them. He then proceeded with Barclay to Herwerden, the court of the princess Elizabeth of the Rhine, elder sister of Sophia electress of Hanover, on whom the succession of the crown of England was afterwards settled. Their object was a religious visit to this princess and the countess of Hornes, her companion, both Protestants, and the former esteemed one of the most learned of her sex in that age. Some correspondence, begun upon the report of their extraordinary piety, had opened the way for a personal interview. Penn and his companion were well received at Herwerden; a correspondence by letter was afterwards kept up between the former and the princess; and, she dying in 1680, he inserted in the second edition of his "No Cross no Crown" a testimony to her highly-exemplary character. In returning through Germany and Holland, he

he preached in many places, at meetings convened for the occasion. He was heard, this year, before a committee of parliament, in support of a petition from the Quakers, who were oppressed by prosecutions in the exchequer, under statutes enacted against the Papists, but converted by some magistrates into engines of annoyance to Protestant dissenters. In 1679, and during two years following, he published several things; as, "An Address to Protestants;" "England's great Interest in the Choice of this new Parliament," a piece dedicated to the electors; and "One Project for the Good of England," which he presented to the parliament itself. He likewise exerted himself to procure the return of Algernon Sidney as a member of the house, first at Guildford, and afterwards at Bramber. About this time he was elected a fellow of the Royal Society.

We come now to the most considerable of Penn's actions, the settlement of a colony in North America, on liberal and pacific principles. A tract of country on the west side of the Delaware (formerly belonging to the Dutch, and called the New Netherlands) was granted, on petition, by Charles II. to William Penn, and his heirs, in consideration of admiral Penn's services, and of debts due to him from the crown at his decease. To this the duke of York added, by cession, a further contiguous portion of territory seated lower on the Delaware. The king's patent bore date the 4th of March, 1680-1. Penn originally intended, that the country should have been called *New Wales*; but the under secretary of state, being a Welshman, thought, it seems, that this was using too much liberty with the ancient principality, and objected to it. He then suggested *Sylvania*; but the king himself insisted upon adding *Penn* to it, and after some struggles of modesty, it was found necessary to submit to his gracious desires, and PENNSYLVANIA was the name adopted.

Penn, being thus constituted absolute proprietor and governor, published "A brief Account of the Province of Pennsylvania," in which he proposed terms of settlement to such as might incline to remove thither, offering land at forty shillings purchase, and one shilling per annum quit-rent, for one hundred acres. A great number of buyers came forward, several of whom formed a company, calling themselves "The free Society of Traders in Pennsylvania." Three ships presently departed, with adventurers from England and Wales, chiefly industrious and reputable persons of Penn's own communion. Two of these ships arrived on the coast in time to winter; the third was detained till spring in the West-India islands. Thus was the settlement begun, the proprietor being occupied meantime in providing a government for the colony, and in concerting measures for its security.

The native Americans, or Indians, having experienced, in some provinces on that continent, much injustice, had made the most terrible reprisals; sound policy, therefore, conspiring with his own temper and principles, made it Penn's care to have them treated with candour, justice, and humanity; and his relation, W. Markham, failing with the first settlers, he joined him with others in a commission to open a friendly intercourse with the natives, to whom he sent out considerable presents, and a letter couched in plain conciliatory terms. In the beginning of 1682 he published "The Frame of the Government of the Province of Pennsylvania in America, together with certain Laws agreed upon in England, by the Governor and divers Freemen of the aforesaid Province, to be further explained and confirmed there by the first provincial council that shall be held, if they seem meet." In the preface to this work we have a sketch of his sentiments on the forms and substance of civil government. "That," he observes, "which makes a good government, must keep it such: to wit, men of wisdom and virtue; qualities that, because they descend not with worldly inheritances, *must be carefully propagated by a virtuous education of youth.*" And, in order to give effect, where he had power, to that great principle of good government, liberty

of conscience, in behalf of which he and his friends at home so deeply suffered, he recognized it in the first article of his "Constitutions," and proceeded to establish it by the following "Law." "All persons living in the province who shall confess and acknowledge the one Almighty and Eternal God, to be the creator, upholder, and ruler, of the world, and that hold themselves obliged in conscience to live peaceably and justly in civil society, shall in no ways be molested or prejudiced for their religious persuasion, or practice in matters of faith and worship; nor shall they be compelled, at any time, to frequent or maintain any religious worship, place, or ministry, whatsoever."

In order to enforce these excellent laws and constitutions, Penn now prepared for his voyage to North America. As he intended to leave his family behind, he took leave of them in a most pathetic and instructive letter, from which, as it shows evidently the strength of his understanding and the benevolence of his mind, and contains matter of importance to every family, we shall make some extracts.

"My dear Wife and Children; My love, which neither sea, nor land, nor death itself, can extinguish or lessen toward you, most endearingly visits you with eternal embraces, and will abide with you for ever; and may the God of my life watch over you, and bless you, and do you good in this world and for ever! Some things are upon my spirit to leave with you in your respective capacities, as I am to one a husband, and to the rest a father, if I should never see you more in this world.

"My dear Wife! Remember thou wast the love of my youth, and much the joy of my life; the most beloved, as well as most worthy, of all my earthly comforts; and the reason of that love was more thy inward than thy outward excellencies, which yet were many. Now I am to leave thee, and that without knowing whether I shall ever see thee more in this world, take my counsel into thy bosom, and let it dwell with thee in my stead while thou livest.

"Cast up thy income, and see what it daily amounts to; by which thou mayest be sure to have it in thy sight, and power to keep within compass; and I beseech thee to live low and sparingly till my debts are paid, and then enlarge as thou seest it convenient.

"And now, my dearest, let me recommend to thy care my dear children; abundantly beloved of me, as the Lord's blessings, and the sweet pledges of our mutual and endeared affection. Above all things endeavour to bring them up in the love of virtue, and that holy plain way of it which we have lived in, that the world in no part of it get into my family. I had rather they were homely than finely bred as to outward behaviour; yet I love sweetness mixed with gravity, and cheerfulness tempered with sobriety. Next bring them up in a love one of another; tell them it is the charge I left behind me, and that it is the way to have the love and blessing of God upon them. Sometimes separate them, but not long; and allow them to send and give each other small things to endear one another with. Once more I say, tell them it was my counsel they should be tender and affectionate one to another. For their learning be liberal. Spare no cost; for by such parsimony all is lost that is saved; but let it be useful knowledge, such as is consistent with truth and godliness, not cherishing a vain conversation or idle mind; but ingenuity mixed with industry is good for the body and the mind too. I recommend the useful parts of mathematics, as building houses or ships, measuring, surveying, dialling, navigation; but agriculture is especially in my eye: let my children be husbandmen and housewives; it is industrious, healthy, honest, and of good example. Be sure to observe their genius, and do not cross it as to learning: let them not dwell too long on one thing; but let their change be agreeable, and all their diversions have some little bodily labour in them."

He next addresses himself to his children. "Be obedient

dient to your dear mother, a woman whose virtue and good name is an honour to you; for she hath been exceeded by none in her time for her integrity, humanity, virtue, and good understanding; qualities not usual among women of her worldly condition and quality. Therefore honour and obey her, my dear children, as your mother, and your father's love and delight; nay love her too, for she loved your father with a deep and upright love, choosing him before all her many suitors: and, though she be of a delicate constitution and noble spirit, yet she descended to the utmost tenderness and care for you, performing the painfullest acts of service to you in your infancy, as a mother and a nurse too. I charge you, before the Lord, honour and obey, love and cherish, your dear mother.

"Next: betake yourselves to some honest industrious course of life, and that not of sordid covetousness, but for example and to avoid idleness. And if you change your condition, and marry, choose with the knowledge and consent of your mother if living, or of guardians, or those that have the charge of you. Mind neither beauty nor riches; but the fear of the Lord, and a sweet and amiable disposition, such as you can love above all this world, and that may make your habitations pleasant and desirable to you. And, being married, be tender, affectionate, patient, and meek. Be sure to live within compass; borrow not, neither be beholden to any. Ruin not yourselves by kindness to others; for that exceeds the due bounds of friendship; neither will a true friend expect it. Small matters I heed not. Know well your in-comings, that your out-goings may be better regulated. Love not money nor the world; use them only, and they will serve you; but, if you love them, you serve them, which will debase your spirits, as well as offend the Lord. In making friends, consider well first; and, when you are fixed, be true, not wavering by reports, nor deserting in affliction; for that becomes not the good and virtuous. Watch against anger, neither speak nor act in it; for, like drunkenness, it makes a man a beast, and throws people into desperate inconveniences. Avoid flatterers, for they are thieves in disguise; their praise is costly, designing to get by those they bespeak; they are the worst of creatures; they lie to flatter, and flatter to cheat; and, which is worse, if you believe them, you cheat yourselves most dangerously. But the virtuous, though poor, love, cherish, and prefer. Next, my children, be temperate in all things; in your diet, for that is physic by prevention; it keeps, nay it makes people healthy, and their generation sound; this is exclusive of the spiritual advantage it brings. Be also plain in your apparel: keep out that lust, which reigns too much over some. Let your virtues be your ornaments; remembering that *life is more than food, and the body than raiment*. Let your furniture be simple and cheap. Avoid pride, avarice, and luxury.

"And as for you who are likely to be concerned in the government of Pennsylvania, and my parts of East Jersey; especially the first, I do charge you, before the Lord God and his holy angels, that you be lowly, diligent, and tender; fearing God, loving the people, and hating covetousness. Let Justice have its impartial course, and the Law free passage. Though to your loss, protect no man against it; for you are not above the law, but the law above you. Live therefore the lives yourselves, you would have the people live, and then you have right and boldness to punish the transgressors. Entertain no lurchers, cherish no informers for gain or revenge; use no tricks; fly to no devices to support or cover injustice; but let your hearts be upright before the Lord, trusting in him, above the contrivances of men, and none shall be able to hurt or supplant. So farewell to my thrice dearly beloved wife and children! Dated Worminghurst, 4th of Sixth Month, 1682.

WILLIAM PENN."

Immediately after writing this letter, he embarked, and arrived safely in the Delaware with all his companions.

The country assigned to him by the royal charter was yet full of its original inhabitants; and the principles of William Penn did not allow him to look upon that gift as a warrant to dispossess the first proprietors of the land. He had accordingly appointed his commissioners, the preceding year, to treat with them for the fair purchase of a part of their lands, and for their joint possession of the remainder; and, the terms of the settlement being now nearly agreed upon, he proceeded, very soon after his arrival, to conclude the settlement, and solemnly to pledge his faith, and to ratify and confirm the treaty, in sight both of the Indians and Planters. For this purpose a grand convocation of the tribes had been appointed near the spot where Philadelphia now stands; and it was agreed that he and the presiding Sachems should meet and exchange faith under the spreading branches of a prodigious elm-tree that grew on the bank of the river. On the day appointed, accordingly, an innumerable multitude of Indians assembled in that neighbourhood; and were seen, with their dark visages and brandished arms, moving, in vast swarms, in the depth of the woods which then overshaded the whole of that now-cultivated region. On the other hand, William Penn, with a moderate attendance of friends, advanced to meet them. He came of course unarmed; in his usual plain dress; without banners, or mace, or guards, or carriages; and only distinguished from his companions by wearing a blue sash of silk network (which it seems is still preserved by Mr. Kett of Seething-Hall, near Norwich), and by having in his hand a roll of parchment, on which was engrossed the confirmation of the treaty of purchase and amity. As soon as he drew near the spot where the Sachems were assembled, the whole multitude of Indians threw down their weapons, and seated themselves on the ground in groups, each under his own chieftain; and the presiding chief intimated to William Penn, that the nations were ready to hear him. Mr. Clarkson regrets, and we cordially join in the sentiment, that there is no written contemporary account of the particulars attending this interesting and truly-novel transaction. He assures us, however, that they are still in a great measure preserved in oral tradition, and that both what we have just stated, and what follows, may be relied on as perfectly accurate. The sequel we give in his own words. "Having been thus called upon, he began. The Great Spirit, he said, who made him and them, who ruled the heaven and the earth, and who knew the innermost thoughts of man, knew that he and his friends had a hearty desire to live in peace and friendship with them, and to serve them to the utmost of their power. It was not their custom to use hostile weapons against their fellow-creatures; for which reason they had come unarmed. Their object was not to do injury, and thus provoke the Great Spirit, but to do good. They were then met on the broad pathway of good faith and good will, so that no advantage was to be taken on either side, but all was to be openness, brotherhood, and love. After these and other words, he unrolled the parchment, and by means of the same interpreter conveyed to them, article by article, the conditions of the purchase, and the words of the compact then made for their eternal union. Among other things, they were not to be molested in their lawful pursuits even in the territory they had alienated, for it was to be common to them and the English. They were to have the same liberty to do all things therein relating to the improvement of their grounds, and providing sustenance for their families, which the English had. If any disputes should arise between the two, they should be settled by twelve persons, half of whom should be English, and half Indians. He then paid them for the land, and made them many presents besides, from the merchandise which had been spread before them. Having done this, he laid the roll of parchment on the ground, observing again, that the ground should be common to both people. He then added, that he would not do as the Marylanders did, that is, call them

them "children or brothers" only; for often parents were apt to whip their children too severely, and brothers sometimes would differ; neither would he compare the friendship between him and them to a chain, for the rain might sometimes rust it, or a tree might fall and break it; but he should consider them as the same flesh and blood with the Christians, and the same as if one man's body were to be divided into two parts. He then took up the parchment, and presented it to the Sachem who wore the horn in the chaplet, and desired him and the other Sachems to preserve it carefully for three generations, that their children might know what had passed between them, just as if he had remained himself with them to repeat it."

The Indians, in return, made long and stately harangues; of which, however, no more seems to have been remembered, but that "they pledged themselves to live in love with William Penn and his children, as long as the sun and moon should endure." And thus ended this famous treaty; of which Voltaire has remarked, with so much truth and severity, "that it was the only one ever concluded between Savages and Christians that was not ratified by an oath, and the only one that never was broken!"

Such, indeed, was the spirit in which the negotiation was entered into, and the corresponding settlement conducted, that, for the space of more than seventy years, and so long indeed as the Quakers retained the chief power in the government, the peace and amity which had been thus solemnly promised and concluded, never was violated; and a large and most striking, though solitary, example afforded, of the facility with which they who are really sincere and friendly in their own views, may live in harmony even with those who are supposed to be peculiarly fierce and faithless.

William Penn now held an assembly, in which fifty-nine important laws were passed in the course of three days. The most remarkable were those which limited the number of capital crimes to two, murder and high treason; and which provided for the reformation as well as the punishment of offenders, by making the prisons places of compulsive industry, sobriety, and instruction. It was likewise enacted, that all children, of whatever rank, should be instructed in some art or trade. The fees of law-proceedings were fixed, and inscribed on public tables; and the amount of fines to be levied for offences also limited by legislative authority. Many admirable regulations were added, for the encouragement of industry, and mutual usefulness and esteem.

Philadelphia, the capital of the province, was next to be laid out, of which, at the time of Penn's arrival, not a house was completed; the colonists having, in general, no better lodgings than caves, hollowed out of the high banks of the river: the very plot fixed on for the city was claimed by some Swedes, to whom the governor allowed a greater quantity of land in exchange. This city, extending two miles in length and one in breadth, and abutting at each end on a navigable river, was now planned, with admirable boldness, convenience, and regularity, and laid out under the inspection of Thomas Holmes, surveyor-general to the province. Ere twelve months had elapsed, the rudiments of the future metropolis showed themselves in about fourscore dwellings, the seats of freedom, peace, and industry. The governor dispatched his plan to the committee of the Free Society of Traders, accompanied with a description (the best extant of these times) of the country, its natural history, and aborigines: this description is inserted in the collection of his works before mentioned. The first jury was impannelled here early in 1683; and one Pickering was tried, with others his accessaries, before the governor and council, and convicted of counterfeiting the Spanish silver money current in that province. His sentence discovers the same spirit of mildness and equity, which, at this day, constitutes the praise and the efficacy of the criminal

code of Pennsylvania. He was to pay a fine of forty pounds towards the building of a court-house, standing committed till payment; and securities for his good behaviour; and make restitution, in good silver, to the holders of his base coin, *which, being first melted down, was to be restored to him.* Various legislative, economical, and religious, measures, together with a tedious dispute with lord Baltimore, on the subject of the boundary-line between this province and Maryland, continued to occupy Penn till about Midsummer 1684; when he found it needful, on various considerations, to return to England. His interest at court had declined during his absence: but it was now restored, upon the death of Charles II. by the accession of his more immediate patron James II. He made use of his influence for the use of his friends, the Quakers, who still lay under the scourge of penal statutes; and for the gratuitous service of many others. In particular he exerted himself in favour of the measure at that time so much, though so insincerely, held out by the court, of universal liberty of conscience. His intimate reception at court, and the appearance of being in some way trusted or employed by the king, now subjected him to the general imputation of being a concealed Papist. Even his old acquaintance, Dr. Tillotson (afterwards archbishop of Canterbury), suspected him: but, some expressions of Tillotson's on the subject coming to Penn's ears, a correspondence ensued between them, at the close of which Tillotson acknowledged himself fully satisfied that there existed no just grounds for the surmise. About this time (besides a further account of his province) Penn published several pieces on his favourite topic, liberty of conscience, one of which was entitled "Good Advice to the Church of England, Roman Catholic, and Protestant Dissenter, in which it is endeavoured to be made appear, that it is their duty, principle, and interest, to abolish the penal laws and tests."

The last occasion in which we have to view Penn in connexion with the court of James, is in an occasional attendance on the movements of the latter, this year, through several of the midland counties. Penn seems to have made use of several intervals in this *progress*, to pay religious visits to his friends, and to preach to the people. On some of the latter occasions the king too was present to hear him. At Oxford he remonstrated with James on his arbitrary treatment of the fellows of Magdalen-college, and attempted a mediation between them and the king, which he farther prosecuted afterwards at Windsor; but it proved abortive.

The revolution brought Penn again into difficulties, as a suspected Papist, or Jesuit, and a secret agent for the old government. On the 10th of December, 1688, walking in Whitehall, he was sent for by the lords of the council, then sitting, who, though nothing was laid to his charge, obliged him to give sureties for his appearance on the first day of the next term: he was continued on these to the Easter term following, on the last day of which he was cleared in open court. In 1690 he was again brought before the council, on an accusation of holding a correspondence with the late king James; he appealed to king William, who, after a conference of near two hours, inclined to acquit him; but, to please some of the council, he was held upon bail for a while, and in Trinity term of the same year again discharged. He was yet a third time attacked, and his name inserted in a proclamation, dated July 18th this year, wherein (among divers of the nobility, and others to the number of eighteen) he was charged with adhering to the king's enemies; but, proof failing respecting him, he was again cleared by order of the court of King's Bench.

He now purposed to go again to his province, and gave out proposals for a new settlement there. It appears that, though his stay in England might be necessary to the security of his title as proprietary, it was highly detrimental both to his interests in America, and, through deficiency hitherto of revenue from it, to his private estate.

estate. His order for convoy had already passed the secretary of state, when the voyage was prevented by a new charge against him, backed by the oath of one Fuller, a wretch who was afterwards declared by parliament an impostor: the charge, however, being that of partaking in a plot to restore the late king; a warrant was granted for his apprehension, which he narrowly escaped at his return from George Fox's burial, on the 16th of the month called January, 1690. Seeing now no probability of fair treatment, he retired (or, as Burnet chooses to say, absconded) for two or three years: during which time, besides a Preface to the collected Works of Barclay, he wrote the following pieces: 1. Just Measures; an epistle to the Quakers in vindication of religious discipline. 2. A Key, or a treatise explanatory of their principles and practice. 3. Reflections and Maxims relating to the Conduct of Human Life. The two latter of these have gone through many editions.

In 1694 he wrote, as a Preface to George Fox's Journals, a "Brief Account of the Rise and Progress of the People called Quakers," which has several times been reprinted. He was also actively employed in this and the subsequent years as a preacher in several parts of England and in Ireland. Having in 1693 lost his wife, with whom he had lived in perfect harmony, he took, in 1696, a second wife, the daughter of Thomas Calowhill of Bristol, by whom he had several children. His eldest son by his first marriage, a youth of great hopes, died of a consumption in his 21st year, to his deep affliction. A bill in 1697 being depending in the house of lords against blasphemy, Penn, ever vigilant against restrictions in matter of religion, presented to that house a "Caution requisite in the Consideration of that Bill," advising that the word *blasphemy* might be so explained as to leave no ambiguity by means of which ground might be given for malicious prosecutions. The bill itself was, however, dropped.

During the prevalence of Penn's enemies at court, he had been deprived of his government of Pennsylvania, which was annexed, in October 1692, to that of New-York, under colonel Fletcher. The ostensible reasons for this step were mal-administration, and danger of the loss of the province thereupon: the real one probably was a jealousy excited by the growing prosperity of the colony, and by principles and practices in its jurisprudence too liberal for the age. At length, in the latter end of 1693, through the mediation of his friends, he was admitted to plead his cause before the king and council, by whom he was acquitted, and his government was restored. This instrument is dated August 1694; but it was not till five years after this, that he embarked a second time for the province, accompanied by his family. Penn seems now to have intended to spend the remainder of his life in America; and he applied himself diligently to the offices of government, in which the inevitable difficulties arising from a mixed population of various dispositions and interests, and enjoying a great share of liberty, required the exercise of both skill and patience. His administration was successful; and the colony is stated to have been at this period, when compared with others of the same standing on the continent, in an easy and flourishing condition. His old allies, the natives, were not overlooked; and, religion being ever a predominant consideration with Penn, he engaged his friends, at a monthly meeting for discipline, held the beginning of 1700, in a plan for the instruction of the natives and of the negroes, who had now been introduced among them, in the principles of the Christian faith. Later experience has shown that Christianity, to obtain a cordial and general reception among these people, should be preceded by her handmaid, civilization. A public school (free to the children of the poor) had been accordingly founded here. In February 1701 a treaty was held between the governor and about forty of the chief persons among the natives, in which, besides renewing former covenants, the parties ef-

established some regulations on the subject of trade between them: a principal care of the governor, on this occasion, seems to have been to prevent the abominable practice, already used by some unworthy colonists, of drawing the natives into a ruinous traffic, by offering them spirituous liquors.

During these transactions, an attempt was making at home, under pretence of advancing the prerogatives of the crown, and of national benefit, to invade the several proprietary governments in America, and reduce them to regal ones. A bill for this purpose was already before the lords, when the land-owners of Pennsylvania, present in England, petitioned the house, and gained time for the governor's return; who, on notice of the measure, presently embarked, and arrived at Portsmouth in December 1701. The bill, which had been postponed, was now entirely dropped; and the accession of queen Anne, soon after, placed Penn once more in the sunshine at court. His estate, however, had now suffered much, by liberal disbursements, by inadequate returns, and by the continual political impediments thrown in his way. He was moreover involved, in 1707, in a suit at law with the executors of a person who had been his steward; and, his case not admitting of relief by the court of chancery, he was obliged to live within the rules of the Fleet until the dispute could be adjusted.

It is not to be concealed, that a party in Pennsylvania made heavy complaints against his government of that colony, and so much disquieted him, that at one period he was inclined to make over his right as governor to the crown. How far there was real ground of blame in his administration it is not easy to determine; in fact, all the proprietary governments have been subject to similar contents, naturally arising from the double relation of proprietor and governor. On the whole, it is certain that the colony Pennsylvania soon became one of the most flourishing of the North-American settlements, and still reverts the memory of its founder.

The infirmities of age now began to creep upon him; and the air of London not agreeing with him, he took a handsome seat at Rushcomb, near Twyford, in Buckinghamshire, where he passed the remainder of his life. This proved to be a lengthened state of decline; for, having been seized with some fits of the apoplectic kind in 1712, his bodily and mental powers began gradually to decay, though for a considerable time not so much as to prevent his enjoyment of life. He was at length reduced to perfect imbecility; and died in July 1718, in the 74th year of his age. He was interred at Jordans, near Beaconsfield. His works were printed collectively in 1726 in two vols. 4to. Select editions have since been given, omitting most of the controversial pieces. *Life prefixed to Penn's Works. Proud's Hist. of Pennsylvania. Sewall's Hist. of the Quakers. Monthly Mag. vol. xxxi. Clarkson's Life of William Penn, 1813.*

PENN's, a township of Pennsylvania, on the river Susquehanna, containing 3798 inhabitants.—Also, a township of Northumberland-county, with 2072 inhabitants.

PENN's COVE, a bay on the east coast of Whidbey's Island, in the gulf of Georgia. Lat. 48. 16. N. lon. 237. 39. E.

PENN's CREEK, a river of Pennsylvania, which runs into the Susquehanna in lat. 40. 48. N. lon. 76. 56. W.

PENN's FORT, lies at the mouth of a small creek, on the west side of Delaware-river, in Northampton-county; about twenty-one miles north of the line of Easton, and near seventy north of Philadelphia. Lat. 40. 59. N. lon. 75. 13. W.

PENN's NECK, a town of Salem-county, New Jersey, in Old Man's creek: twelve miles north-east by north of Salem. Upper Penn's Neck contains 1638, Lower 1163, inhabitants.—Also, the name of a range of farms of excellent soil, situated about one mile and a half south-east

of Princeton, in New Jersey, on a point of land formed by Millstone-river and stony-creek; so called from the celebrated William Penn, who formerly owned this tract.

PENN's ROCKS, two clusters of rocky islets in the south-west part of Hudson's Bay.

PEN'NA (Lorenzo), an ecclesiastic of Bologna, published a work entitled, "Li primi Albori Musicali, per li Principianti della Musica figurati;" one of the best treatises on practical music that appeared in Italy during the 17th century. The first sketch of this book was published in 1656; a second edition, enlarged, of the first book, appeared at Bologna, 1674; the second book at Venice, 1678; and the whole completed, in three books, 1684. In 1696, the work had gone through five editions. The author's rules for counterpoint, and extemporary playing on keyed instruments, are concise and clear, as far as they go; which is, however, very short of what is now wanted, since the bounds of modulation and use of discords have been so much extended.

PEN'NA, a town of the Popedom, in the marquise of Ancona: nine miles east of Camerina.

PEN'NA D'AGHER, a small island near the west coast of Sardinia. Lat. 43. 33. N. lon. 8. 16. E.

PEN'NA DI BIL'LI, a town of the Popedom, in the dutchy of Urbino, the see of a bishop: fourteen miles west-north-west of Urbino, and eleven south-west of St. Mariuo.

PENNA'CEOUS, *adj.* in botany, feathered like the web of a quill.

PEN'NACHED, *adj.* [*pennache*, Fr.] Applied to flowers when the ground of the natural colour of their leaves is radiated and diversified neatly without any confusion. *Trevoux*.—Carefully protect from violent rain your *pennached* tulips; covering them with matresses. *Evelyn*.

PEN'NANT, *f.* [*pennon*, Fr.] A small flag, ensign, or colours. See PENNON.

PEN'NANT (Thomas), an eminent naturalist and tourist, was the son of a gentleman of moderate fortune at Downing in Flintshire, where he was born in 1726. He received his school-education at Wrexham and at Fulham; and from the latter was removed to Oxford; where he entered upon the study of jurisprudence, but, as appears, with no intention of pursuing the law as a profession. He has himself recorded, that a present made him at the age of twelve of Willoughby's Ornithology gave him the first taste for the study of natural history; and that a tour into Cornwall, which he made about 1746 from Oxford, in which he became acquainted with Dr. Borlase, inspired him with a strong passion for mineralogy. In 1754 he made an extensive tour in Ireland, which seems, however, to have been rather an excursion for pleasure than for scientific purposes. In that year he was elected a Fellow of the Society of Antiquaries, whose pursuits he always combined with the study of nature. A paper on certain coralloid bodies found in Coalbrookdale, inserted in the Philosophical Transactions of 1756, was the first of his publications in the department of natural history. He had the year before commenced a correspondence with the illustrious Linnæus, to whom he sent an account of a *cancha anomia* from the Norwegian seas; and, in return, he was made a member of the Royal Society of Upsal. Mr. Pennant about this time, married an amiable woman, and passed some years in domestic retirement. By way of occupation, he began, in 1761, to prepare his "British Zoology," in 132 coloured plates, imperial folio, with explanations. It was published for the benefit of the Welsh charity-school in London. He came to the possession of the estate of Downing at the death of his father in 1763, and with it a rich mine of lead-ore, which enabled him to make great improvements.

The death of his wife interrupted his domestic enjoyments; and in the spring of 1765 he made a tour to the continent. France, Switzerland, part of Germany, and

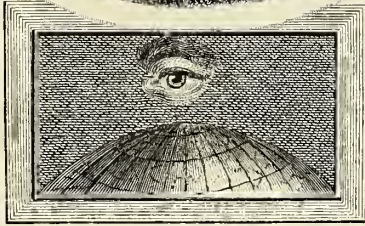
Holland, were visited by him; and he became personally known to several men of scientific eminence, among whom were Buffon, Haller, the Gesners, Trew, Gronovius, and Pallas. His conference with the latter at the Hague, gave rise to the plan of one of his most valuable works, the "Synopsis of Quadrupeds." In 1767, he was elected a Fellow of the Royal Society, and in the next year he republished his British Zoology, in 2 vols. 8vo. with reduced plates; another volume relative to reptiles and fishes was added in 1769. An "Indian Zoology," of which 12 plates, with descriptions, were published by him in 1769, remained a fragment. In the same year he undertook a journey to the remotest point of Scotland; and the numerous observations which he made were afterwards the basis of a very interesting publication. In 1770 he published 103 additional plates to his British Zoology, with several new descriptions; and in the following year he printed his Synopsis of Quadrupeds, in one vol. 8vo. His well-earned reputation caused him, in the same year, to receive the compliment, from his alma-mater, of the degree of doctor of laws.

His first "Tour in Scotland" was given to the public in 1771, and was received with avidity. At that time Scotland was little known to the sister-kingdom, except by slight and partial accounts; and the curious and varied information communicated by this liberal traveller, in a spirit of candour and good-humour, was equally acceptable to both sides of the Tweed. This reception of his work, and the attachment he had contracted to his subject, induced him, in 1772, to repeat his northern tour, and extend it to the principal islands of the Hebrides. For the latter purpose he hired a vessel to convey him from one island to another, and wait upon him at proper stations; and the result was a rich harvest of valuable and entertaining observation. In 1773, he published "Genera of Birds," in one volume; and likewise employed himself in a journey through the northern counties of England. Antiquities and family-history were now become favourite objects of his enquiry, and he visited every place which was likely to afford curious matter of this kind. A third edition in 4to. of his first Tour in Scotland, with additional plates, and the first vol. 4to. of his second Tour and Voyage to the Hebrides, were published in 1774.

Mr. Pennant was now become an habitual traveller; and he found his excursions, almost always made on horseback, equally serviceable to his health and spirits. Few men, indeed, have more enjoyed the *viridis senectus*, or better preserved their bodily and mental activity to an advanced period. In all his journeys he laid up new stores of information; and he found even the most frequented tracks fertile of those topographical memoranda, to which his attention was now chiefly directed. In 1775, he published the third vol. 4to. of his Tour in Scotland, which he had the satisfaction of seeing a popular work both at home and abroad.

Thinking it disgraceful for a literary native of Wales to neglect his own country, so abundant in objects interesting to all the different species of travellers, he gave to the public, in 1778, the result of several journeys through the six counties of North Wales, in one 4to. vol. with many plates, entitled "A Tour in Wales;" and in 1781 he added another volume, with the title of "A Journey to Snowden." These are particularly entertaining, on account of the many anecdotes interspersed, illustrative of the manners and history of that part of the island. In the mean time he did not forsake his original object of pursuit, natural history. He had added, in 1777, a 4to. vol. to his British Zoology, containing the Vermes, including the testaceous and crustaceous animals. His Synopsis of Quadrupeds, now greatly enlarged and improved, and bearing the title of "History of Quadrupeds," was published in 2 vols. 4to. 1781; and in the same year, his "History and Natural History of the Turkey" was inserted in the Philosophical Transactions.

His



Tho Paine.

Engraved for the Encyclopædia Londinensis May 1789.

His "Arctic Zoology," in 2 vols. 4to. containing quadrupeds and birds, appeared in 1785. There was prefixed to it a copious Introduction, which is, perhaps, the most interesting and original of all his writings. It is a kind of survey of all the coasts of the arctic regions, beginning from the Straits of Dover, and proceeding to the remotest north, on the east and west; and filled with a great variety of geographical, historical, and physical, facts, affording a series of the most animated pictures. A Supplement to this work was given in 1787. "A Journey from Chester to London," 4to. 1782, and an account of the antiquities of the capital itself, entitled "London," 4to. 1790, were agreeable additions to his publications of this class. The latter, in particular, was popular, and reached a third edition. Several smaller pieces of the political and miscellaneous kind, filled up the intervals of his greater works, and proved the continued activity of his mind.

Thus far Mr. Pennant has himself recorded the history of his literary life, in a work printed in 1793, together with some miscellaneous tracts. He had at this time taken a formal leave of the public, and had alluded to Gil Blas's archbishop of Granada, as a memento not to employ his pen till the defect of its powers should become manifest to his readers. But the habit of authorship was too strong to permit him to adhere to his resolution. In 1796 he published "The History of the Parishes of Whiteford and Holywell," 4to. the first of these was his native parish; and he took occasion to give many particulars of his family-history, with a degree of senile garrulity, but enlivened by his usual vivacity. The natural history of the parishes is curious and instructive. In his literary life he had mentioned a great mass of manuscript which he kept by him under the title of "Outlines of the Globe," being compilations of geographical and other matter, in the manner of the introduction to Arctic Zoology above mentioned, and which was a part of them. From these he published in 1798 two quarto volumes, entitled, "A View in Hindoostan," which were well received by the public. He died in the course of that year, at the age of 72. Besides the works above enumerated, he wrote some smaller pieces; and was a promoter of the publications of other men of science, particularly of Mr. Lightfoot's *Flora Scotica*. To the list of his literary honours are to be added his election into the Royal Academy of Stockholm, and the American Philosophical Society of Philadelphia, besides several minor societies. He had married a second wife in 1776, the sister of his neighbour, sir Roger Mostyn; and he left a family by both marriages.

Mr. Pennant possessed a well-compact frame of body, an open and intelligent aspect, and a cheerfulness and vivacity of disposition, with gentlemanlike manners, which rendered him highly agreeable in society. He was exemplary in the relations of domestic life, zealously attached to the interests of his country, both local and general, and kindly attentive to the wants of his poor neighbours. As an author, he was too rapid and various to be perfectly correct either in matter or style; but he always meant honestly, and was ready to rectify mistakes. In the department of natural history, in which he stands highest, he is clear and judicious in his species of arrangement, concise, energetic, and exact in his descriptions. He is regarded both by native and foreign naturalists as very respectable authority. *Pennant's Literary Life, and History of Whiteford and Holywell. Gen. Biog.*

PENNANTIA, *f.* [so named by Forster in honour of the subject of the preceding article.] In botany, a genus of the class polygamia, order dioecia; or rather class pentandria, order monogynia; natural order uncertain; perhaps akin to the urticæ of Jussieu. Generic characters—Calyx: none, unless the corolla be taken for such. Corolla: petals five, equal, lanceolate, acute, concave, widely spreading. Stamina: filaments five, capillary, the length of the petals; antheræ oblong, incumbent. Pif-

tillum: germen superior, obtusely triangular; style none; stigma flat, peltate, obscurely three-lobed. Pericarpium: capsule triangular, of two cells. Seeds solitary; somewhat triangular. Some flowers, on a separate plant, have the filaments twice as long as in the above, with ovate antheræ, but no pistil.—*Essential Character.* Calyx none; petals five, equal; style none; capsule of two cells; seeds solitary.

Pennantia corymbosa, a single species; native of New Zealand. It is a tree or shrub, with round leafy branches, dotted, and somewhat downy, when young. Leaves alternate, stalked, two inches or rather more in length, obovate; either quite entire, or with two or three broad blunt shallow teeth, or small lobes; furnished with a midrib, and many transverse interbranching veins; dark green above, nearly smooth, except the rib, which is on both sides minutely hairy; pale and smooth beneath. Footstalks not half an inch long, channelled, hairy. Flowers about the size of *Laurustinus*; as far as can be judged of them in a dry state, they seem to be pale green or yellowish white. The whole bears a general resemblance to some kind of *Viburnum*, but the absence of a calyx is a striking difference.

Such is Forster's original specimen. The younger Linnaeus, however, obtained in England, if we mistake not, a specimen under the name of *Pennantia*, which is a very different thing. The leaves are ovate, four inches long, green on both sides, undivided and entire. Branches and footstalk smooth, with a solitary stalked gland at a little distance above each of the latter, and no stipules. Flowers numerous, in a terminal compound smooth cluster; their style as long as the corolla, their stamens longer; and, what is most remarkable, each flower has a calyx, deeply divided into five ovate fringed segments, and rather elongated at its base. This plant therefore is unquestionably altogether different from Forster's *Pennantia*; it may be an *Ehretia*, but we know nothing of the fruit, nor is it to our present purpose to investigate this question.

PENNAQUID. See **PEMAQUID**.

PENNAR', a river of Hindoostan, which rises in Mysore, crosses the circar of Cuddapa and the Carnatic, and runs into the bay of Bengal twelve miles east of Nellore, in lat. 14. 26. N. lon. 80. 13. E. This is the first considerable river to the north of Madras. It rises nearly in midway between the two seas, near Chinna Balabaran, or about twenty-five miles north of Bangalore. It has a northern course as high as lat. 15, from whence it runs easterly till it reaches the sea. It is a considerable river, being three hundred yards wide seventy miles from the sea, confined by mountains on each side. On the southern part stands the strong fortress of **GANDICOTTA**; which see, vol. viii.

PENNA'RE POINT, a cape in the English Channel, on the south coast of Cornwall: six miles west-south-west of Dedman's Point. Lat. 50. 12. N. lon. 4. 46. W.

PEN'NARTH BAY, a bay on the south coast of Wales, in the Severn, at the mouth of the Trave, below Cardiff, to which it is a harbour. A point of land, called *Pennarth Point*, bounds it on the south.

PEN'NAS (Las), a town of Peru, in the diocese of La Paz: seventy miles north of Potosi.

PEN'NATED, *adj.* [*pennatus*, Lat.] Winged.—*Pennated*, amongst botanists, are those leaves of plants as grow directly one against another on the same rib or stalk; as those of ash and walnut-tree. *Quincy.*

PENNAT'ULA, *f.* [dim. of *penna*, Lat. a quill-feather, from the appearance of some of the species.] The **SEA PEN**; in helminthology, a genus of vermes zoophyta, or plant-like worms, consisting of eighteen species. Generic characters—Animal not affixed, of various shapes, supported by a bony part within, naked at the base, the upper part with generally lateral ramifications, furnished with rows of tubular denticles, producing radiate polypes from each tube.

This genus of animals differs remarkably from all the other zoophytes by their swimming freely about in the sea, and many of them having a muscular motion as they swim along. They have no opening at the bottom as was formerly thought, nor any other passage but through their polype mouths; by these they take in their food, and through these they produce their eggs, as in most zoophytes. When we compare them with the other zoophytes, they approach nearest to the Gorgonia, as having a bone in the inside like them, which is covered with flesh, and their upper parts full of polype-like mouths.

1. *Pennatula coccinea*, the scarlet sea-pen: stem round, radiating, with papillous polype-bearing sides, and clavate at the top. It inhabits the deeps of the White Sea, and unites the two genera, *Alcyonium* and *Pennatula*; it is soft, red, an inch and half high, and as thick as the little finger; it is wrinkled, with the papillæ disposed in rows.

2. *Pennatula grisea*, the thorny sea-pen: stem fleshy, with a smooth midrib and imbricate plaited spinous ramifications. It is found in the Adriatic, and is about eight inches long; it shines by night; back of the midrib lanceolate, smoothish; rays imbricate, and undulate on the anterior margin, the lobules are armed with a spine, and obtusely crenate at the margin.

3. *Pennatula phosphorea*, the British sea-pen: stem fleshy, with a rough midrib and imbricate ramifications. It is about four inches long, and red. Dr. Solander calls it the British sea-pen, to distinguish it from the *rubra*, which he calls the Italian sea-pen, and because it is found in great plenty sticking to the baits on the fishermen's lines round the coasts of this kingdom; especially when they make use of mussels to bait their hooks. Great numbers have been taken on the coast of Scotland, especially near Aberdeen.

This animal was well known to the ancients by the name of the sea-pen; many of the old authors took it for a fucus, or sea-plant. It has been found in the ocean from the coast of Norway to the most remote parts of the Mediterranean; and not only dragged up in trawls from great depths of the sea, but often found floating near the surface. Dr. Shaw, in his History of Algiers, remarks that they afford so great a light in the night to the fishermen, that they can plainly discover the fish swimming about in various depths of the sea. The luminous effect is confined to the plumule of the quill, or that part which is inhabited by the polype. Spallanzani, in a letter to Bonnet, states that the light is only emitted when the sea-pen is in motion; and that there is a mucous luminous substance furnished by the polype, which is soluble in water, and becomes mixed with the sea-water that is admitted into the pen by means of a hole situated at the extremity of its stalk. (Mem. Soc. Ital. tomo ii.) But the existence of any hole at the extremity is denied by Mr. Ellis, whose description (Phil. Transf. liii.) is as follows:

"The outward appearance of this animal is not unlike one of the quill-feathers of a bird's wing; but they are found of different sizes, from four to eight inches in length; the lower half of it is naked, round, and white, not unlike the quill-part of a writing-pen; the upper part represents that of the feathered part of the pen, and is of a reddish colour. This upper half, which arises from the quill, and is feathered on both sides, is a little compressed, and becomes smaller and smaller till it ends in a point at the top; along the back of this, in the same manner as in the inner side of a common writing-pen, there is a groove in the middle, from the quill to the extremity; from each side of this upper part of the stem proceed little parallel feather-like fins; these begin at the top of the quill-part, very small on each side at first, but lengthen as they advance towards the middle; hence they shorten gradually on each side, till they end in a point at the top, their terminations preserving on each side the figure of the segment of a circle.

"To come now to consider more minutely those pin-

nulæ, or feather-like fins, that project on each side, and form the upper part of this animal. These are evidently designed by nature to move the animal backward or forward in the sea, consequently to do the office of fins, while at the same time, by the appearance of the suckers or mouths furnished with filaments or claws, they were certainly intended to provide food for its support; for, notwithstanding what Linnæus has said in regard to its mouth, in his System of Nature, viz. *Os basæos commune rotundum*, Mr. E. could not, with the help of the best glasses, discover that the point of the base was penetrated in the least; so that he is clearly of opinion, that this animal, like the *Hydra arctica*, or Greenland polype, described in his Essay on Corallines, nourishes and supports itself by these suckers or polype-like filaments; that by these both kinds take in their food, and have no other visible means of discharging the exuvæ of the animals they feed on, than by the same way which they take them in; and that, from attentively considering the structure and manner of living of both these animals, he classed them in the same genus of *Pennatula*, though they vary very much in their exterior form and size, and consequently are of very different species. The stem of the suckers of this animal is of a cylindrical form; from the upper part proceed eight fine white filaments or claws, to catch their food: when they retreat on the alarm of danger, they draw themselves into their cases, which are formed like the denticles of the corallines, but here each denticle is furnished with spiculæ, which close together round the entrance of the denticle, and protect this tender part from external injuries."

Some of the most curious remarks of Dr. Bohadsch on the anatomy of this animal, as also on the appearance of it while alive in sea-water, are as follow: "When the trunk is opened lengthwise, a fattish liquor flows out of it, so viscid as to hang down an inch; the whole trunk of the stem is hollow; its outward coraceous membrane is more than a line thick, and forms a strong covering to it: between this and another thinner membrane of the pinnated part of the trunk, are innumerable little yellowish eggs, floating in a whitish liquor, about the size of a white poppy seed; these are best seen when the trunk is cut across; this thin membrane lines the whole inside of the trunk, in which we observe nothing but a kind of yellowish bone, which takes up three parts of the cavity. This bone, in some of these animals, is above two inches and a half long, and about half a line thick; in the middle part of it, it is quadrangular; towards each end it grows round and very taper: that end is smallest which is nearest the top of the pinnated trunk. The whole bone is covered with a yellowish clear skin, which at each end changes into a ligament; one of which is inserted in the top of the pinnated trunk, the other in the top of the naked trunk; by the help of this upper ligament, the end of this little bone is either contracted into a very narrow arch, or disposed into a straight line, according to the motion of the trunk. The fins likewise are composed of two skins: the outer one strong and leathery, and covered over with an infinite number of crimson streaks, the inner skin is thin and clear: the cylindrical part of the suckers are in the same manner, only with this difference, their outer skins may be softer. Both the fins and the suckers are hollow, so that the cavity of the suckers may communicate with the fins, as their cavity does with the trunk.

"We now come to the appearance which this animal makes when alive in sea-water. The trunk then was contracted circularly at the bottom of the naked part of the stem, and by this contraction formed a zone of the most intense purple, which moved upwards and downwards successively: when it moved upwards through the length of the pinnated trunk, it there became paler, and at length terminated at the top: the motion being scarcely finished, a like zone appeared at the end of the naked trunk, which finished its motion in the same manner as the

PENNATULA.



Æ R E R.
Lucas Penni.

Three Species of Sea Pens.

Engraved for the Encyclopædia Londinensis 1823

the former. When this zone becomes very much constricted on every side, the trunk above it swells and acquires the form of an onion; and then it appears as if a compressed globe moved along through the whole space of the trunk; this constriction of the trunk gives that fine red colour to the zone; for, when the skin of the trunk is outwardly full of purple papillæ, the intermediate spaces are of a whitish colour. In this constriction then of the skin, the intermediate spaces are obliterated, and the papillæ are brought nearer together; consequently only the purple colour presents itself to the eye, and appears more bright. The end or apex of the naked trunk is sometimes curved like a hook, and sometimes extended in a right line; both these motions then must be directed by the little bone in the inside, and from this motion of this little internal bone, that sinus or cavity at the lower end of the trunk (thought by authors heretofore to be the mouth) seems plainly to be formed; for sometimes it is deeper, sometimes shallower; it is deeper while the movable globe appears in the middle of the pinnated part of the trunk, and shallower when it is in the bottom of the naked trunk, at which time the bone is most extended. The fins, or pinnulæ, have four different motions; they are moved both towards the naked stem, and towards the pinnated stem; and sometimes they are drawn in very much to the belly, a little after they are inclined to the back; further, the fleshy filaments or claws move in all directions, and the cylindrical part with the filaments is either extended out or drawn in and hid in the fins."

4. *Pennatula filosa*, the eye-sucker: stem a little fleshy, with a rib feathered on each side, and furnished with two filiform tentacula at the base. It inhabits the European seas, and is from four to six inches long.

Mr. Baker, author of *Essays on the Microscope*, has described a worm which is said to have been a mutilated specimen of this species. "I was lately presented (he says) with a couple of small sea-insects, by a gentleman, who said they were found fixed by the snout to the eyes of sprats; that they are often observed sticking there, and may consequently be supposed to suck their nourishment from thence. The length of this little creature, from end to end, is near three inches, of which the head is about one quarter-part. Its body is somewhat thicker than a hog's bristle, and of a pleasant green colour. A gut seems running through it, and terminates at the anus. The head is light brown, twice the thickness of the body, and of an oblong figure, tapering towards the snout. It has a pair of fine small black eyes, and a couple of holes, at some distance forwards, which probably are its nostrils. But the most remarkable part of the head is its proboscis, or snout; which is nearly half its length, and does not end in a point, but spreads at its extremity with a considerable aperture. This snout appears of a horny substance, and has on every side several large knobs or protuberances, by which, when once insinuated into the fish's eye, it must necessarily be fixed there, so as not easily to be removed."

5. *Pennatula rubra*, the Italian sea-pen: stem fleshy, with a broad tuberculate midrib; the ramifications are imbricate, with each a short spine at the base. The Italian sea-pen differs from the British so much, that there is no room to doubt but they are very different species. The British is much longer, more slender, and not so fleshy, as the Italian; but the broad warted midrib, and spiny fins, of the latter, distinguish it plainly; besides, the denticles are placed so thick as to appear like a double row. This varies in colour from a deep red to a pale red. It inhabits the Mediterranean. The specimen described and figured by Mr. Baker (*Phil. Transf.* vol. xliii.) was presented to him by Mr. Pennant. The figure, however, we have not copied, being fully persuaded it belongs not to this species, nor even to the genus. It is luminous in a high degree, like the phosphorea and several other of the *Pennatulæ*.

6. *Pennatula mirabilis*, the strange sea-pen: stem long and slender, the midrib pennated on both sides; the pin-

næ or fins placed alternate, and at a distance from each other, and shaped like a half-moon, each ramification consisting of eight filaments.

This species, which is rather a group, or chain, than an individual animal, was first seen alive by Otto Frederic Muller, author of the *Zoologia Danica*; and from that work our description and the annexed figures are collected. Linnæus and Pallas had both examined the dead subject in the museum of the king of Sweden; Linnæus has delineated it in the *Musæum Ad. Fr.* and Ellis has copied his figure into the *Philosophical Transactions*, vol. liii. t. 20. fig. 17. Linnæus's description of it in the *Amœnitates* and in the *Museo* is embarrassed and inaccurate; for in the former he calls it a filiform bristle, stiff, about half a foot in length, to which are attached lunated cilia of a transparent whiteness, and turned to either side; while, in the latter work, he says that it is in a great degree allied to the phosphorea; whereas it is in fact totally different from the *Pennatula phosphorea*, or at least only agrees with it in having an *officulum*, or little bone, attached to its extremity. Hence Dr. Pallas doubts whether we should not rather place it among the *Gorgonia*; but its calcareous bone, its fleshy parenchyma, and its distinct polypi, evidently indicate its situation to be among the *Pennatulæ*.

The *vachis*, or round bone, is uniform in thickness through the greater part of its length, truncated at both ends, and of an orange colour; flexible while fresh, but brittle when old, so that it snaps under the nail like a thin bit of ivory. A fleshy parenchyma invests the whole of it except its apex; and from the face to the apex azure-coloured, lunated, and polypetalous, lamina, sprout out alternately. The margin of these lamina, which is turned towards the base, is studded with cylindrical polypi; each consisting of as many tentaculæ. The stem, or bone, is calcareous, while its covering and the polypiferous laminae are of a fleshy and gelatinous substance. The basis or extremity, fixed by the fleshy parenchyma into a clayey soil, is ferrated and thick, and in that part the polypi are not evolved; but about half an inch from it they begin to appear, and sixty or seventy tufts of them may be numbered on each side. Hence it results that the increase of the *officulum* and the polypi takes place, not towards the apex but in the direction of the base, and that part of the *officulum* is developed before either the fleshy parenchyma or the polypes.

When out of the water, the polypi contract, and the bone is seen covered by the fleshy substance; when, however, water is poured on them, the lamina and the tentacula both expand, and present a beautiful spectacle. They inhabit the American, Atlantic, and Norwegian seas; from the latter of which, particularly from the clay in a creek of Christiana called Sand pollen, O. F. Muller dragged several of them alive. On the annexed Plate, fig. 1, is represented a specimen containing more than a hundred clusters of the polypi of the natural size; fig. 2. a piece of the same, magnified.

7. *Pennatula sagitta*, the arrow sea-pen: stem filiform, with close-set ramifications, and naked at the tip. It inhabits the Ocean; and, according to Linnæus, is found sticking in the *Lophius histrio*, or spotted toad-fish, having its stem pierced into their sides. Mr. Ellis supposes it to be merely a variety of the preceding.

8. *Pennatula antennina*, the peacock-fish sea-pen: stem single; the midrib square, and full of polype like suckers on three sides. This extraordinary sea-pen was discovered by Dr. Bohadsch, of Prague, while he was at Naples in the year 1757. He says, when it was brought to him, it was two feet ten inches long, and very possibly had been much longer, as it was broken off at the base. The bone, which was square, was covered over with a yellowish membrane, dotted with red; and three sides of the upper part of the trunk were covered with tentacles, the fourth bare. He says he numbered them, and found 1310; and that these tentacles are not drawn in, as

in the other sea-pens. Other authors mention, that the tentacles are only on one side; but Dr. Bohadsch had an opportunity of seeing it as it was taken out of the sea.

9. *Pennatula stellifera*, the starry sea-pen: stem simple, about four inches long. See the article HELMINTHOLOGY, vol. ix. p. 357, 358. and Plate V. fig. 11.

10. *Pennatula phalloides*: simple, with a cylindrical midrib every-where covered with polypes. It inhabits the Indian Ocean; is six inches long, and grey.

11. *Pennatula arundinacea*: stem quadrangular and very long. It inhabits the Norway seas, and is four feet long; the stem is linear, with cylindrical rays of solitary tubes, which are deciduous, erect, crowded, and seated on a thin pedicle.

12. *Pennatula scirpea*: stem simple, linear, tapering, with a round midrib producing polypes on one side. It inhabits the ocean, and is eighteen inches long; the stem is fleshy, thicker and longer than the midrib; the bone is somewhat flexile.

13. *Pennatula juncea*: simple, linear, with a truncate rib, and transverse polype, bearing wrinkles on each side. This is found in the Indian Ocean; is two feet long, white, beneath horny, the rays mixed, fulvous and white.

14. *Pennatula grandis*: pen-shaped, linear-lanceolate, with a smooth round stem, and jagged toothed ramifications. It inhabits the Indian Ocean; is a foot long, greenish grey, shines with a cinereous light in the dark, and sometimes stings the hand if it be touched.

15. *Pennatula argentea*, the silver sea-pen: pen-shaped, lanceolate, with a smooth round stem, and close-set imbricate striate ramifications. This also is found in the Indian Ocean, and was brought from Batavia by William Webber, esq. F.R.S. Its fins are not unlike those of a bat, with several sharp points. They are striped black and white, with a shining surface, not unlike silver: they are often found above a foot long, and are said to be very luminous in the sea at night. There is one of them in the British Museum near eighteen inches long. Fig. 3 of the annexed Plate is a very exact representation of this genuine sea-pen, where the bone appears burst through the bottom; fig. 4 is a section, to show the fins more distinctly; and one of them is magnified at fig. 5.

16. *Pennatula encrinus*, the great cluster sea-pen: stem quadrangular, taper, very long, bony, covered with a callous membrane, with an umbellate cluster of polypes from the top. It inhabits the Greenland Seas: is about six feet long; and, when taken fresh from the sea, appears like a nosegay of yellow flowers.

17. *Pennatula cynomorium*, the finger sea-pen: cylindrical, fleshy, somewhat clavate, bearing polypes on the whole upper surface. It inhabits the Mediterranean; is reddish, and about four inches long.

18. *Pennatula reniformis*, the kidney sea-pen: stem round, vermicular, supporting a kidney-shaped leaf-like head, producing polypes on the upper surface. This beautiful purple sea-pen was found on the coast of South Carolina, by John Greg, esq. of Dominica. It is remarkably different from all this kind. From the stiffness of its stem, it is very probable it is supported by a bony substance. The body is about an inch long, and half an inch across the narrowest part: it has a small roundish tail of an inch long, proceeding from the middle of the body; this tail is full of rings, from one end to the other, like an earth-worm; and, along the middle of the upper and under part of it, there is a small groove which runs from one end to the other. The upper part of the body is convex, and near a quarter of an inch thick; the whole surface of it is covered over with minute yellow starry openings, through which are protuded little suckers like polypes, each furnished with six tentacles, or filaments. The under part of the body is quite flat: this surface is full of ramifications of fleshy fibres, which, proceeding from the insertion of the tail, as their common

centre, branch out so as to communicate with the starry openings on the exterior edge and upper surface of this uncommon animal. The upper surface (fig. 6) is of a rich purple colour; the under side (fig. 7) less brilliant, and sometimes yellowish. *Ellis's Zoophytes*, by Solander. *Phil. Transf.* vol. xliii. xlvi. l. liii.

PEN'NE, a town of France, in the department of the Lot and Garonne: three miles east of Villeneuve d'Agen, and seven west of Tournon.

PEN'NE, a town of France, in the department of the Tarn: seventeen miles north-north-west of Gaillac, and twenty-one north-west of Alby.

PEN'NECUICK (Alexander), a Scottish writer of the last century, and a burges of Edinburgh. He published, 1. *Streams from Helicon*, 1720. 2. *Corydon and Cochrania*, a Pastoral, 1723. He lived a very irregular life; and died, in poverty and wretchedness, about 1728 or 1729. *Biog. Dram.*

PEN'NED, *adj.* Winged; plumed. *Haluct.*

PENNE'DO DE ST. PE'DRO, a small island in the Atlantic. Lat. o. 55. N. lon. 27. 10. W.

PEN'NER, *f.* A writer.—He talked to me a great deal of the Declaration: he told me he was the *penner* of it. *Diary of the Earl of Clarendon*, 1688.—A penceaf. Obsolete, except perhaps in Scotland.

PENNERVA'EN, a mountain of South Wales, a little to the south of Brecknock.

PENNEWANG', a town of Austria: three miles north of Scwanastadt.

PEN'NI (Giovanni Francisco), a painter, born at Florence in 1488, was the disciple of Raphael, who, observing his genius and integrity, intrusted his domestic concerns to his management; by which means he got the appellation of *Il Fattore*, or the Steward, which he retained ever after. The genius of Penni was universal; but his greatest pleasure was in painting landscapes and buildings: he was an excellent designer, and coloured extremely well in oil, distemper, and fresco. He painted portraits in an exquisite style; and had such happy natural talents, that Raphael left him heir to his fortune in partnership with Julio Romano his fellow-disciple. After Raphael's death, Penni painted many pictures at Rome, particularly in the palace of Chigi, so exactly in the style of his master, that they might not undeservedly have been imputed to him: he finished, in conjunction with Julio and Perino del Vaga, the celebrated designs of the Battles of Constantine, and others, which Raphael had left imperfect; but, differing with them about a copy of the Transfiguration, which the pope intended for the king of France, they separated. Penni went to Naples; but, the air of that country disagreeing with his constitution, he died soon after in 1528.

PEN'NI (Lucas), brother of the preceding, was born likewise at Florence. He also frequented the school of Raphael, and studied a considerable time under Perino del Vaga. He possessed considerable merit as an historical painter, and George Ghisi of Mantua has engraven from several of his pictures. After visiting Genoa and Lucca, he travelled to England, where he was employed by Henry VIII. he afterwards went to France, and practised for a while at Fontainebleau. On his return to Italy, he applied himself to etching and engraving, and we have several meritorious prints from his hand; he sometimes worked from his own designs, but oftener from Rosso and Primaticcio. His mark was usually composed of an L and an R joined together, or separate; for he chose to add the word *Romanus*, or the Roman, to his name, or the initials of it; but it is necessary to caution the young collector with respect to these marks, all of which will be found in our preceding Plate, because they were used by other masters greatly inferior in point of abilities to Penni; and to state, that his engravings are not only executed in a very spirited style, but also accurately drawn. He chiefly etched, but at times worked with the graver only. The following is a list of his principal works:

Two

Two Satyrs giving Wine to Bacchus; Leda drawing Arrows from Cupid's Quiver; Sufannah at the Bath surprised by the Elders; all of which are from Rosso. But the four following are from Primaticcio: Abraham sacrificing Isaac; The Marriage of St. Catharine; Jupiter metamorphosing Calisto into a Bear; and Penelope at work with her women; and are of folio dimensions.

PENNIG'EROUS, *adj.* [from the Lat *penna*, a wing, and *gero*, to carry.] Winged, feathered. *Cole.*

PENNIGON'DA, a town of Hindoostan, in the circar of Rajamundry: thirty-eight miles east of Rajamundry.

PEN'NING, *f.* [from *To pen.*] Written work; composition.—Read this challenge; mark the *penning* of it. *Shakespeare's Tw. Night.*—I may the better be encouraged to go on with my plain manner of *penning*, though it be unpolished. *Brykett's Disc. of Civ. Life.*—How shall he be thought wise, whose *penning* is thin and shallow? *B. Jonson's Discoveries.*

PEN'NINGTON, a town of Lancashire, with 1739 inhabitants, including 441 employed in trade and manufactures: ten miles north of Warrington.

PEN'NINGTON, or PENNYTOWN, a pleasant and flourishing village in Hunterden county, New Jersey, nine miles west of Princeton, containing a church and about forty-two houses.

PEN'NINGTON (Isaac), a member of the society of Friends, or Quakers, and a considerable writer among that people, was the son of an alderman of London, who repeatedly filled the office of chief magistrate, was a noted member of the long parliament, and nominated one of the judges of king Charles I. though he did not take his seat among them. Isaac was born about the year 1617; and, having the prospect of succeeding to a large estate, he was furnished with the means of obtaining the best education. As he grew up, he had, from his father's situation in life, opportunities of mixing with some of the most considerable men of the age; and, if he had been of an ambitious turn of mind, he might have occasionally indulged hopes of rising very high in the world. But from a very early age he was under strong religious impressions; and, as he grew up to manhood, discovered an increasing attachment to retirement, serious contemplation, and the reading of the Scriptures. While he was in this state of mind, he met with some of the writings of the Friends; "which," says he, "I cast an eye upon, and disdained, as falling very short of that wisdom, light, life, and power, which I was searching after." There was, however, something in them that roused his attention, and he went to one of their public meetings at which George Fox preached, whose discourse produced on him a sudden and complete conversion to the principles of the new sect. From this time he joined the society, in opposition to the influence of his connexions, as well as unmoved at the prospect of reproaches and losses to which his profession would unquestionably expose him. In the years 1661 and 1662, Mr. Pennington was called forth to be a confessor for the profession which he had embraced. For the crime, as it was called, of holding meetings for the worship of God in his own house, he was committed to Aylesbury gaol, where he was kept in close custody for seventeen weeks, great part of which was in the winter season; and, to aggravate the severity of his treatment, he was confined in a cold and very uncomfortable room, without a chimney, by which cruel usage he contracted so violent a disorder, that for several weeks after his release he was not able to turn himself in his bed. From this time till the year 1670, he suffered six different imprisonments. These repeated calamities, together with heavy pecuniary losses, arising, in many instances, from the oppressive fines which were levied upon him, Mr. Pennington sustained with firmness and serenity, believing himself to be a sufferer for obeying God rather than man. With the same equanimity and fortitude he bore the attacks of a painful distemper, which terminated his life in the year 1679, in the 63d year of his age. His

character procured him the respect and esteem of all good men, as it exhibited an excellent pattern of piety, virtue, and the strictest morality. He was most faithful in the discharge of all the duties of life; and was author of numerous writings, which were highly prized by the people with whom he associated. They were collected and published in a folio volume in 1681. They have since been reprinted in 4to. and 8vo. and in the year 1796 some of his Letters were published. *Bevan's Memoirs of Pennington*, 1807.

PEN'NINGTON (Lady), wife of sir Joseph Pennington, bart. of Water Hall, Yorkshire. Family misunderstandings having separated this lady from her children, she wrote for their use "An Unfortunate Mother's Advice to her Absent Daughters;" a work of great merit, and which all parents ought to put into the hands of their female offspring. Lady P. died Sept. 3, 1783. *Jones's Biog.*

PENNISE'TUM, *f.* [from the Lat. *penna*, a feather, and *seta*, a bristle.] A name given by Richard in Perf. Syn. i. 72. and Brown Prodr. Nov. Holl. i. 195. to the species of the first division of the genus PANICUM. The name alludes to the feathery structure of the bristles which compose the involucre. See PANICUM.

PEN'NON, or PENON, *f.* A standard with a triangular tail, anciently borne before knights bachelors who brought a certain number of followers into the field. Some instances occur of pennons being carried before esquires; but they were only such as possessed certain estates or fiefs, or who could bring a sufficient suite of vassals into the field. The pennon was in figure and size like a banner, which was small and of a square figure, with the addition of a triangular point. They were charged with the armorial bearing of their owner. On the performance of any gallant action by the knight and his followers, the pennon was converted into a banner by the king, or commander-in-chief, cutting off the point, by which the knight was raised to the degree of a banneret. Both knights and bannerets were bound to appear in the field at the head of a certain number of men, whence ancient historians frequently express the strength of an army by the number of banners and pennons of which it consisted.

PEN'NOT (Gabriel), an Italian canon-regular of the order of St. Augustine, in the 16th and early part of the 17th century. Of his personal history we are furnished with no other particulars than that he was a native of Verona, and flourished under the pontificate of pope Urban VIII. that he distinguished himself by his learning, and by his virtues; and that, on account of his extraordinary merits, he was chosen to fill the most important and honourable offices belonging to his congregation. Besides some theological and controversial works, he wrote a curious historical account of the order of which he was a member, which will be of use to the ecclesiastical historian, and claims for the author this brief notice in our pages. It is entitled, "Generalis totius Ordinis clericorum canonicorum Historia tripartita," and was published at Rome in 1624, and reprinted at Cologne in 1645. *Gen. Biog.*

PENNSBOROUGH (West), a town of America, in Cumberland county, Pennsylvania; famous for a remarkable flow of water from a ridge of lime-stone, called The Big Spring, which, after turning six mills, discharges itself through Conidogwinnet-creek into the Susquehanna. Population, 2635.

PENNSBOROUGH (East), a township of the same county, containing 1264 persons.

PENNSBURY, a small town of Pennsylvania, in Buck's county, on a small creek of Delaware river. This was a manor which Mr. Penn reserved for himself, where he built a house, and planted orchards and gardens; which, with many additional buildings and improvements, still continue.

PENNSYLVANIA, one of the principal provinces of the United States of America, extending in length 228

and in breadth 156 miles, between 39° 43' and 42° N. lat. and 74° 48' and 80° 8' W. lon. and comprehending 46,000 square miles. It is bounded east by Delaware river, which divides it from New Jersey; north by New York and lake Erie; north-west by a part of lake Erie, where is a good port; west by the state of Ohio and a part of Virginia; south by Virginia, Maryland, and Delaware.

This country was granted to the famous William Penn, son of sir William Penn, admiral of the English fleet in the time of Oliver Cromwell and Charles II. Sir William, as some reward for his services, and in consideration of sundry debts due to him from the crown, was promised a grant of this country from king Charles II. but died before he obtained it. His son did not for some time apply himself strenuously to solicit the grant promised to his father; but at length, finding his friends, the Quakers, were harrassed in every part of England by spiritual courts, he renewed his application to the king, and, having obtained his grant, went into America, and purchased the soil at a very low rate of the Indians, its original possessors. By this cheap act of justice at the beginning, he rendered all his future dealings the more easy, the Indians having conceived very favourable opinions both of him and his designs. Having thus succeeded in the first part of his plan, he proceeded to the other, namely, to people the country he had thus obtained. And this was greatly facilitated by the uneasiness of the English Quakers, who, from their high opinion of the man, determined to follow him over the vast Atlantic Ocean to a country uncultivated, and a climate strange and unknown. Nor was he himself wanting in any thing that had a tendency to encourage his followers: he expended large sums in transporting and supplying them with all necessaries; and, not aiming at a sudden fortune, by selling his lands at a very easy purchase. By this means, and the noble charter of privileges he gave the settlers, the country was soon changed from a wilderness to a garden, and is now one of the most flourishing countries in the New World; and still called after his own name. See PENN (William).

At the American revolution, Penn's constitution was of course abolished; and the people, by their representatives, formed a new one on republican principles. The proprietaries were excluded from all share in the government, and the legislature offered them 130,000. in lieu of all quit-rents, which was finally accepted. The proprietaries, however, still possess in Pennsylvania many large tracts of excellent land. After many disputes, the republicans acquired the ascendancy, and the constitution underwent an alteration that assimilated it nearly to the federal constitution. The federal constitution was ratified by Pennsylvania, December 13, 1787.

According to the present constitution of this state, the supreme executive power of the commonwealth is vested in a governor; the legislative, in a general assembly, consisting of a senate and a house of representatives. The governor is chosen for three years, but cannot hold his office more than nine years in twelve. A majority of votes makes a choice. The representatives are elected for one year; the senators for four. The latter are divided into four classes. The time of one class expires each year, whose seats are then filled by new elections. Each county chooses its representatives separately. The senators are chosen in districts formed by the legislature. There is to be an enumeration of the inhabitants once in seven years. The number of senators and representatives is, after each enumeration, to be fixed by the legislature, and apportioned among the several counties and districts, according to the number of taxable inhabitants. There can never be fewer than sixty, nor more than one hundred, representatives. The number of senators cannot be less than one-fourth, nor greater than one-third, of the representatives. The elections are made on the second Tuesday of October. The general assembly meets on the first Tuesday of December in each year, unless sooner

convened by the governor. A majority of each house makes a quorum to do business; and a less number may adjourn from day to day, and compel the attendance of members. Each house chooses its speaker and other officers, judges of the qualifications of its members, and establishes the rules of its proceedings. Impeachments are made by the house of representatives, and tried by the senate. All bills for raising revenue originate in the lower house, but the senate may propose amendments. The senators and representatives are free from arrests, while attending the public business, except in cases of treason, felony, and breach of the peace; and are not liable to be questioned concerning any thing said in public debate. They are compensated out of the public treasury, from which no money can be drawn but in consequence of appropriation by law. The journals of both houses are published weekly; and their doors kept open, unless the business require secrecy. All bills, which have passed both houses, must be presented to the governor. If he approve, he must sign them; if not, he must return them, within ten days, with his objections, to the houses in which they originated. No bill so returned shall become a law, unless it be re-passed by two-thirds of both houses. The governor is commander-in-chief of the military force; may remit fines and forfeitures, and grant reprieves and pardons, except in cases of impeachment; may require information from all executive officers; may, on extraordinary occasion, convene the general assembly, and adjourn it, for any term not exceeding four months, in case the two branches cannot agree on the time themselves. He must inform the general assembly of the state of the commonwealth; recommend such measures as he shall judge expedient; and see that the laws are faithfully executed. In case of vacancy in the office of governor, the speaker of the senate exercises that office.

The judicial power is vested in a supreme and inferior court, the judges of which, and justices of peace, are appointed by the governor, and commissioned during good behaviour; but are removable on the address of both houses. The other officers of the state are appointed, some by the governor, some by the general assembly, and some by the people. The qualifications for an elector are twenty-one years of age, two years' residence, and payment of taxes. They are privileged from arrests in civil actions, while attending elections. Those for a representative are twenty-one years of age, and three years inhabitancy. For a senator twenty-five years of age, and four years' inhabitancy. For a governor, thirty years of age, and seven years' inhabitancy. The governor can hold no other office. The senators and representatives none, but of attorney at law, and in the militia. No person, holding an office of trust or profit under the United States, can hold any office in this state to which a salary is by law annexed. All the officers of the state are liable to impeachment, and are bound by oath, or affirmation, to support the constitution, and perform the duties of their offices.

The declaration of rights asserts the natural freedom and equality of all; liberty of conscience; freedom of election, and of the press; subordination of the military to the civil powers; trial by jury; security from unreasonable searches and seizures; a right to an equal distribution of justice; to be heard in criminal prosecutions; to petition for the redress of grievances; to bear arms; and to emigrate from the state. It declares that all power is inherent in the people, and that they may, at any time, alter their form of government; that no person shall be obliged to maintain religious worship, or support any ministry; that all persons, believing in the being of a God, and a future state of rewards and punishments, are eligible to office; that laws cannot be suspended but by the legislature; that all persons shall be bailable, unless for capital offences, when the proof is evident or presumption strong; that every debtor shall be released from prison, on delivering his estate to his creditors, according

to law, except there be strong presumption of fraud; that the privileges of the writ of *habeas corpus* shall not be suspended but in time of rebellion or public danger; that no *ex post facto* law shall be made; that no person shall be attainted by the legislature, or forfeit his estate for a longer term than his own life; that no title of nobility or hereditary distinction shall ever be granted. The constitution above described was ratified in 1790.

In the year 1811, Pennsylvania was divided into forty-three counties, as in the following Table.

Counties.	No. of Towns.	No. of Inhabitants.	Chief Towns.	No. of Inhabitants.
City and County of Philadelphia	18	81,009	Philadelphia	41,220
Montgomery	28	24,150	Norristown	922
Bucks	28	27,496	Newtown	781
Delaware	21	12,809	Chester	957
Chester	40	32,093	West-Chester	374
Lancaster	25	43,403	Lancaster	4,292
Berks	35	32,407	Reading	2,886
Northampton	30	30,062	Easton	1,055
Luzerne	19	12,839	Wilksburg	835
Dauphin	12	22,270	Harrisburg	1,472
Northumberland	24	27,797	Sunbury	613
Wayne	9	2,562		
Adams	16	13,172	Gettysburg	
Alleghany	16	15,087	Pittsburg	1,565
Armstrong	3	2,399		
Beaver	6	5,776	Beaverton	
Bedford	12	12,039	Bedford	
Butler	4	3,916		
Crawford	2	2,346	Meadville	
Cumberland	18	25,386	Carlisle	2,032
Fayette	17	20,159	Union	1,719
Franklin	14	19,638	Chamberston	
Green	10	8,605	Waynesboro'	
Huntingdon	18	13,008	Huntingdon	1,251
Lycoming	10	5,414	Williamsport	
Mercer		3,220		
Mifflin & Center	12	13,609	Lewisburg & Bellefont	
Somerfet	13	10,188	Somerfet	
Venango	2	1,130	Franklin	
Warren	1	233	Warren	
Washington	22	28,298	Washington	
Westmoreland	14	22,726	Greensburg	
York	18	25,643	York	
Erie	6	1,468	Erie	
Cambria				
Indiana				
Clearfield				
Jefferson				
Tioga				
Potter				
M'Kean				

The total number of acres in all the counties is reckoned at 29,634,840; and a great portion of the state is divided into townships, in each of which the freemen assemble annually to choose overseers of the poor, assessors, a collector, supervisors of roads, and a constable. The number of inhabitants, which (March 3, 1821) is 1,049,458, includes only 211 slaves.

In this state are six considerable rivers; viz. the Delaware, Schuylkill, Susquehanna, Youghiogeny, Monongahela, and Alleghany. The only swamps worthy of notice are, the Great Swamp, between Northampton and Luzerne counties, and Buffaloe Swamp, near the head waters of the Susquehanna. These swamps are found, upon examination, to be bodies of firm land, thickly covered with beech and sugar-maple. A considerable portion of this state may be reckoned mountainous. The principal ridges, in the great range of the Alleghany mountains, comprehended in Pennsylvania, are the Kit-

tatinny, or Blue Mountains. Behind these, and nearly parallel to them, are Peters, Tufcarora, and Nefcopek, mountains, on the east of the Susquehanna; and, on the west, Sharemon's hills, Sideling hills, Ragged, Great Warriors, Evi's and Will's, mountains; then the great Alleghany ridge, which, being the largest, gives name to the whole range; and west of this are the Chestnut ridges. Between the Juniata and the west branch of the Susquehanna are Jack's, Tuffy's, Nittiny, and Bald Eagle, mountains. The vales between these mountains are generally of a rich black soil, suited to the various kinds of grafs and grains. Some of the mountains admit of cultivation almost to their summits. The other parts of the state are generally level, or agreeably variegated with hills and valleys.

The climate of Pennsylvania is very agreeable, and the air sweet and clear. The *fall*, or autumn, begins about the 20th of October, and lasts till the beginning of December, when the winter sets in, which continues till March. Frosty weather, and extreme cold seasons, are frequently known here; so that the river Delaware, though very broad, is often times froze over; but at the same time the weather is dry and healthy. The spring lasts from March till June, but the weather is then more inconstant than in the other seasons. The heats are very great in July, August, and September; but mitigated so much by cool breezes, that they are very tolerable. The wind is at south-west during great part of the summer, but generally at north and north-west in spring, fall, and winter; which, blowing over the frozen lakes and snowy mountains of Canada, is the true cause of the coldness of the weather in the winter season.

The soil of Pennsylvania is of various kinds: in some parts it is barren; but a great proportion of the state is good land, and no inconsiderable part of it is very good. In general, however, the soil is more fit for grain than for grafs. This state includes the greater part of the kinds of trees, shrubs, and plants, that grow within the United States. Oaks of several species form the chief bulk of the woods. Hickory and walnut are also more abundant than in the northern states. Sassafras, mulberry, and tulip (or poplar), trees, are frequent and thriving. The *Magnolia glauca* grows in low grounds; and the *acuminati* attains to great height above the western mountains. Grapes are common; and some of them, mellowed by frost, with the addition of sugar, make good wine. The white pine and white cedar grow well in some parts; and also red cedars are not rare in high grounds. The sugar-maple is plentiful in the western and northern parts of the state, and the inhabitants are supplied from them with a considerable quantity of sugar.

Iron ore is distributed in large quantities through various parts of the state; and in some places appear copper, lead, and alum. Here are also limestone quarries, and various kinds of marble. In the middle and western country is abundance of coal. In the new settlements there are large flocks of wild turkeys. Partridges are numerous; pheasants are dear; and grouse are found in some districts. In the cold season pigeons migrate from the north in large numbers. In spring and autumn, several kinds of ducks, and some wild geese, are found on the rivers. The singing-birds migrate to Pennsylvania from the north and south in certain seasons, and are numerous. In the rivulets trouts are common; in the eastern rivers the principal fish are roach, shad, and herring, which, in the spring, come from the sea in large shoals. In the western waters is a species of catfish, weighing from 50 to 100 pounds; and also yellow perch and pike, which are large and numerous.

Among the useful quadrupeds in the new districts are deer in great number, beavers, otters, racoons, and monkeys. Buffaloes rarely cross the Ohio, and elks seldom advance from the north. Panthers, wild cats, bears, foxes, and wolves, are not rare; the fur of all which is valuable. In the north settlements rabbits and squirrels

Squirrels are frequent: in the marshes are minks and musk-rats; but opossums and ground-hogs are rare. The best-fertile land is on the south side of Pennsylvania; which is owing to the roads that have been formed in this part of the country and adjacent districts. The principal article of agricultural cultivation is wheat. The next in value is Indian corn. Buck-wheat, rye, barley, and oats, are also cultivated; as are also German speltz, chiefly as food for horses. Potatoes are plentiful; and also turnips, cabbage, parsneps, and carrots, and the small oval pea. The culture of meadows is a considerable object in this state: those on the rivers are banked, drained, tuffocked, ploughed, and harrowed; and sown with Timothy grass and clover. The summer is long enough to admit of two mowings, and even three in rich ground. On farms that have springs and streams, dairies are built over them so as to place the milk-vessels in the water, which is necessary to avoid the injurious effects of heat. Horses, it is said, are raised beyond the proper use, as oxen might more generally supply their place. The best for teams are bred in Lancaster county; and the elegant saddle and coach horses have more or less of the blood of stallions imported from England. The number of sheep is considerable, and increases. Hogs, supplied with food from the woods of oak and beech, exceed home-consumption. Mules and asses are hitherto very rare. Poultry are abundant, and turkeys are cheap. Flax and hemp are cultivated; the growth of hops is inconsiderable: bees are objects of attention. In favourable seasons, cherries, apples, and cider, abound.

The general style of architecture in this state is neat and solid. Stone buildings are most common in the old settlements; log and frame houses in the new. Towns have a considerable proportion of brick houses: shingles cover the roofs. Necessary tradesmen and mechanics are settled on small farms or lots throughout the improved country, and also in villages. Manufacturers dwell chiefly in towns, though many of them are scattered through the country. The product of domestic female industry is considerable. The wives and daughters of even opulent farmers knit and spin; and, in the towns, some females of higher rank do the same. Woolen stockings are made in sufficient quantity for use: and hemp, which is used in several places for coarse wearing apparel, bags, lines, and nets, &c. is manufactured, in large quantities, into cordage, cables, and ropes. Iron-works are of long standing, and are in improving condition. The furnaces are 16, and the forges 37. The slitting and rolling-mills are said to cut and roll 1500 tons per annum. The fabricated articles are numerous, and of all the common kinds. Manufactories of leather, skins, and fur, are very extensive and good. The most respectable trades employed in materials of wood are cabinet-making, house-carpentry, coach-making, and ship-building. The port of Philadelphia is said to be among the first in the world for naval architecture. Paper of most kinds forms a beneficial branch of manufacture, in which are employed above 50 mills, the annual product of which is computed at 25,000 dollars. Manufactories in stone, clay, and fossils, are bricks, and various pieces of marble, common earthen ware, grind-stones, and mill-stones; tin-ware are well executed for various domestic purposes; copper, brass, lead, and pewter, are also the materials of various manufactured articles. Linens imported are now printed. Sugar-refineries, and distilleries of molasses, and various preparations of tobacco, furnish employment for many hands.

The commerce of Pennsylvania with the eastern and northern states, is, in great part, an exchange of staple-commodities; which are too numerous to be recited. The commerce of Pennsylvania with the west is carried on by the Ohio with the Spanish, and by the lakes with the British dominions; and both ways with the Indian tribes. Nearly the whole foreign commerce is carried on by the port of Philadelphia. The value of the exports

from this state in the year ending September 30, 1791, was 3,436,092 dollars, 58 cents; in 1792, 3,820,662 dollars; in 1793, 6,958,836 dollars; in 1794, 6,643,092 dollars; in 1795, 11,518,260 dollars; in 1799, 12,431,967 dollars; in 1801, 17,438,193 dollars; in 1804, 11,030,157 dollars. The importation is very great, both for the consumption of Pennsylvania, and of the districts supplied from Philadelphia: common and fine imported linens and woollens are used to a great amount, notwithstanding the quantity of home-made; much Swedish iron and Russian hemp is imported; and English hard-ware is in great demand. The tonnage of this state amounted, in 1796, to 98,237 tons; in 1799, to 93,824 tons.

The inhabitants of this state are principally the descendants of English, Irish, and Germans, with some Scotch, Welsh, Swedes, and a few Dutch. The Friends and Episcopalians are chiefly of English extraction, and compose about one-third of the inhabitants. The Germans compose about one-quarter of the inhabitants of Pennsylvania; they consist of Lutherans (who are the most numerous), Calvinists or the reformed church, Moravians, Catholics, Mennonists, Dutch Baptists (corruptly called Tunkers and Dunkers, by way of reproach), and Zwingfelters, who are a species of Quakers. They are all distinguished for their temperance, industry, and economy. The Baptists (except the Mennonist and Dutch Baptists) are chiefly the descendants of emigrants from Wales, and are not numerous. The original Swedes went over in the year 1638, as a colony, under the government and protection of Sweden. Few Swedes have since settled in America; and their language is nearly extinct. These people uniformly had the character of probity, mildness, and hospitality; but have been careless of their lands and interest. A privilege, almost peculiar to this state, has been granted to foreigners by the legislature; viz. that of buying or holding lands and houses within this commonwealth, without relinquishing their allegiance to the country in which they were born.

The congregations of the different denominations of Christians in Pennsylvania are as follow: viz. Presbyterians, 101 congregations; German Calvinists, 84; German Lutherans, 84; Friends or Quakers, 54; Episcopalians, 26; Baptists, 15; Roman Catholics, 11; Scotch Presbyterians, 8; Moravians, 8; Free Quakers, 1; Universalists, 1; Covenanters, 1; Methodists, several; besides a Jewish Synagogue, amounting in all to about 400 religious societies.

There are six colleges in Pennsylvania: Dickenfon College, at Carlisle; the University of Pennsylvania, in Philadelphia; Franklin College, at Lancaster; Jefferson College, at Cononsburg; Washington College, seven miles from the same place; and Allegany College, at Meadville. Dickenfon College has an excellent central position. It is under the direction of forty trustees; has a principal and five professors; a good philosophical apparatus; a library of about three thousand volumes; and a revenue of considerable amount, arising from ten thousand acres of land, and funded certificates. It is divided into three departments; the college, the medical, and the grammar schools; in all of which there are about 650 students; about fifty in the first, five hundred in the second, and one hundred in the last. Its funds are not so extensive as they ought to be, yielding a revenue of only 2365l. but, in other respects, it is on a very good footing; and the philosophical apparatus, particularly, is, without a doubt, the most complete in the United States. Washington and Jefferson Colleges are in the neighbourhood of each other; and are very much alike in every particular. The funds of the former are small; but it has a pretty good library and philosophical apparatus. In each of these colleges the average number of students is about sixty.

Pennsylvania abounds with literary, humane, and other useful, institutions more than any other of the American

American states. We shall here merely enumerate them, and mention the time of their institution. They are—The American Philosophical Society, formed 1769; the Society for promoting Political Inquiries, instituted in February 1787; the College of Physicians, instituted in the same year, and incorporated in 1789; the Pennsylvania Hospital, established in 1751; Philadelphia Dispensary, instituted in 1786; the Pennsylvania Society for the Abolition of Slavery and the Relief of free Negroes unlawfully held in bondage, begun in 1774, and enlarged in 1787; the Society for alleviating the Miseries of Prisons, which is become a regular work-house with an annexed place of confinement; the Society of United Brethren for propagating the Gospel among the Heathens, instituted in 1787; the Pennsylvania Society for the Encouragement of Manufactures and useful Arts, instituted in 1787; the Philadelphia Society for the Information and Assistance of Persons emigrating from foreign Countries, instituted in 1794. Besides these, there are two insurance-companies; an humane society, for the recovery of drowned persons, instituted in 1770; an Agricultural Society, a society for the relief of German, and another for the relief of Irish, emigrants; a Marine Society, a Society for the Support of Widows and Families of Presbyterian Clergymen, and St. George's and St. Andrew's charitable Societies. Most of these societies are in the city of Philadelphia.

In the Philosophical Transactions for 1757, there is an account of a spring in Pennsylvania, which rises from a copper-mine, and yields 800 hogshheads in 24 hours. The water is of a pale-green colour, of an acid, inky, and nauseous, taste. The saline matter which it holds in solution is probably sulphate of copper; for a piece of polished iron immersed in it is soon covered with a crust of metallic copper. It contains also, it is said, sulphate of iron.

Near Brownville, a town on the Monongahela, in the western part of Pennsylvania, a storm lately (July 1821) tore up a large oak. By its fall with its roots, the surface of a sand-stone was laid bare about sixteen feet square. On the smooth surface of this work several figures are engraved, among which are two of the human form, a man and woman, with a tree between them; the woman has fruit in her hand: figures of deer, bears, and turkey-cocks, are also carved on it. The oak was at least from 500 to 600 years old, consequently these figures must have been carved long before the discovery of America by Columbus. Similar discoveries have likewise been made in other parts of the United States. In the countries about the Ohio several hills have already been discovered, which are certainly the work of human hands, and must have required the labour of thousands. On the sides and on the summit grow large oaks, apparently from four to six hundred years old. Near the mouth of the river Muskingham, 183 miles below Pittsburgh, there is an ancient fortification, occupying about forty acres of ground. Round it are several quadrangles of 140 to 200 feet in length, surrounded with ramparts from ten to thirty feet in height, on which there are also very old oaks. On each side are three openings at equal distances; the middle one about thirty feet in breadth and twenty-two in height. The whole is surrounded by a mound of earth, the base of which is from thirty-six to forty feet, and its height about ten feet. According to all appearance, the works have been abandoned for many centuries, but by whom they were erected is unknown; the oldest Indians say that they existed at the arrival of their forefathers. In digging cellars and wells, are occasionally found petrified instruments and utensils, which indicate a degree of civilization unknown in any of the Indian nations. For accounts of other antiquities and natural curiosities, see the articles PHILADELPHIA, READING, SCHUYLKILL, &c. *Morse's American Geography. Monthly Mag. Aug. 1817. Gent. Mag. Nov. 1822.*

PEN'NY, a town of Bengal: eighteen miles south-east of Purneah.

PEN'NY, *f.* plural *pence*; [penɪz, Sax. It is derived by Camden from *pecunia*; but by others from *pendo*, to weigh, and it was sometimes written, according to this origin, *pending*.] A small coin, of which twelve make a shilling. A penny is the radical denomination from which English coin is numbered, the copper halfpence and farthings being only *nummorum famuli*, a subordinate species of coin.—The same servant found one of his fellow-servants which owed him an hundred *pence*, and took him by the throat. *Matthew.*

She sighs and shakes her empty shoes in vain,
No silver *penny* to reward her pain. *Dryden.*

Proverbially. A small sum.—We will not lend thee a *penny*. *Shakespeare.*—Because there is a latitude of gain in buying and selling, take not the utmost *penny* that is lawful; for, although it be lawful, yet it is not safe. *Bp. Taylor's Holy Living.*

You shall hear
The legions, now in Gallia, sooner landed
In our not-fearing Britain, than have tidings
Of any *penny* tribute paid. *Shakespeare's Cymbeline.*

Money in general.—It may be a contrivance of some printer, who hath a mind to make a *penny*. *Swift's Miscellanies.*

Pepper and Sabean incense take;
And with post-haste thy running markets make;
Be sure to turn the *penny*. *Dryden.*

The ancient English penny, *penig*, or *pening*, was the first silver coin struck in England; nay, and the only one current among our Saxon ancestors; as is agreed by Camden, Spelman, Dr. Hickee, &c.

Of the heptarchic pennies we have given an account under the article MEDAL, vol. xiv. p. 820. and we have there given a brief history of the penny, as a silver coin, both before and after the Conquest.

The penny, which in Elthelred's time was the 20th part of the troy ounce, was equal in weight to our three-pence; five of them made one shilling, or scilling Saxon; and thirty a mark or mancuse, equal to our 7s. 6d. It was the largest silver coin in England, and retained this value till the reign of Edward III.

Till the time of king Edward I. the penny was struck with a cross so deeply indented in it, that it might be easily broken, and parted, on occasion, into two parts; thence called *half-pennies*; or into four, thence called *fourthings*, or *farthings*. But that prince coined it without indenture; in lieu of which he first struck round half-pence and farthings.

Stow, in his Annals, p. 200, says, that half-pennies were first coined round, A. D. 1279, in the reign of Edward I. But historians have since discovered, that half-pennies of this kind were coined by Henry I. and that, though the usual way in the reign of the two first Williams was to cut the penny into two for making of half-pennies, &c. yet it has been supposed that some few half-pennies might even then be coined round. Some few pieces of this kind are preserved in the cabinets of the curious. See Mr. Pegge's remarks on this subject in *Gent. Mag.* vol. xxviii. p. 64.

Edward I. also reduced the weight of the penny to a standard, ordering that it should weigh thirty-two grains of wheat, taken out of the middle of the ear. (Stat. 13 Edw. I.) This penny was called the penny *sterling*. Twenty of these pence were to weigh an ounce; whence the penny became a weight as well as a coin.

By 9 Edw. III. it was diminished to the twenty-sixth part of the troy ounce; by 2 Henry VI. it was the thirty-second part; by 5 Edw. IV. it became the fortieth, and also by 36 Hen. VIII. and afterwards the forty-fifth; but by 2 Eliz. sixty pence were coined out of the ounce; and during

during her reign sixty-two, which proportion was observed till the new coinage of 1816, when sixty-six pence were made from an ounce of silver, and sixty-six shillings from a pound.

The silver penny sterling has been long difused as a coin; and is scarcely known but as a money of account, containing the twelfth part of a shilling, or the two hundred and fortieth part of a pound; and indeed, from its very diminutive size, it can never more become a current coin, nor probably will any thing less than a sixpence ever be so used. But, in the year 1797, when gold was withdrawn from circulation, the silver coinage being also in a very bad state, copper pennies, weighing, an ounce each, were introduced into circulation. In the copper coinage of 1806, the penny was made somewhat less; so that, at length, instead of 20 pennyweights to the ounce, we have about 20 to the pound.

The course of exchange between England and France is settled on the foot of 50 many pence sterling for a French half-crown of three livres.

PENNY, in ancient statutes, &c. is used for all silver money. Hence the *ward-penny*, *aver-penny*, *hundred-penny*, *tilling-penny*, and *brothal-penny*.

PENNY EARTH, *f.* A term used by farmers for a hard loamy or sandy earth, with a very large quantity of sea-shells intermixed in it, some of which being round and flat, in some measure resembling pieces of money, have occasioned the earth's being called by this name. It is an earth not easily dug, but is usually undermined with pickaxes, and then falls in large lumps; which, with the frosts, break to pieces, and leave the shells loose. It is prepared by breaking and mixing well with water, and then makes very desirable floors. The Jersey combers' comb-pots are also made of it, and the sides and roofs of ovens are plastered with it; and, being rightly managed, it combines into a floor almost as strong as plaster of Paris.

PENNY-GRASS. See RHINANTHUS.

PENNY-POST, *f.* An office for conveying letters for the price of a penny to all places within the London bills of mortality, till the year 1807, when the price was advanced to 2d.

PENNY-ROYAL, or PUD'DING-GRASS, *f.* [*pulegium*, Lat.] A plant. See MENTHA.

First *pennyroyal*, to advance her fame,
(And from her mouth a grateful odour came.)
Tells 'em, they say, how many ills that source
Threatens, whene'er, &c. *Cowley englished.*

PENNY-TOWN. See PENNINGTON.

PENNY-WEIGHT, *f.* A weight containing twenty-four grains troy-weight. So called from the ancient silver penny being of this weight.—The Sevil piece of eight is $1\frac{1}{2}$ pennyweight in the pound worse than the English standard, weighs fourteen pennyweight, contains thirteen pennyweight twenty-one grains and fifteen mites, of which there are twenty in the grain of sterling silver, and is in value forty-three English pence and eleven hundredths of a penny. *Arbutnot on Coins.*

PENNY-WISE, *adj.* Saving small sums at the hazard of larger; niggardly on improper occasions.—Be not *penny-wise*; riches have wings and fly away of themselves. *Bacon.*—*Penny-wise*, pound-foolish. *Burton's Anat. of Mel. Pref.*

PENNY-WORT. See HYDROCYCLE.

PENNYLESS, *adj.* Moneyless; poor; wanting money.—The doors, for ever barred to the *pennyless* populace, seemed to open themselves at his producing a silver sixpence. *Arbutnot and Pope.*

Hail, ticking! surest guardian of distress!
Beneath thy shelter *pennyless* I quaff
The cheerful cup! *Warton on Oxford Ale.*

PENNYWORTH, *f.* As much as is bought for a penny. Any purchase; any thing bought or sold for

money.—Lucian affirms, that the souls of usurers after their death, are transported into the bodies of asses, and there remain certain days for poor men to take their *pennyworths* out of their bones and sides by cudgel and spur. *Peacham.*

Pirates may make cheap *pennyworths* of their pillage,
And purchase friends. *Shakespeare's Hen. VI.*

Something advantageously bought; a purchase got for less than it is worth:

For fame he pray'd, but let the event declare
He had no mighty *pennyworth* of his prayer. *Dryden.*

A small quantity.—My friendship I distribute in *pennyworths* to those about me, and who displease me least. *Swift.*

PEN'OBSCOT, a river of America, which is the most considerable in the district of Maine, and rises by two branches in the high lands. Between the source of the west Fork and its junction with the east, is Moosehead lake, thirty or forty miles long and fifteen wide. The east branch passes through several smaller lakes. From the Forks, as they are called, the Penobscot Indians pass to Canada, along either branch, principally the west, the source of which, as they say, is not more than twenty miles from the waters that empty into the St. Lawrence. At the Forks is a remarkable high mountain; and from thence down to Indian Old Town, situated on an island in this river, the distance is about sixty miles, and in the interval the river widens and embraces a great number of islands. Just below Indian-town are the Great Falls, where is a carrying-place of about twenty rods; and thence for twelve miles to the head of the tide there are no falls to obstruct boats. From thence for thirty-five miles, to the head of Penobscot-bay, or to the site of Old Fort Pownal, the river flows in a pretty straight course, and is easily navigated. Passing by Majahagaduse on the east seven miles, and Owl's-head twenty miles farther, you enter the ocean. The Indians have a communication from this river to Scoodick-river, by a portage of three miles. This river was the eastern limit of Nova Scotia, or Acadia, by the treaty of Utrecht. Within about twenty miles there are more than sixty islands of various sizes, comprehending in the whole about 12,000 acres. Fifty-four of these the Indians have reserved to their own use. See INDIAN Old Town, vol. xi.

PEN'OBSCOT, a bay on the coast of Hancock county, in the state of Maine, and called by the first discoverer *Novembega*, about sixteen leagues wide from Naakeag-point and Burnt-coat island on the east, to the point on which Thomastown stands on the west side of the bay. The chief islands it incloses are Fox, Haut, Long, and Deer, islands; besides a number of small isles, rocks, and ledges. On a fine peninsula, on the east side of the bay, the British built a fort, and made a settlement, which is now the shire-town of the county of Hancock, and is a commodious place for the lumber-trade. Haut-island, or the Isle of Holt, lies in lat. 44. 23. N. lon. 68. 10. W. and is the southernmost of the large isles.

PEN'OBSCOT, a post-town of Maine, on the east side of the bay of its name, which is a port of entry, and carries on a small trade in fish and lumber. In 1796 it was divided into two towns; the one retaining the name of Penobscot, containing 1302 inhabitants, and the other named CASTINE, which see, vol. iii.

PEN'OL (El), a castle of Fez, near Velez: taken by the Spaniards in 1513.

PENOMA'ZIN, a town of Siam: sixty miles south of Tenasserim.

PEN'ON (El), a town of South America in the province of Carthage: thirty-six miles south of Mompox.

PENO'WAL, a town of Hindoostan, in the circar of Oudeypour: twenty miles south-east of Cheitore.

PENRHYN', a seaport of North Wales, in the county of Caernarvon, on the Menai, from whence great quantities

ties of slate are exported: two miles south-west of Bangor.

PENRHYN DWA', a cape on the west coast of Wales, and county of Caernarvon: ten miles south of Pulhely.

PENRHYN'S ISLANDS, a group of islands in the South Sea, which, having only been seen by their discoverer at a distance, have at length been satisfactorily described by Otto Von Kotzebue, of the Russian ship *Rurick*, in his late Voyage of Discovery.

"On the 30th of April, 1816, in the afternoon, we saw Penrhyn's Islands, which we found, like all other coral-islands, forming a circle, connected by reefs from the lake in the middle; many rocks were also seen above the water. We were surprised to see these islands covered with thick forests of cocoa-trees; and our astonishment was agreeably increased when we perceived, by the columns of smoke issuing from them, that this small and distant group was inhabited. With our telescopes we could even see the people running about on the shore; and the setting sun only induced us to postpone the farther investigation till the next day. On the 1st of May we brought the *Rurick* under the wind; at eight o'clock we were in calm water, within a couple of miles from land, and then distinctly saw a great many people on shore, actively engaged in putting their boats to sea, while some from the other islands were already approaching in theirs. On seeing a number of boats coming towards us, we came-to: some of the boats, which carried from twelve to eighteen people, had sails; in each of them was an old man, probably the commander of the rowers, for he was sitting gravely with a wreath of palm-branches round his neck, holding up in his left hand a palm-branch, as a sign of peace. When the boats had approached within twenty fathoms they stopped, and began singing in a very melancholy strain; but, after this ceremony, they fearlessly came nearer, yet without coming on-board. We were, however, disappointed in our expectation of meeting with fresh provisions; for they brought nothing but unripe cocoa-nuts, which they offered to barter for old nails and pieces of iron; however, to profit something by them, I allowed every one to supply himself with the manufactures of the savages, as far as he liked. The *Rurick* was soon surrounded by twenty-six boats, which we kept on one side of us, my crew not being sufficiently strong to protect the ship against the greediness of three hundred savages. The trade was carried on in a very lively and clamorous manner: many boats, in their endeavour to be foremost with their goods, upset; but the most violent quarrel always ended with laughing and joking. Those who could not approach the *Rurick*, on account of the crowd, amused themselves in their boats with singing and dancing; their droll movements, and particularly their skill in making faces, gave us much amusement. The exchanges were effected by means of a rope, to which they fastened their goods without mistrust, and waited patiently for their payment, which was conveyed to them in the same way. One of the chiefs, who got up so high on the side of the ship that he could reach to look over the deck, was pulled back by the legs by the others, amidst lamentable screams; but, when he had got back again into the boat, they surrounded him, and with a great many gestures he told them of the wonders which he had seen, showing at the same time, the presents which he had made him, to reward his courage. By degrees, the boldness of the islanders increased: they stole as much as they could, and at last went even so far as to threaten us. Unacquainted with the superiority of European arms, they grew bold by their numbers; so that at last I was obliged to have a musket fired, which had its effect: in the same instant they all jumped into the sea, in which they disappeared. A death-like silence followed the monstrous noise, and an immense grave seemed to have swallowed them all, till, by degrees, one head after the other appeared above the surface. Fright and terror were depicted in every

face; they looked carefully about them to see what mischief the report had done; and, when they found that there was none, they returned into their boats; but they were more orderly. Nothing pleased them better than large nails, for which they sold us some lances of black wood, very neatly made, with some other arms.

"These islanders resemble in size and strength the inhabitants of the Marquesas: their faces, too, may be something like them, although those of the Marquesas seemed to me to be handfomer and whiter. Of the women I cannot judge, having only seen two of them, who were old and very ugly. They have the happy cheerful temper of the other South-Sea islanders, but they are rather more savage in their conduct. It is remarkable that these islanders are not tattooed, in which they deviate from all the other South-Sea islanders, particularly as they are so near the Friendly Islands, that they either have their origin among them, or have been driven here from the Washington Islands. However, not to be altogether without ornaments, most of them have scratched stripes down their backs, which gives them, with their long matted hair hanging over them, a disgusting appearance. With the exception of a few, who wear a girdle of badly-made stuff, they are all naked. They wear their nails long; and this forms probably the principal ornament of the chiefs, for I saw several who had them near three inches long. The Penrhyns do not possess the tree from which, in most of the South-Sea islands, they make their dresses; which is a proof that they have no connexion with the Friendly Islands; yet they understood some words of their language, which we repeated, borrowed from Cook's Voyages. Their boats, which are badly made, resemble those of the Marquesas, having also the balanciers, and carry conveniently twelve men; the sails, made of coarse matting, are only fit to sail with the wind. Whether the islands produce any thing besides cocoa-nuts, I cannot say; of these however, judging by the number of trees, there must be a great abundance. Through the telescopes, we saw many women walking on-shore, who were admiring the ship from a great distance. We did not perceive any thing like a house; but we saw a stone wall, which was very well built. I should have liked to have gone on-shore, but could not venture with my few people, the savages being so numerous and bold. Towards noon, we had a violent thunder-storm, just when I was about quitting the islands. The savages, far from being frightened at the thunder, had fastened their boats to our ship, and endeavoured to draw the nails out of it, making, at the same time, such a noise, that it was impossible to hear the word of command. To get rid of them I hoisted all sail; and the unexpected quick motion of the ship, which upset several of their boats, obliged them to desist; but they followed us for a long time, making signs that they wished our return. The great population of these islands, and the bold spirit of the savages, prove that there must be other islands near them with which they are connected. We found the latitude of this group 9. 1. 35. S. mean between the chronometers and the observed longitude 157. 34. 32. W. declension of the needle 8. 28. E.

PENRISE, or **PENRICE**, a town of South Wales, in the parish of Oxwich, and county of Glamorgan, on the west side of a bay in the Bristol Channel, with a weekly market on Thursday; and fairs, May 17, July 17, Sept. 17, and Dec. 1. This town has a good harbour for ships. It got the name of Penrice, or Penrice, from the following circumstance. At Carno, near this place, a bloody battle was fought between Rees ap Tudor king of Dynevor, (from whom descended Henry VII. of England) and his rebellious subjects, in which that amiable prince was defeated, and, flying to his castle at *Gower*, (the ancient name of this place,) was there inhumanly beheaded, from which time it was called *Castle Pen Rees*, or the *Castle of Rees's Head*. It is now called *Penrice Castle*.

The defeat of Rees ap Tudor was a little before the Norman conquest. A considerable part of the ruins of the castle are still visible. See *Oxwich*, vol. xviii. Penrith is fourteen miles west-north-west of Swansea, and 219 west of London. Lat. 51. 46. N. lon. 4. 10. W. *British Directory*, vol. v.

'PENRITH' (New), a market-town in the county of Cumberland, is situated in a vale within the district called Inglewood Forest, eighteen miles from Carlisle, and 283 from London. It is a place of considerable antiquity, and was successively in possession of the English and Scottish sovereigns; during whose contentions it suffered by the depredations of the Scots, by whom it was burned in the 18th of Edward III. and again in the following reign. About that period the plague raged in Penrith: and in the year 1598, a second visitation of this dreadful disorder nearly depopulated the parish: for 583 persons fell victims to it according to the register, but incorrectly stated on a brass plate in the church as amounting to 2260. The fear of infection prevented the continuance of the regular markets; and places were appointed, without the town, for purchasing the provisions brought by the country people.

Penrith is an inland town; not large, but has, when viewed collectively, a very neat appearance, many of the houses being handsome structures, built of red freestone, and covered with that lasting and beautiful article called blue slate. It is perhaps the greatest thoroughfare in the north of England; passengers to and from the metropolis to Ireland, crossing the sea at Port Patrick, or Whitehaven, pass through this town; and, since the improvements of the roads, those who are travelling from Scotland to London mostly take this way. In 1715 the Scots highland rebels entered this town, and quartered here one night, in their way to Preston, without doing much harm; but in the last rebellion, in 1745, they were very rapacious here, and cruel. Its handsome spacious church above mentioned has its roof supported by pillars, whose shafts are of one entire reddish stone, dug out of a neighbouring quarry.

The population of Penrith, in the year 1811, amounted to 4328, occupying 938 houses. The inhabitants are chiefly employed in agriculture, and in weaving checks and fancy-cloths for waistcoats. A weekly market is kept on Tuesday, and a smaller one on Saturday; and here are five annual fairs. The stations for marketable commodities are disposed in a singular manner: the wheat-market is in one part of the town, barley is sold in another part, rye and potatoes in a third; cattle, hogs, and horses, have also distinct places of sale.

The church is a neat, but plain, structure: the body was rebuilt of red stone in the year 1722, at the expense of 2253l. and connected with the ancient tower. In the church-yard is a singular monument of antiquity, called the Giant's Grave, the origin of which has frequently exercised the sagacity and speculations of antiquarians. It consists of two stone pillars, standing at the opposite ends of a grave, about the distance of fifteen feet asunder, eleven feet six inches in height, and nearly five feet in circumference at the bottom, where they are mortised into round stones embedded in the earth. The space between them is two feet in breadth, and is inclosed by four thin semicircular stones, two on each side, of unequal lengths, but little more than twenty inches in height. Three of these stones have an ornament of foliage, rudely sculptured, remaining round their upper edges; the fourth is plain, of a different kind, and seems to have been placed in the room of one decayed. The pillars taper upwards; their lower parts are rounded to about the height of seven feet, where they assume a square form, and appear to have terminated in a point; but the tops are broken. On the square parts are some traces of ornamental fretwork; and the interior side of one pillar has a rude delineation of some animal, resembling a bear. Near the summit of each pillar are the vestiges

of a raised cross, now almost obliterated. Bishop Lytleton, in his remarks on this monument, (published in the *Archæologia*), inclines to the opinion of its being the sepulchre of some British prince interred here subsequent to the introduction of Christianity; and tradition ascribes it to the British king Ewain, a warrior of gigantic size, who reigned in this county in the time of Athelstan, or Ida. That this Ewain was actually buried at Penrith, appears in the highest degree probable, from the notice of his sepulchre in the "Verfes of the Graves of the British Warriors," written about the close of the sixth century. At a small distance from this monument, with which, however, it does not appear to have any connexion, is a single stone, called the Giant's Thumb, five feet eight inches in height, about fourteen inches broad at the lower part, but contracting upwards to ten inches; the head, which appears to have been circular, expands to the diameter of about eighteen inches. This seems to have been an ancient stone cross.

Previous to the year 1400, the inhabitants of Penrith were frequently distressed for fresh water; but about that time, Strickland, bishop of Carlisle, purchased a sufficiency of the water of the river Peteril, which he conveyed to the town at his own expense. He also founded a chantry here, and endowed it with six pounds annually for the support of a priest. The revenues of this establishment were given by queen Elizabeth to an ancient school (instituted so early as the year 1340.) which she re-founded, by the title of "The Free Grammar School of Queen Elizabeth in Penrith."

A little to the south of the town, on a small elevation, stand the remains of an old castle, of which we have no certain account, either of the time of its foundation or even of the time of its being demolished. Previous to Edward IV. his uncle, Richard duke of Gloucester, (afterwards Richard III.) resided here in quality of sheriff of Cumberland, who repaired it, and lived here five years together, doubtless with a design to collect his friends in the north, and intimidate those of the house of Lancaster. The duke's repairs, consisting of a tower, porter's lodge, &c. have been pulled down and taken away; but that part of the ancient building which is still standing is too firmly cemented to be separated by the efforts of the workmen employed for that purpose, and probably must remain till the all-subduing hand of time moulders the materials, and levels it with the ground. This castle, with the manor of Penrith, was part of a grant from William III. to William Bentick, esq. (afterwards earl of Portland,) in which family it continued till 1784, when the third duke of Portland sold it to his brother-in-law the duke of Devonshire.

Greytokes Castle is near five miles to the west of Penrith, a seat belonging to the late duke of Norfolk, and the place of his nativity. His grace added several thousand acres to the ancient demesne, and built some curious edifices upon the improved lands.

Dalemain, a handsome modern stone building, belonging to Edward Hasell, esq. is something more than three miles to the south-west of Penrith, on the right of the road leading from Penrith to Ullswater, taking the Cumberland side of the river Eden, (there being another road leading to Ullswater on the Westmoreland side of the said river.)—A little further on the same road, but at a greater distance from it, stands Dacre Castle, an old tower, though pretty entire, and formerly the seat of the Dacres. It appears to have been standing at the time of the Saxon invasion, and probably much earlier. This castle also belongs to Edward Hasell, esq.

Hutton-John, a seat belonging to the ancient family of Huddleston, is about five miles and a quarter from the town of Penrith, a little to the left of the road leading to Keswick. It is out of sight in passing along the road, standing on the declivity of a hill facing the south; but its situation may be nearly known to travellers by some small groups of firs, &c. adjoining to the road.—Hutton Hall.

Hall, a handsome modern building, belonging to Sir Frederic Fletcher Vane, bart. is about five miles from the town of Penrith, on the road leading to Wigton.

Eden Hall, about three miles to the east of Penrith, is an ancient, large, and noble, structure, several of the apartments being ornamented with curious historical prints, tapestry-hangings, and stucco-work; and an elegant staircase with hanging stairs, &c. This noble structure belongs to Sir Philip-Christopher Musgrave, bart. who seldom resides at it, though it is pleasantly situated. —Melmerby Hall, eight miles east, in a pleasant sporting country, is the seat of Thomas Pattinson, esq.

Leaving Penrith and travelling towards the bridge, at about half a mile from the town, on the left, may be observed a road which leads to Carleton Hall, the seat of the late James Wallace, esq. who died attorney-general to his late majesty George III. which place he filled with the highest reputation. He spared no expense in improving and beautifying it, and lived to see it a most charming and delightful place of retirement from the arduous and busy scene of life in which he made so conspicuous a figure.

After passing the bridge, (the river Eden being the boundary which separates the counties of Cumberland and Westmoreland,) and proceeding on the road to Brough, at about two miles from Penrith, on a small but beautiful eminence, stands Bird's Nest, or Brougham Hall, a handsome building, with small but neat gardens; but this place has of late been much neglected, and consequently much out of repair, the present proprietor, Henry Brougham, esq. seldom residing at it.

At the distance of three miles from Penrith, on the left of the road leading to Brough, are the venerable ruins of Brougham Castle, erected in 1070. From what remains standing of this ancient pile, it has evidently been a fortress of great strength. It formerly belonged to the illustrious family of the Cliffords. Margaret, daughter of Anne countess dowager of Pembroke and Montgomery, being married to John lord Tufton, brought this and the adjoining estate into the family of the earl of Thanet, in whose possession it still remains. This noble castle was repaired by the aforefaid Anne countess dowager of Pembroke in the year 1651, having been in a dilapidated state nearly five and thirty years. After her death it was entirely neglected, and all the materials sold for 100l. to two attorneys in Penrith. It is now a mouldering venerable ruin on the banks of the river Eden. The keep and chapel are the most prominent features; the former of which is very ancient, of massy construction, having several circular arches in front, and has probably been considerably higher. To the north-east angle is attached a gateway of less ancient erection. The chapel was very small; part of the east window, stalls, and holy-water recess, with large corbels of the roof, remain. The old church at Brougham, being considered in a dangerous state, was taken down, and rebuilt by the countess of Pembroke, in the year 1659.

About a mile from this place, on the south side of the road (to London), the attention is drawn to a pillar standing on a gently-rising ground. This pillar was erected in the year 1656 by the same countess of Pembroke, a woman so justly celebrated for her many excellent qualities, that a little description of this memorial may not be unacceptable. This pillar is between seven and eight feet high, and about three in diameter, of an octagonal form, with capital and base: it supports a square block of stone, on two sides of which are fundials, on a third the arms of Veteriponts and Clifford, impaling Russell, surmounted by an earl's coronet; and on the fourth, the following inscription, on a brass plate: "This Pillar was erected, anno 1656, by the Right Honourable Ann, countess dowager of Pembroke, &c. and sole heire of the Right Honourable George earl of Cumberland, &c. for a memorial of her last parting in this place with her good and pious mother, the Right Ho-

nourable Margaret, countess dowager of Cumberland, the 2nd of April, 1616. In memory whereof she also left an annuity of four pounds to be distributed to the poor within this parish of Brougham every 2nd day of April for ever, upon the stone table here hard by. *Laus Deo.*" A few paces towards the south is the base of a small stone table, the upper part of which has been thrown down, and lies near the spot: how long it has been in this state we know not; but with very little trouble it might be replaced, and both preserved from destruction. Gratitude to the benevolent distributor of so many charities should be alone sufficient to preserve this and all other of her works from wanton demolition; and, when we reflect on the doubly pious intention of this little monumental tribute, as expressed in the inscription, it is a duty absolute and indispensable. This exalted female character (the daughter of George Clifford, third earl of Cumberland, by Margaret Russell his wife) was born at Skipton Castle on the 30th of January, 1590. She first married William Sackville, earl of Dorset, and afterwards Philip Herbert, earl of Pembroke, who died in the year 1649. After his death the countess devoted her attention to many pious works, and the restoration of six of her noble castles, which had suffered delapidations during the civil wars.

On the north bank of the river Eden are two caves or grottoes, dug out of the solid rock, and sufficient to contain one hundred men. The passage to them is very narrow and dangerous, and perhaps its perilous access may have given it the name of *Isis Parlus*, though the vulgar tell strange stories of one Isis, a giant, who lived here in former times, and, like Cacus of old, used to seize men and cattle, and draw them into his den to devour them. But it is highly probable that these subterraneous chambers were made for a secure retreat in time of sudden danger: and the iron gates, which were taken away not long ago, do not a little confirm that supposition.

PEN'RITH (Old), is five miles from New Penrith, and thirteen from Carlisle. Here are great ruins of a town; here was formerly a Roman station, of which there are a great many remains, and numbers of Roman antiquities have been found here.

Beacon-hill is thus described by Mr. Hutchinson: "Our first excursion from Penrith was to mount the steep hill on which the beacon is placed, upwards of a mile to the northward of the town; the labour was great by which we ascended, but the view amply rewarded our fatigue. The beacon-house is a square building of stone, and happily situated for the purpose of alarming the country in times of public danger, as it commands an extensive vale. The northern window of the beacon-house affords a prospect of Cross Fell, with the pikes of Dufton, together with a chain of mountains extending from east to west near thirty miles; the western point sinking in the spacious plain where the city of Carlisle lies. The utmost bounds of this view are formed by a ridge of Scotch mountains. The eastern window presented a view of the country bounded by the hills of Stanemore, and that lofty promontory Wildbore Fell, with its neighbouring mountains above Kirkby Stephen. The south window presented to us a view of Brougham Castle, with its plains of pasture-ground. The spreading woods of Lowther, (see vol. xiii.) intermixed with rich cultivated lands, formed the rising grounds. Some parts of the lake of Ulswater were seen, whilst the mighty rocks and mountains, which hemmed in the lake, lifted up their heads in rude confusion, and crowned the scene. The western window afforded a new, and not less pleasing, prospect: the town of Penrith lay before us, and here and there the river Eamont (Eden) showed its windings through the woods. The hill which rises above the town is crowned with the awful remains of a royal fortress; time has despoiled its grandeur, but its honours still survive to its noble owner, the duke of Portland, who

who therewith holds the honour of Penrith, formerly a royal franchise. Beyond these objects, amidst a range of mountains, at the distance of eighteen miles, Skiddow is seen, whose majestic front surmounts all the high lands that terminate the view." *Wilkes's British Directory*, vol. iv. *Beauties of England and Wales*, vol. iii. *Genl. Mag.* 1814 and 1819.

PENROSE (Thomas), born at Newbury, Berks, in 1743, was the son of the rector, a man of high character and abilities, descended from an ancient Cornish family, beloved and respected by all who knew him. Thomas, being intended for the church, pursued his studies with success at Christ-church, Oxon, until the summer of 1762, when, his eager turn to the naval and military line overpowering his attachment to his real interest, he left his college, and embarked in the unfortunate expedition against Nova Colonia, in South America, under the command of captain Macnamara. The issue was fatal. The Clive (the largest vessel) was burnt; and, though the Ambuscade escaped (on-board of which Mr. Penrose, acting as lieutenant of marines, was wounded), yet the hardships which he afterwards sustained in a prize-ship, in which he was stationed, utterly ruined his constitution. Returning to England with ample testimonials of his gallantry and good behaviour, he finished, at Hertford College, Oxon, his course of studies; and, having taken orders, accepted the curacy of Newbury, the income of which, by the voluntary subscription of the inhabitants, was considerably augmented. After he had continued in that station about nine years, it seemed as if the clouds of disappointment, which had hitherto overshadowed his prospects, and tinged his poetical essays with gloom, were clearing away; for he was then presented by a friend, who knew his worth and honoured his abilities, to a living worth near 500*l.* per annum. It came, however, too late; for the state of Mr. Penrose's health was now such as left little hope, except in the assistance of the waters of Bristol. Thither he went; and there he died in 1779, aged thirty-six years. Mr. Penrose was respected for his extensive erudition, admired for his eloquence, and equally beloved and esteemed for his social qualities. By the poor, towards whom he was liberal to his utmost ability, he was venerated to the highest degree. In oratory and composition his talents were great. His pencil was ready as his pen, and on subjects of humour had uncommon merit. To his poetical abilities the public, by their reception of his "Flights of Fancy, &c." (12mo. 1781.) have given a favourable testimony. *Ency. Brit.*

PENRY, or AP-HENRY (John), a noted Welsh non-conformist divine, and a victim to persecution and tyranny in the reign of queen Elizabeth, was born in some part of the county of Brecknock, about the year 1559. When he was about the age of nineteen he became a sizar of Peter-house, in the university of Cambridge, where he was admitted to the degree of B. A. about the year 1583. Anthony Wood says, that he afterwards performed some or most of the exercises requisite for his taking the degree of M. A. but that, quitting Cambridge abruptly, for reasons not known, he removed to Oxford, where he entered a commoner of St. Alban's Hall. Here he proceeded M. A. in 1586; and about the same time, having taken holy orders, he preached at Oxford, as he did afterwards at Cambridge, with great reputation. Mr. Penry, however, soon rendered himself obnoxious to the ruling party in the church, by adopting the sentiments of that body of the clergy who were distinguished by the name of *Puritans*. Having chosen his lot with this proscribed party, he travelled into Wales, and was the first, as he said, who preached the Gospel publicly to the Welsh, and sowed the good seed among his countrymen. In the year 1588 he published "A View of some Part of such public Wants and Disorders as are in the Service of God, within Her Majesty's Country of Wales; with an humble Petition to the high Court of Parliament for their speedy Redress," 8vo. in which he undertook to show,

not only the necessity of reforming the state of religion among the Welsh, but also the most proper means for bringing about that work. He likewise published, about the same time, "An Exhortation to the Governors and People of Her Majesty's Country of Wales, to labour earnestly to have the preaching of the Gospel planted among them," 8vo. Both these pieces were written upon puritanical principles; on which account they were attacked by some zealous friends to the established hierarchy.

As the public printing-presses were shut against the Puritans, some of them purchased a private one, and carried it from one part of the country to another, to prevent discovery. Their publications, which excited the greatest attention, were supposed to be the productions of a club of writers, since the authors were never discovered; and Mr. Penry was supposed to be one of their most active members. Among the tracts which were printed and dispersed by them all over the kingdom, one that gave the greatest offence bore the name of "Martin Mar-Prelate;" which contained a violent and bitter satire against the hierarchy and all its supporters, and was soon followed by other pieces of the same description, for the titles of which the reader may consult either of our authorities. When these pieces had been published, a special warrant was issued by the privy council in 1590, with the signatures of archbishop Whitgift and several other members, for the apprehending of Mr. Penry as an enemy to the state, and calling upon all the queen's good subjects to consider him in that light. To avoid falling into the hands of his enemies, well knowing what little mercy he had to expect from them, he withdrew into Scotland. In this country he drew up many Observations on subjects relating to religion, for his own private use; and he prepared the heads of a Petition, or Address, to the Queen, intended to lay before her the true state of religion, and the many abuses in the Church of England, especially in the management of ecclesiastical matters, of which her majesty was ignorant. One object of it also was, to pray for liberty to return to Wales, with the queen's permission to preach the Gospel in his native country. With the intention of finishing the petition above mentioned, when opportunity should offer, and of delivering it afterwards to the queen with his own hands, Mr. Penry ventured back to England in the year 1593, and lived in concealment at Stepney, near London, till he was discovered by the vicar of the parish, upon whose information he was taken into custody, and his papers seized. Having thus secured the person whom they considered to be the most bitter enemy to the established order of things, particularly in ecclesiastical matters, the privy council determined to prosecute him without delay for a capital offence. It was intended to indict him for the books which had been printed in his name; but it was now too late to endeavour to prove his criminality by any passages to be found in them, since the law required that the accusation should have been preferred within one month after their appearance, upon the oath of two witnesses, and that a prosecution should have been commenced within one year from that time. The court, therefore, determined to take a new and most iniquitous step in order to reach his life. He was indicted for "seditious words and rumours uttered against the queen's most excellent majesty, tending to the stirring-up of rebellion among her subjects;" and no evidence was produced to criminate him, excepting expressions taken from his private papers, the *Petition* and *Observations* above mentioned. Yet upon such proofs was he convicted of felony, and adjudged to be put to death. In vain did he protest against such an unjust use of private observations written in a foreign land, and never communicated to the public; and in vain did he assert his uniform and steady loyalty to her majesty, defying his enemies to point out an action of his life which was unbecoming a faithful subject. For his hardihood

In attacking the hierarchy it was determined that he should die; and archbishop Whitgift was the first man who signed the warrant for his execution. The treatment of him in his last moments, likewise, was as unfeeling and cruel as his sentence was unjust. After the warrant had been signed, it was immediately sent to the sheriff, who, on the very same day, gave directions for erecting a gallows at St. Thomas Waterings, and, while the prisoner was at dinner, sent his officers to bid him prepare to die that afternoon. Accordingly, he was carried in a cart to the place of execution; and, when he came thither, the sheriff would not permit him to speak to the people, nor to make any profession of his faith towards God, or of his loyalty to the queen; but ordered him to be turned off in a hurry, on the 29th of May 1593, when he was in the thirty-fourth year of his age.

His learning and piety are highly extolled by his friends; and Mr. Strype says of him, that "he was well disposed to religion, but mistaken in his principles, and very hot in his temper; and so became busy in church-controversies, to his own destruction. He had studied the arts and the tongues, and attained to some knowledge and learning therein." He had connected himself with that branch of the Puritans denominated *Brownists*, who maintained the discipline of the Church of England to be popish and anti-christian, and all her ordinances and sacraments invalid; and who held, that every society of Christians meeting in one place constituted an independent church, having full power within itself to admit and exclude members, to choose and ordain officers, and, when the good of the society required it, to depose them, without being accountable to classes, convocations, synods, councils, or any jurisdiction whatsoever. Besides the articles already noticed, Mr. Penry was the author of, 3. An Appellation to the High Court of Parliament, from the bad and injurious Dealing of the Archbishop of Canterbury, and other his Colleagues of the High Commission, 1589, 8vo. 4. Dialogue, wherein is plainly laid open the tyrannical Dealings of the Lords Bishops against God's Children, 1589, 4to. 5. A Treatise, wherein is manifestly proved, that Reformation, and those that sincerely favour the same, are unjustly charged to be Enemies to Her Majesty and the State, 1590, 4to. *Wood's Athen. Oxon.* vol. i. *Neal's Hist. Purit.* vol. i. ch. 6 and 8.—The learned and venerable Dr. Rees, editor of the *New Cyclopaedia*, traces his genealogy, by the maternal branch, to the family of Mr. Penry.

PENRYN', a borough and market-town in the parish of St. Gluvias, and county of Cornwall, is situated three miles from Falmouth, on the side of a hill, and bank of a river, called the King's Road, which unites with Falmouth harbour. The town formerly possessed a college, which, according to Leland, was castellated, and had three strong towers: parts of this were lately to be seen, but are now enveloped by modern buildings. The manor was an appendage to the see of Exeter; and the town appears to have been made a borough by one of the bishops towards the end of the reign of Edward I. anno 1270. Three weekly markets are held, Wednesday, Friday, and Saturday; and three fairs annually, viz. May 12, July 7, and December 21.

Penryn is exceedingly well watered, having streams of water running through it, and being bounded by a stream on each side. Upon these streams are four grist-mills and a paper-mill; and in the town are three very good porter and beer breweries. This place is the granary of the south-west of the county, the warehouses for flour and grain being very numerous, and the supply from the Isle of Wight and Hants being considerable. An extensive woollen-manufactory was once set on foot near the old abbey-lands of Glasney, but for want of proper management did not succeed. From the peculiar situation of the town, it possesses an extensive fishery.

The principal street of Penryn is spacious and airy;

and there are many very good houses. The market-house, which is also used as a town-hall, stands near the middle of the principal street, from which others diverge at right angles. In the population returns of the year 1821, Penryn is stated to contain 2933 persons. There is no church within the borough; but the inhabitants attend divine service at the village of St. Gluvias, on the opposite side of the river, where the situation of the church and parsonage-house is exceedingly beautiful. Lillo's "Penryn Tragedy," which title Colman changed to "Fatal Curiosity," was founded in truth; the horrid scene was really acted at this village of St. Gluvias.

This borough never sent members to parliament till the 1st of Mary, and was incorporated by James I. in the 18th year of his reign. A new charter was granted by James II. which vested the election of members in the magistracy only; but this they refused to accept. A custom is said to have prevailed here for the steward of the bishop of Exeter, who is lord of the manor of this borough and its *forreus*, or out-borough, to send his precept to the portreve, or mayor, to return two elizors, or principal men of the place, who were to elect twenty-two more, to make up a jury upon all law court-days, to execute the town-business, and choose the members; but this has been long rejected. The sheriff's precept is still directed to the portreve, who for many years has been the same person who executed the office of mayor. Under the charter of James I. the corporation consists of a mayor, eleven more aldermen, and twelve burgesses, with power to choose a recorder, steward, town-clerk, two constables, and two mace-bearers. The right of election is in the inhabitants at large who pay scot and lot. Returning officer, the mayor, who is also portreve. Number of voters, 140.

In 1784, this borough was under the joint influence of the duke of Leeds, and sir Francis Basset, now lord de Dunstanville; but an agreement was said to have been entered into between these two noblemen not to interfere in each other's boroughs of Helston and Penryn; in consequence of which, lord de Dunstanville became sole patron of the latter borough. His lordship's interest was, however disturbed at the general election in 1802, by John Milford, of Exeter, esq. and Henry Swan, esq. who opposed his lordship's nomination of the late sir Stephen Lushington and sir John Nicholl, and obtained a majority of legal votes upon the poll. A number of names however were by some means intruded into the poll the night before the election, and admitted the next day to vote, which made the numbers on the poll appear as follow:

Sir Stephen Lushington	94		John Milford, esq.	81
Sir John Nicholl	89		Henry Swan, esq.	62.

A petition was accordingly presented against the return, and actions for bribery to an enormous amount were commenced; but a compromise was afterwards effected before either of them came to trial; for which the injured party is said to have received ten thousand pounds besides having all their expenses reimbursed. Lord de Dunstanville, to whom many of the voters are tenants upon leases for lives, has still the controlling interest in this borough; but Mr. Swan has continued one of its members. His election, however, in the last parliament of the late king, which met in Jan. 1819, was declared void on account of bribery and corruption, which were proved to such an extent, that a bill was moved in the house by sir C. Burrell, to disfranchise the borough, and to admit the freeholders of the adjoining hundreds of Penrith and Ferrier to the right of voting. The bill was not persisted in; but Mr. Swan was prosecuted at the instance of the house, and at the ensuing assizes for Cornwall, held at Bodmin in July, was fully convicted, and sentenced to a year's imprisonment. We may just mention that, about the same time, sir M. M. Lopez, bart. member for the borough of Grampound, was sentenced,

upon two convictions of bribery, in Cornwall and in Devon, to a fine of 10,000*l.* and two years' imprisonment; and that borough has really been disfranchised.

Penryn is distant from Truro nine miles east, Gram-pound seventeen east, Marazion twenty west, St. Ives twenty-two west, Mitchel seventeen east, St. Columb's sixteen east, Penzance twenty-three west, Redruth eight west, and from London two hundred and sixty-six. *British Directory*, vol. iv. *Beauties of England*, vol. ii. *Oldfield*, vol. iii. *Gen. Mag.* 1819.

PENS, a town of the island of Cuba: twenty-two miles south-west of Bayamo.

PENSACO'LA, the capital of West Florida, situated on the west side of a bay, to which it gives name. The harbour is on the north shore of the Gulf of Mexico; 11 leagues east of Port Lewis and Mobile, and 158 west of the islands of Tortuga. It is spacious, and secure from all winds, having four fathoms of water at its entrance, deepening gradually to seven or eight. The bay lies in lat. 30. 15. N. lon. 87. 14. W. and admits of vessels drawing no more than 21 feet of water.

The town is of an oblong form, healthfully as well as delightfully situated, about one mile in length, and a quarter of a mile in breadth. While the British nation possessed it, it contained several hundred habitations, and many of the houses and public buildings were spacious and elegant. But, after the Spaniards took possession of it, it has been upon the decline. The exports from this town, consisting of skins, logwood, dyeing stuff, and silver dollars, amounted, while it belonged to Great Britain, to 63,000*l.* annually; and the average value of imports from Great Britain was 97,000*l.* The town and fort of Pensacola surrendered, after a spirited defence, to the Spaniards in 1781; and with them the whole province. This place was delivered up to Gen. Jackson on the 17th of July, 1821, by which the cession of the Floridas from the Spanish to the American government was finally completed. The negotiations on the subject had lasted, we believe, twenty years.

PENSAM, *f.* The ancient way of paying into the exchequer as much money for a pound sterling as weighed twelve ounces troy. Payment of a pound *de numero*, imported just twenty shillings; *ad scalam*, twenty shillings and six-pence; and *ad pensam*, imported the full weight of twelve ounces.

PEN'SEN, a town of Germany, in the principality of Culmbach: six miles east of Bayreuth.

PENSFORD *St. Thomas*, or, as it is sometimes called *PUBLOW St. Thomas*, a small town in the county of Somerset, near Frome, on the road to Wells, is seated on the river Chew, which here flows through a fine wooded vale, environed by small hills, the acclivities of which are covered with orchards. It is a town of high antiquity, and is conjectured by Dr. Stukely to have derived its name from the British words *Pen Isc*, signifying the Head of the River, being near the source of the Chew. In the time of Leland it seems to have been a very flourishing place, for it is mentioned by that assiduous antiquary as "a praty townlet, occupied with clothing." This business is now, however, much declined; and the town is nearly bereft of all its former trade. None of its buildings deserve notice except the church, which is a handsome modern structure, with a tower at the west end, apparently of more ancient date than its other portions. An old stone bridge of three arches is thrown over the river, and connects the town with the village of Publow, to the church of which that of Pensford is a chapelry, though in other respects it is parochial. According to the late population returns, Pensford town and parish contain 66 houses and 144 inhabitants. By the same census the parish of Publow contains 166 houses and 820 inhabitants. Wilkes's *British Directory* says, that its market, which was on Tuesdays, has been long discontinued; the fairs are, May 6, and Nov. 8, for cattle, sheep, and pedlary. Pensford lies near Frome, on

the road to Wells; six miles south of Bristol, and 117 west of London. Lat. 51. 21. N. lon. 2. 44. W.

PENS'HURST, or PENCHESTER, a village in Kent, by the Medway, three miles south-west of Tunbridge. Here is a fair, July 1. Here was the mansion of the Sidney family. It was the scene of sir Philip Sidney's poetic dreams, and the birth place of that renowned patriot Algernon Sidney: It has since heard the warblings of the poet Waller in praise of his Sacharissa, who was an inhabitant of it, and whose picture is still preserved. It is a noble structure; and, though its park is greatly diminished by enclosures, still retains much of its ancient beauty and magnificence.

Penhurst Place was, in the time of Edward I. in the possession of Sir Stephen de Peneshurste, who was made Constable of Dover Castle, and Warden of the Cinque Ports, by Henry III. after which it was conveyed to John de Pulteney; who, in the reign of Edward II. had licence to embattle his mansion-house of Penhurst; and in the reign of Edward III. he was so highly favoured as to receive from that prince the honour of knighthood. In the same reign he was four times elected to the high office of lord-mayor of the city of London. From this family it came by marriage to sir John Devereux; who, in the succeeding reign of Richard II. had also a licence to embattle and fortify this mansion. After passing through several hands it was at length forfeited to the crown, in the fourth year of Edward VI. by the attainder of sir Ralph Vane. The estate was then given by that young prince, in 1553, to sir William Sydney, who enjoyed it but a few months: from him it devolved to his infant son sir Henry, who, from his childhood, was bred at court, and was the playmate and bed-fellow of prince Edward. The young monarch afterwards made him gentleman of the privy chamber; and is said to have taken so much delight in his company, as to have rarely permitted his absence. The young prince expired in his arms at Greenwich soon after; at which period sir Henry retired to Penhurst, there to indulge his grief; and, by thus withdrawing himself escaped the fury of the times, and most probably the fatal consequences that attended his father-in-law, the duke of Northumberland, in the succeeding reign of the bigotted Mary. This fact is adverted to in the inscription over the gateway at the grand entrance.

This ancient mansion has been formerly a place of considerable strength, as appears from its immense walls and high embattled towers. The principal entrance to the great quadrangle, which is of hewn stone, is nearly in its original gothic state of design, and impresses the mind very forcibly with the gloomy and reserved pomp of our brave ancestors. The hall is spacious and lofty, and the fragments of ancient armour, here exhibited, strongly recall to memory

The ancient errant knights,
Who won their ladies hearts in fights,
And cut whole giants into fritters,
To put them into amorous twitters.

The apartments of this famous mansion have been much modernized within a few years by the late owner, William Perry, esq. who became possessed of this estate by marriage with the Hon. Elizabeth Sydney, niece to the late earl of Leicester. *Ireland's Picturesque Views on the Medway*, 1793. *Wilkes's British Directory*, vol. v.

PENSICULA'TION, *f.* [from the Lat. *pensiculo*, to ponder.] A deliberate consideration. *Cole*.

PEN'SILE, *adj.* [*penfils*, Lat.] Hanging; suspended. — Two trepidations; the one manifest and local, as of the bell when it is *penfile*; the other secret, of the minute parts. *Bacon*.

This ethereal space,
Yielding to earth and sea the middle place,
Anxious I ask you, how the *penfile* ball
Should never strive to rise nor never fear to fall. *Prior*.

Supported above the ground :

The marble brought, erects the spacious dome,
Or forms the pillars' long-extended rows,
On which the planted grove, and *pensile* garden, grows.
Prior.

PEN'SILENESS, *f.* The state of hanging.—Wherein the *pensileness* of the earth, the pole of the north, and the finiteness or convexity of heaven, are manifestly touched. *Bacon on Learning.*

PENSILITY, *f.* The state of being pensile.

PENSION, *f.* [French.] A payment of money; a rent. This is the primary meaning, which Dr. Johnson has overlooked; and has cited no earlier example of the word, under his violent definition of it, than that from Addison. It is also a sum of money paid to some churches in lieu of tithes.—He commanded to give to all that kept the city *pensions* and wages. *1 Esdr.* iv. 56. —Our Saviour rejects all such unwise and perverse traders, who will not exchange brittle glass for solid gold; a small temporary *pension* for a vastly rich freehold. *Barrow*.—An allowance made to any one without an equivalent. In England it is generally understood to mean pay given to a state hireling for treason to his country. *Dr. Johnson*.—This definition extremely puzzled the great lexicographer himself, when it was proposed to bestow a pension on *him*, in the year 1762. See Boswell's *Life of Johnson*. And the candid biographer informs us, that lord Loughborough told him, "the *pension* was granted to Johnson solely as the reward of his literary merit, without any stipulation whatever, or even tacit understanding that he should write for administration!" The true meaning of *pension*, in its secondary sense, (however a pension may be sometimes undeservedly accepted and bestowed,) is the allowance made as an acknowledgment for any eminent and distinguished services. *Todd*.—It would be very agreeable to her majesty, if the *pension* of 5000*l.* per annum were continued and limited by act of parliament to the duke of Marlborough's posterity, for the more honourable support of their dignities, in like manner as his honours, and the honour and manor of Woodstock, and house of Blenheim, were already limited and settled. *Message of Q. Anne to the Commons, Jan. 9th, 1706*.—A charity bestowed on the education of her young subjects has more merit than a thousand *pensions* to those of a higher fortune. *Addison's Guardian*.—He has lived with the great without flattery and been a friend to men in power without *pensions*. *Pope*.

Chremes, for airy *pensions* of renown,
Devotes his service to the state and crown. *Young*.

To receive a pension from a foreign prince or state, without leave of our king, has been held to be criminal, because it may incline a man to prefer the interest of such foreign prince to that of his own country. All pensions are liable to certain duties annually imposed by parliament. Persons having pensions from the crown at pleasure are incapable of being elected members of parliament.

PENSIONS of the **INNS** of **COURTS**. Annual payments of each member to the houses. And also, that which in the two Temples is called a *parliament*, and in Lincoln's Inn a *council*, in Gray's Inn is termed a *pension*; being usually an assembly of the members to consult of the affairs of the society. *Jacob's Law Dict.*

To **PENSION**, *v. a.* To support by an arbitrary allowance.—One might expect to see medals of France in the highest perfection, when there is a society *pensioned* and set apart for the designing of them. *Addison on Medals*.

The hero William, and the martyr Charles,
One knighted Blackmore, and one *pension'd* Quarles. *Pope*.

PENSIONARY, *adj.* [*penionnaire*, Fr.] Maintained

by pensions.—They were devoted by *pensionary* obligations to the olive. *Howell's Vocal Forest*.

Scorn his household policies,
His filly plots and *pensionary* spies. *Donne*.

PENSIONARY, *f.* [*penionarius*, low Lat.] One receiving a pension, or annual payment.—All parsons, vicars, *pensionaries*, prebendaries, and other beneficed men. *Injunct. by K. Edw. VI.* 1547.

PENSIONARY was the title given to the first minister of the regency of each city in Holland, under the old system. His office was to give his advice in affairs relating to the government, either of the state in general, or of the city in particular; and, in assemblies of the states of the province, he was speaker in behalf of his city. The function, however, of these pensionaries was not everywhere alike: in some cities they only gave their advice, and were never found in assemblies of the magistrates, except when expressly called hither; in others they attended constantly; and in others they made the propositions on the part of the burgomasters, drew up their conclusions, &c. They were called *pensionaries*, because they received an appointment or pension.

Grand Pensionary was the appellation of the first minister of all the States of the province of Holland under the old system. This high officer was chairman in assemblies of the states of that province; he proposed the matters to be consulted on, collected the votes, formed and pronounced the resolutions of the states; he also opened letters, conferred with foreign ministers, &c. He was charged with inspecting the finances, preserving the rights of the province, maintaining the authority of the states, and seeing to the observation of the laws, &c. for the good of the state. He assisted in the college of deputy-counsellors of the province, who represented the sovereignty in the absence of the states; and he was perpetual deputy of the states-general of the United Provinces. His commission was only given for five years; after which it was deliberated whether or no it should be renewed. But there was no instance of its having been revoked; death only put a period to the functions of this important minister. Formerly he was called the *advocate of the province*: the title *pensionary* was only given at the time Barneveldt had the office. Grotius calls him in Latin *adessor jurisperitus*; Merula, *advocatus generalis*; and Matthæus, professor at Leyden, *consiliarinus pensionarius*, which is the quality the states gave him in their instruments.

PENSIONER, *f.* One who is supported by an allowance paid at the will of another; a dependant.—Prices of things necessary for sustentation grew excessive, to the hurt of *pensioners*, soldiers, and all hired servants. *Camden*.

Hovering dreams,
The fickle *pensioners* of Morpheus' train. *Milton*.

A slave of state hired by a stipend to obey his master.
Dr. Johnson.—See **PENSION**.

In Britain's senate he a feat obtains,
And one more *pensioner* St. Stephen gains. *Pope*.

One of an order of students in the university of Cambridge.—About forty years since, forty pounds per annum for a commoner (or *pensioner*, as the term is at Cambridge) was looked on as a sufficient maintenance. *Dean Prideaux's Life and Lett.* 1715.

PENSIONER, in the university of Cambridge and in that of Dublin, has a very peculiar meaning; for those students, either under-graduates or bachelors of arts, are called *pensioners* who live wholly at their own expense, and who receive no emolument whatever from the college of which they are members. They are divided into two kinds, the *greater* and the *less*: the former of which are generally called *fellow-commoners*, because they eat with the fellows of their college; the latter are always called *pensioners*, and eat with the scholars, who are those students of the college, either under-graduates

duates or bachelors, who are upon the foundation, who receive emoluments from the society, and who are capable of being elected fellows. *Ency. Brit.*

Gentlemen PENSIONERS, a band of gentlemen, whose business it is to guard the king's person in his own house; and who for that end wait in the presence-chamber. They were first established by king Henry VII. the number is forty; and each was then obliged to keep three double horses, and a servant, who was to be armed; so that they properly made a troop of horse-guards, and have accordingly been mustered by their own officers; but this part of duty, to which they are sworn, the king usually dispenses with. Their officers are a captain, whose salary is 1000l. a-year; lieutenant, with 500l. a-year, standard-bearer, with 310l. a-year; and a clerk of the cheque, whose annual appointment is 120l. Their ordinary arms are gilt pole-axes, with which they attend the king to and from the chapel royal; receiving him in the presence-chamber, or coming out of his private lodging; as also at all great solemnities. Their pension 100l. per annum. They purchase their places. To this band belong also a pay-master, secretary, harbinger, axe-keeper, and messenger.

To PEN'SITATE, *v. a.* [from the Lat. *penfito*.] To weigh in the mind. *Scott.*

PENSIVE, *adj.* [*penſif*, Fr. *penſivo*, Ital. from *penſer*, Fr. to think. Our word was at first *penſife*; and it was also written *penſative*. "Laodomie, his lusty wife, which for his love was *penſife*." Gower's Conf. Am. B. 4. "He was very *penſative* to hear the follies that Don Quixote spake." Shelton's Tr. of Don Quix. i. 5.] Sorrowfully thoughtful; sorrowful; mournfully serious; melancholy. —My leisure serves me, *penſive* daughter, now. *Shakespeare*.

Anxious cares the *penſive* nymph oppreſs'd
And ſecret paſſions labour'd in her breaſt.

Pope.

* is generally and properly used of persons; but Prior has applied it to things:

We at the ſad approach of death ſhall know
The truth, which from theſe *penſive* numbers flow,
That we purſue falſe joy, and ſuffer real woe. *Prior.*

PEN'SIVELY, *adv.* With melancholy; sorrowfully; with gloomy ſeriousneſs:

So fair a lady did I ſpy;
On herbs and flowers ſhe walked *penſively*
Mild, but yet love the proudly did forſake. *Spenser.*

PEN'SIVENESS, *f.* Melancholy; ſorrowfulneſs; gloomy ſeriousneſs.—Concerning the bleſſings of God, whether they tend unto this life or the life to come, there is great cauſe why we ſhould delight more in giving thanks than in making requeſts for them; inasmuch as the one hath *penſiveness* and fear, the other always joy annexed. *Hooker.*

Would'ſt thou unlock the door
To cold deſpair and gnawing *penſiveness*? *Herbert.*

PEN'STOCK, *f.* A ſort of ſluice, placed in the water of a millpond; a flood-gate.

PENT, *part. paſſ.* of PEN. Shut up.—The ſon of Clarence have I *pent* up cloſe. *Shakespeare.*

The ſoul pure fire, like ours, of equal force;
But *pent* in fleſh, muſt iſſue by diſcourſe. *Dryden.*

PEN'TA, a town of the iſland of Corſica: ſeven miles north-eaſt of La Porta.

PENTACAP'SULAR, *adj.* [from the Gr. *πεντε*, five, and the Lat. *capsula*, a cheſt.] Having five cavities; having five ſeed-veſſels.

PENTACHON'DRA, *f.* [from *πεντε*, five, and *χονδρος*, a grain, becauſe of the five ſeeds in the berry.] In botany, a genus of the claſs pentandria, order monogynia, natural order epacridæ, (*Brown's Prodr. Nov. Holl. i. 549.*) Generic characters—Calyx: perianthium inferior; dou-

ble; the innermoſt of five equal, lanceolate, concave leaves; outermoſt of four or more, much ſmaller, imbricated ones. Corolla of one petal, funnel-shaped; limb in five ſpreading equal ſegments, longitudinally bearded on the upper ſide with denſe hairs. Nectary of five ſcales at the baſe of the germen. Stamina: filaments five, thread-shaped, equal, inſerted into the tube; antheræ incumbent, oblong. Piſtillum: germen ſuperior, roundiſh, of five cells; ſtyle ſhort, columnar; ſtigma obtuſe. Pericarpium: berry with five ſeeds.—*Effential Characters.* Outer calyx of four or more leaves; corolla funnel-shaped; its limb ſpreading, longitudinally bearded: berry with five ſeeds.

This genus might perhaps, without impropriety, be referred to LEUCOPOGON, ſee that article; it being very difficult in this tribe to define the limits between a drupe and a berry, at leaſt in ſome caſes. The only two ſpecies known are dwarf mountain-ſhrubs, with ſcattered stalked leaves, and ſolitary, terminal, erect, white flowers. They are natives of Van Diemen's Land and New Zealand.

1. **Pentachondra involucrata**: filaments projecting beyond the tube; calyx fringed, the outer one of eight ſcales; leaves elliptic-lanceolate, flattiſh, many-ribbed; young branches downy; ſtem erect. Gathered by Mr. Brown in Van Diemen's Land.

2. **Pentachondra pumila**: ſtamens ſhorter than the tube; outer calyx of four ſcales; leaves nearly elliptical, three-ribbed, naked at the margin; young branches ſmooth; ſtem proſtrate, much branched. Found by Forſter in New Zealand, and by Mr. Brown in Van Diemen's Land.

PENTACHORD, *f.* [from the Gr. *πεντε*, five, and *χορδη*, a ſtring.] In ancient muſic, an inſtrument of five ſtrings invented by the Scythians, played with the jaw-bone of a dog, inſtead of a plectrum. *Laborde.*—The concord of the fifth is ſometimes called pentachord.

PENTACOC'COUS, *adj.* [from the Gr. *πεντε*, five, and *κοκκος*, a grain.] Having five ſeeds.

PENTACROSTIC, *f.* [from *πεντε*, five, and *σλιχος*, a verſe.] In poetry, a ſet of verſes ſo diſpoſed, as that there are always five acroſtics of the ſame name, in five diviſions of each verſe. See ACROSTIC, vol. i.

PENTADO'RON, *f.* [from *πεντε*, five, and *δρον*, a ſpan.] A large kind of bricks anciently in uſe among the Greeks, being three feet nine inches long and one foot broad, with which they erected their public buildings. *James's Mil. Dict.*

PENTAE'DRON, or **PENTAE'DRON**, *f.* [from the Gr. *πεντε*, five, and *εδρα*, a baſe.] A figure with five ſides.

PENTAE'DROUS, *adj.* Having five ſides.—The *pentædrous* columnar coralloid bodies are composed of plates ſet lengthways, and paſſing from the ſurface to the axis. *Woodward on Fossils.*

PENTAG'AMIST, *f.* [from the Gr. *πεντε*, five, and *γαμος*, a marriage.] One who has had five wives. *Cole.*

PENTAGLOS'SUM. See LYTHRUM thymifolium, vol. xiii.

PENTAGLOT'TICAL, *adj.* [from the Gr. *πεντε*, five, and *γλωττα*, a language.] Skilled in five languages. *Cole.*

PEN'TAGON, *f.* [from the Gr. *πεντε*, five, and *γωνια*, an angle.] A geometrical plain figure having five ſides and angles.—I know of that famous piece at Capralora, caſt by Baroccio into the form of a *pentagon* with a circle inſcribed. *Wotton.*

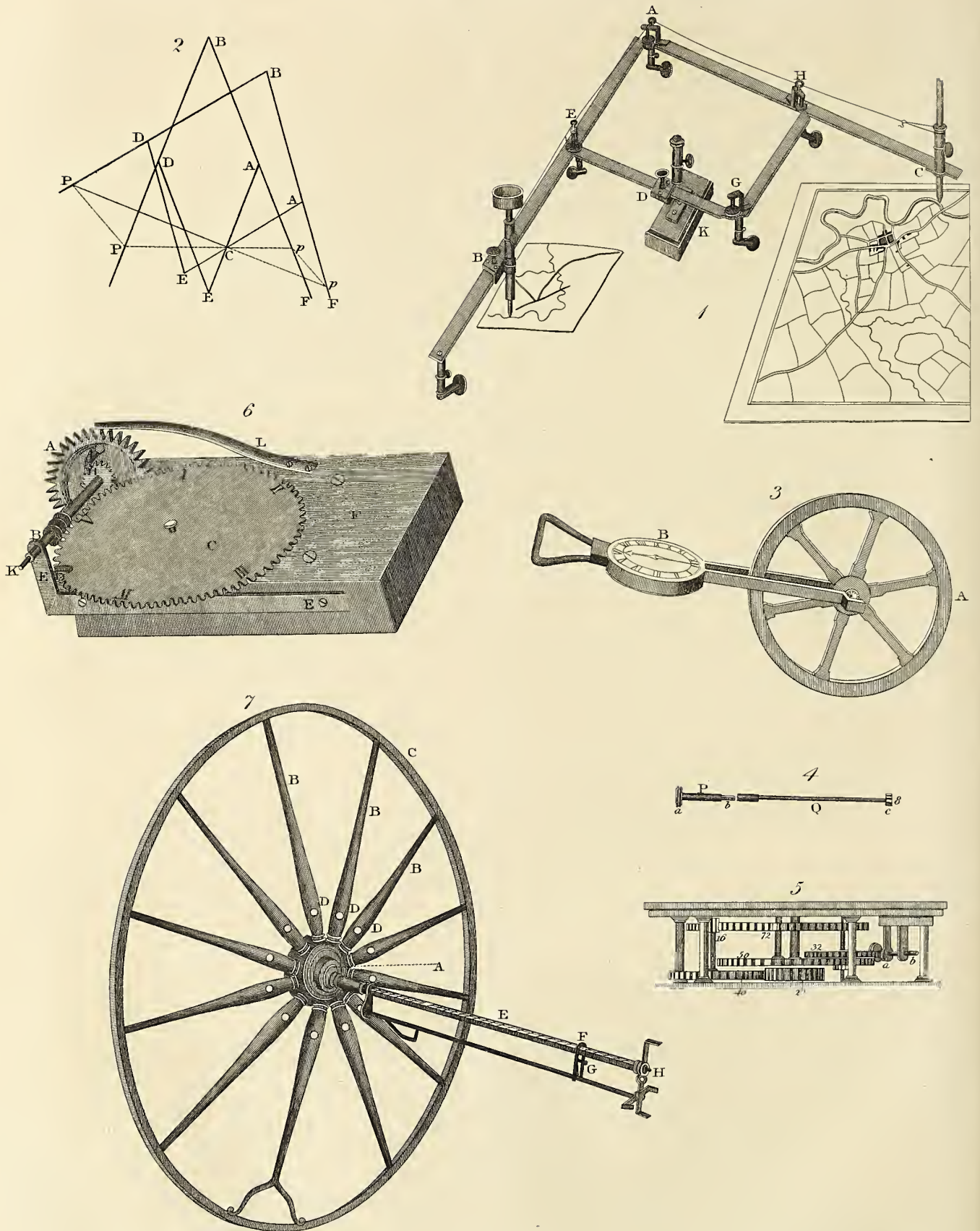
PENTAG'ONAL, or **PENTAGONOUS**, *adj.* Quinquangular; having five angles.—The body being cut tranſverſely, its ſurface appears like a net made up of *pentagonal* meſhes, with a *pentagonal* ſtar in each meſh. *Woodward on Fossils.*

PENTAGONIA, *f.* in botany. See CAMPANULA.

PENTAGONOTHE'CA. See PISONIA.

PEN'TAGRAPH, **PANTOGRAPH**, or **PANTOG'RAPHER**, *f.* [from the Greek *πεντε*, five, the number of ſcrews by which the inſtrument is adjusted; or from *παν*, *παντας*, all,

PENTAGRAPH AND PERAMBULATOR.



1. 2. The Pentagraph. 3, 4, 5. The Perambulator. 6. Edgeworth's Coëmeter.
7. Tugwell's Pedimeter.

all, and *γραφω*, to trace or delineate.] An instrument designed for drawing figures in what proportion you please, without any skill in the art. The instrument is otherwise called a *parallelogram*. The following is the description of it by Mr. Adams. "It is an instrument as useful to the experienced draftsman as to those who have made but little progress in the art. It saves a great deal of time, either in reducing, enlarging, or copying of the same size, giving the outlines of any drawing, however crooked or complex, with the utmost exactness; nor is it confined to any particular kind, but may with equal facility be used for copying figures, plans, sea-charts, maps, profiles, landscapes, &c. I have not been able to ascertain who was the inventor of this useful instrument. The earliest account I find is that of the Jesuit Scheiner, about the year 1631, in a small tract entitled *Pantographice, sive ars nova delineandi*. The principles are self-evident to every geometrician; the mechanical construction was first improved and brought to its present state of perfection by my father, about the year 1750. It is one, among many other scientific improvements and inventions completed by him, that others have ingloriously, and many years after, assumed to themselves."

The pantograph is usually made of wood or brass, and consists of four flat rules, two of them long, and two short. See the annexed Plate, fig. 1. The two longest are joined at the end A, by a double pivot, which is fixed to one of the rules, and works in two small holes placed at the end of the other. Under the joint is an ivory castor, to support this end of the instrument. The two smaller rules are fixed by pivots at E and H, near the middle of the larger rules, and are also joined together at their other end, G. By the construction of this instrument, the four rules always form a parallelogram. There is a sliding box on the longer arm, and another on the shorter arm. These boxes may be fixed at any part of the rules by means of their milled nuts; each of these boxes is furnished with a cylindrical tube, to carry either the tracing-point or crayon or fulcrum. The fulcrum or support K, is a leaden weight inclosed in a mahogany box; on this the instrument moves when in use. There are two moveable rollers, to support and facilitate the motions of the pantograph; their situation may be varied as occasion requires. The graduations are placed on two of the rules; on each of them are two scales; the fiducial edges of the boxes are to be set to these, according to the work to be performed by the instrument. The crayon, the tracer, and fulcrum, must in all cases be in a right line; so that, when they are set, if a string be stretched over them, and they do not coincide with it, there is an error either in the setting or graduations. The long tube, which carries the pencil or crayon, moves easily up or down another tube; there is a string affixed to the long or inner tube, passing afterwards through the holes in the three small knobs to the tracing-point, where it may, if necessary, be fastened. By pulling this string, the pencil is lifted up occasionally, and thus prevented from making false or improper marks upon the copy.

To use this instrument when the copy is to be of the same size as the original.—Place the instrument upon a large table, and set the sliding-boxes B and D to the divisions there marked 1, 2. Put the crayon into the box B, place the box D upon the fulcrum, or leaden foot; the tracing-point at C. Then lay a piece of paper under the crayon, and the original drawing under the tracer, and move the tracing-point over the principal strokes of the original, and the crayon will form the required copy.

To reduce a drawing, &c. to half the size of the original.—Set the boxes B and D to the divisions marked $\frac{1}{2}$; place the fulcrum at B, the crayon at D, and the tracer at C.

To reduce a drawing to less than one half.—Suppose one-third, one-fourth, one-fifth, &c. Place the fulcrum at B, crayon at D, and tracer at C, and slide the boxes B and D to the divisions marked $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, &c. on the longer scales. It may be proper to observe here, that if the copy be less

than one-half the original, or when it is required greater than the original, the longer scales are to be used.

For greater than one-half the original drawing.—Suppose it be required to make a drawing, two-thirds, three-fourths, four-fifths, &c. Set the Boxes B and D to corresponding divisions, as $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$, &c. on the shorter scales, place the fulcrum at D, the crayon at B, and tracer at C.

When the original drawing is to be enlarged.—Suppose one-eighth, one-sixth, &c. set the Boxes B and D, to $\frac{1}{8}$, $\frac{1}{6}$, &c. on the longer scales, place the fulcrum at D, the crayon at C, and tracer at B.

Where the copy is required of a size differing from the fractional parts laid down on the instrument.—For this purpose there are two scales laid down, containing 100 unequal parts; one scale numbered from 10 to 80, the other from 50 to 100.

If the copy is to be under one-half the original size, place the boxes B and D to any two corresponding divisions under 50; the fulcrum at B, and crayon at D.

If the copy is to be larger than one-half the original, place the boxes B and D to corresponding divisions between 50 and 100; the fulcrum at B, and crayon at D.

To change the situation of the pantograph.—Copy first as much as the pantograph will take in; then make three points on the original, and as many corresponding points on the copy. Then remove the fulcrum to another situation, but so that, when the tracing-point is applied to the three points marked on the original, the crayon may exactly coincide with the other three points on the copy, and proceed as before; and so on for every change in the situation of your instrument, and by this means a pantograph of two feet and a half in length will copy a drawing of any size whatsoever.

The construction of this instrument (says Mr. Chambers) requires a considerable degree of accuracy; for which reason there are very few of the instruments that succeed. Few will do any thing tolerably but straight lines; and many of them not even those. In order to prove that the figure described by a pantograph is similar to the given figure; let C, fig. 2. be the fixed centre of motion; P the pencil for tracing the given figure P P, and p the pencil which traces the other figure p p; p, &c. must be so adjusted, that p, C, and P, may lie in one straight line; then, since B p : A p :: B P : A C, whatever be the situation of the pantograph, the angles P C P and p C p, are vertical; and, therefore, P C p will in every position of the instrument be a right line; but P C : p C :: B A : A p, in each of the two positions in the figure, and consequently the triangles P C P, p C p, are similar; and P P : p p (:: P C : C p) :: B A : A p, or in a given ratio. Hence it appears, that by moving the pencil p, A p may be equal to B A, or less in any proportion; and consequently p p may be equal to P P, or less in the same proportion.

We have heard of a very recent improvement upon the pantograph, for which indeed a patent is now (March 1823) making out, which will be extremely useful, not to draughtsmen only, but to engravers. The ingenious artist, Mr. A. Smith, of Wingrove-place, St. John-street Road, calls his invention the *apograph*. We shall have an opportunity, probably, of describing it under some future article.

PENTAGYNIA, f. [from the Gr. *πεντα*, five, and *γυνη*, a female.] The name of an order which occurs in the 5th, 10th, 11th, 12th, and 13th, classes of the Linnæan artificial system. Its character depends, as the name expresses, on the presence of five styles, or, if styles be wanting, of so many sessile stigmas. In the 12th class however, Icosandria, it is necessary to take this character with considerable latitude. Plants of the natural tribe of *po-macea*, which make an important part of that class, are very uncertain as to the number of their styles in the same genus, and even variable in the same species. Hence Dr. Smith has, in his Introduction to Botany, presumed to advise that the order in question should admit flowers with from two to five styles, or even a few more occasion-

ally. In the 13th class, polyandria, the order pentagynia separates some genera from others to which they are closely allied, in the tryginia, and admits *Nigella*, some species of which have ten styles. Hence it is no less eligible to adopt the same latitude here as in icofandria. Perhaps the definition of the order, in both these classes, might most conveniently be "styles from two to ten." Some genera in other classes may have five styles; but the orders of such classes being marked by other characters, the number of styles usually becomes a part of the generic definition. *New Cyclopædia*.

PENTALO'BA, *f.* [so named by Loureiro, from the five lobes of the berry.] In botany, a genus of the class pentandria, order monogynia, natural order of meliæ, *Juss.* Generic characters—Calyx: perianthium inferior, of five lanceolate erect hairy leaves. Corolla: petals five, lanceolate, erect, cohering by their lower part, somewhat reflexed at their summits. Nectary tubular, erect, with five teeth. Stamina: filaments five, thread-shaped, flattish, inserted into the incisions of the nectary, about as long as the petals; antheræ ovate, erect. Pistillum: germen roundish, hairy, with five furrows; style short, thick, hairy; stigma simple. Pericarpium: berry roundish, five-lobed, of one cell. Seeds five, ovate.—*Essential Characters*. Corolla of five petals, bell-shaped; nectary tubular, five-cleft, bearing the stamens; calyx of five leaves; berry superior, with five lobes and five seeds.

Pentaloba seffilis, the only species, is a native of hills in Cochinchina, where it is known by the name of *Cây Cuong tau*, and forms a middle-sized tree, with ascending branches; leaves alternate, lanceolate, slightly serrated, smooth. Flowers sessile, clustered together, of a pale hue. *Lour. Cochinch.* 154.

PENTALU'PO, a town of Naples, in Calabria Ultra: six miles east of Reggio.

PENTAM'ETER, *f.* [from the Greek *πεντε*, five, and *μετρον*, a measure.] A Latin verse consisting of five feet, or metres. The two first feet may be either dactyls or spondees at pleasure; the third is always a spondee; and the two last anapests: such is the following verse of Ovid: *Carmine]bus vivit tempus in om[ni]bus meis*. A pentameter verse subjoined to an hexameter constitutes what is called the *elegiac*. It is usually joined to hexameters, in elegies, epistles, epigrams, and other little pieces. There is no work extant of pentameters alone.

PENTAMETER, *adj.* Having five metrical feet.—Like Ovid's Fasti, in hexameter and pentameter verse. *Warton*.

PENTAM'YROM, *f.* [in pharmacy.] An ointment compounded of five ingredients.

PENTAN'DRIA, *f.* [from the Greek *πεντε*, five, and *ανδρως*, a man.] In botany, the fifth class in the Linnæan artificial system. It is so called from its distinctive character of having five unconnected stamens in the same flower with the pistil or pistils. This is the largest of all the Linnæan classes. The number five prevails far beyond any other in the structure of flowers; for the great class Syngenesia has also five stamens in nearly every known instance, but their antheræ are united into a tube, and the flowers compound. Some genera of the Pentandria indeed have likewise combined antheræ, and such, having simple flowers, constitute the Linnæan order of Syngenesia monogamia; an order now, by common consent, abolished, being found not only unnatural, but highly inconvenient, various species of other genera, as *Gentiana*, having likewise combined antheræ. See the article **BOTANY**, vol. iii. p. 257, 266, 7. and Plate X. fig. 5.

PENTANDRIA is also the appellation of some orders in the Linnæan system, as the second of the class monadelphia; the first in diadelphia; the fifth in gynandria; and finally the fifth orders in monœcia and diœcia.

PENT'ANGLE, *f.* [from the Greek *πεντε*, five, and the Lat. *angulus*, an angle.] A figure having five sides and angles. *Scott*.

PENTANGULAR, *adj.* Five-cornered.—His thick and bony scales stand in rows, so as to make the flesh almost pentangular. *Grew*.

PENTAPET'ALOUS, *adj.* [in botany, from the Greek, *πεντε*, five, and *πεταλον*, a leaf.] Having five petals, or flower-leaves.—The simple and original rose is *pentapetalous*, and all the duplications and reduplications of its petals follow the same division of five. The heraldic denomination of *cinqvefoil* is a sort of abstraction of *pentapetulous*, excepting that this is an adjective and the other a substantive; and that the term *folium* is derivatively used instead of *petalum*. For it must be noticed, that in Greek the leaf of a tree is called *φυλλον*, and the leaf of a flower *πεταλον*; a distinction which is scrupulously observed in English and French botanical works. *Etymological Gleanings*, MS.

PENTAPETES, *f.* [Gr. "having five leaves;" an ancient name for Cinquefoil, adopted for a very different plant by Linnæus. Though he declines any explanation of it, the five leafy expansions, which, in his *Pentapetes*, accompany the stamens, seem so well to account for this appellation, that one cannot but think the idea of such an adaptation of the word had occurred to him, though he might have forgotten it when he wrote the *Philosophia Botanica*, p. 175.] In botany, a genus of the class monadelphia, order dodecandria, natural order of columiferæ, (malvaceæ, *Juss.*) Generic characters—Calyx: perianthium double; outer three-leaved, one-sided, caducous; leaflets linear, acuminate; inner one-leaved, five-parted, permanent; segments lanceolate, acuminate, spreading, longer than the corolla. Corolla: petals five, roundish, spreading, fastened to the pitcher of stamens. Stamina: filaments fifteen, filiform, upright, shorter than the corolla, united below into a pentagonal pitcher, but free above; antheræ sagittate, upright; ligules five, linear-lanceolate, petal-shaped, upright, each between every three stamens, springing from the pitcher. Pistillum: germen ovate; style filiform, thickened above, striated, longer than the stamens, permanent. Stigma obsolete five-toothed. Pericarpium: capsule membranaceous, subglobular, acuminate, five-celled, five-valved: partitions contrary. Seeds eight, ovate, acute, four on each side, fastened within side to the partition.—*Essential Character*. Calyx double: outer three-leaved; inner five-parted. Stamina fifteen, with five ligules, petal-shaped; capsule five-celled, many-seeded. Only one species.

Pentapetes phœnicia, or Indian vervain-mallow; (*Flos impius*, *Rumph. Amb. Naga-pu*, *Rheed. Mal.*) This is an annual plant, which dies in the autumn, soon after it has ripened the seeds. It has an upright stalk from two to near three feet high, sending out side-branches the whole length; those from the lower part of the stalks are the longest, the others gradually diminish, so as to form a sort of pyramid. They are garnished with leaves of different forms; the lower leaves, which are largest, are cut on their sides towards the base into two side-lobes which are short, and the middle is extended two or three inches farther in length, so that the leaves greatly resemble the points of halberts in their shape; they are slightly serrate, and of a lucid green on their upper-side, but paler on their under, standing upon pretty long footstalks. The leaves which are on the upper part of the branches are much narrower, and some of them have very small indentures on their sides; they sit closer to the stalks, and are placed alternately. The flowers are axillary; they come out for the most part singly, but sometimes there are two arising at the same place from the side of the footstalk of the leaves. The peduncle is short and slender. The flower is of one petal, cut into five obtuse segments almost to the bottom; but, as they are joined and fall off in one piece, the flower is monopetalous according to Ray and Tournefort; but Linnæus makes it pentapetalous. It is of a fine scarlet colour, (see Botany Plate X. fig. 16. vol. iii.) expanding at noon and falling in the evening. The foolish name by which Rumphius has distinguished this flower, and which is said to be a translation of its Indian appellation, alludes to its "profane or impious nature, in never looking towards heaven." So may flowers, as well as men, be sometimes calumniated!

calumniated! The all-wise Creator, rich in infinite resources, has caused many blossoms to droop, that their stamens may be sheltered from rain; whilst the same end is accomplished in others by their courting the full blaze of day, in an erect expanded position. In the spring of our damp climate, drooping or closed flowers abound; in India perhaps a different economy is generally best suited to the nature of the country. It is a native of various parts of the East Indies, sometimes cultivated for its beauty in our stoves, where it has been known considerably above a century. It flowers in July, and is annual.

Propagation and Culture. The seeds of this plant must be sown upon a good hot-bed early in March; and, when the plants are fit to transplant, there should be a new hot-bed prepared to receive them, into which should be plunged some small pots filled with good kitchen-garden earth; in each of these should be one plant put, giving them a little water to settle the earth to their roots. They must also be shaded from the sun till they have taken new root; then they should be treated in the same way as other tender exotic plants, admitting the free air to them every day in proportion to the warmth of the season, and covering the glasses with mats every evening to keep them warm. When the plants are advanced in their growth so as to fill the pots with their roots, they should be shifted into larger pots, filled with the same sort of earth as before, and plunged into another hot-bed; where they may remain as long as they can stand under the glasses of the bed without being injured; and afterwards they must be removed either into a stove or a glass-case, where they may be screened from the cold, and in warm weather have plenty of fresh air admitted to them. With this management the plants will begin to flower early in July, and there will be a succession of flowers continued till the end of September, during which time they will make a good appearance. The seeds ripen gradually after each other in the same succession as the flowers were produced, so they should be gathered as soon as their capsules begin to open at the top. These plants are sometimes turned out of the pots, when they are strong, and planted in warm borders, where, if the season prove very warm, the plants will flower pretty well; but these very rarely perfect their seeds. See PTEROSPERMUM.

PENTAPHYLLOIDES. See POTENTILLA and SIBALDIA.

PENTAPHYLLOUS, *adj.* Having five leaves.

PENTAPHYL'LUM. See CLOMEE, COMARUM, POTENTILLA, and TORMENTILLA.

PENTAPTERIS, and **PENTAPTEROPHYLLUM.** See MYRIOPHYLLUM.

PENTAPOGON, *f.* [from *πεντε*, five, and *πωγων*, beard; so named by M. R. Brown, in allusion to the five beards, or awns, of the hulk.] In botany, a genus of the class triandria, order digynia; natural order gramina. Generic characters—Calyx: glume of two oblong acute equal beardless valves, containing one stalked floret. Corolla of two valves; the outermost rather longer than the calyx, ovate, bearing five awns at the summit, of which the middle one is much the longest, and spirally twisted; inner half the size of the outer, ovate, acute, concave, membranous, beardless. Stamina: filaments three, capillary, shorter than the corolla; antheræ oblong, pendulous. Pistillum: germen superior, roundish; styles none; stigmas two, spreading, feathery. Pericarpium: none, except the permanent corolla. Seed one, oblong, pointed.—**Essential Character.** Calyx of two equal beardless valves, containing one stalked floret; outer valve of the corolla with five terminal awns; the middle one longest, and spiral.

Pentapogon Billardiæ, a solitary species. Native of Van Diemen's Land. A small and slender grass, scarcely a span high. Root fibrous. Stems several, round, striated, with one bent joint near the bottom, and one short leaf, with a long hairy sheath. Radical leaves numerous, tufted, short and setaceous. Panicle erect, about two

inches long, not much branched, of fifteen or twenty upright flowers. Valves of the calyx serrated at the keel. Floret hairy at its base. *Brown, 173. Labillardiere, 20. t. 22.*

PENTAPOLIS, [Greek.] A country wherein are "five cities." The Pentapolis of the sacred writings comprehended Sodom, Gomorrah, Adama, Zeboim, and Segor, or Zoar; (Wisdom x. 6.) They were all five condemned to utter destruction, but Lot interceded for the preservation of Zoar. The Pentapolis of the Philistines (Josephus) had its name from their five principal cities, Gaza, Gath, Ascalon, Azotus, and Ekron. But the most celebrated was the *Pentapolis Cyrenaica*, or Pentapolis of Egypt, whose five cities were Berenice, Arsinoe, Ptolemais, Cyrene, and Apollonia. Among the ancient geographers and historians we likewise read of the Pentapolis of Lybia, now called *Mesrata*; the Pentapolis of Italy; and the Pentapolis of Asia Minor, which contained Lindus, Jalyssos, Camiros, Cos, and Cnidus. This country once bore the name of Hexapolis, when it comprehended Halicarnassus.

PENTAPTOTE, or **PENTAPTOTON,** *f.* [in grammar, from the Gr. *πεντε*, five, and *πτωσις*, a case.] A noun that has five cases.

PENT'ARCH, *f.* [from the Gr. *πεντε*, five, and *αρχος*, chief.] A captain of five. *Cole.*

PENT'ARCHY, *f.* Government exercised by five.—My name is Appetitus, common servant to the *pentarchy* of the senses. *Brewer's Lingua.*

Through the world I wander night and day,

To seeke my straggling senses;

In an angry moode I met old Time,

With his *pentarchy* of senses.

Old Mad Song.

PENTASPAST, *f.* [from the Gr. *πεντε*, five, and *πασω*, to draw.] An engine with five pulleys.

PENTASTICH, *f.* [from the Gr. *πεντε*, five, and *στιχος*, a verse.] A poem or stanza consisting of five verses.

PENTASTYLE, *f.* [in architecture, from the Gr. *πεντε*, five, and *στυλος*, a pillar.] A building or work in which are five rows of pillars.

PENTATEUCH, *f.* [from the Gr. *πεντε*, five, and *τευχος*, an instrument or volume.] The collection of the five instruments, or books, of Moses, which are Genesis, Exodus, Leviticus, Numbers, and Deuteronomy; which books we have given an account of under the article BIBLE, vol. iii. p. 8, 9.

Some modern critics have disputed Moses's right to the Pentateuch. They observe that the author speaks always in the third person: *Now the man Moses was very meek above all the men which were upon the face of the earth; the Lord spake unto Moses, saying &c. Moses said to Pharaoh, &c.* Thus they think he would never have spoken of himself; but would at least sometimes have mentioned himself in the first person. Besides this, say they, the author of the Pentateuch sometimes abridges his narration like a writer who collected from some ancient memoirs. Sometimes he interrupts the thread of his discourse; for example, he makes Lamech the bigamist to say, (Gen. iv. 23.) *Hear my voice, ye wives of Lamech, hearken unto my speech; for I have slain a man to my wounding, and a young man to my hurt; without informing us before-hand to whom this is related.* These observations, for example, (Gen. xii. 6.) *And the Canaanite was then in the land, cannot be reconciled to the age of Moses, since the Canaanites continued to be the masters of Palestine all the time of Moses.* The passage out of the Book of the Wars of the Lord, quoted in the book of Numbers (xxi. 14.) seems to have been put in afterwards, as also the first verses of Deuteronomy. The account of the death of Moses, which is at the end of the same book, cannot certainly belong to this legislator; and the same judgment may be made of other passages, wherein it is said, that the places mentioned lay *beyond Jordan*; that the bed of Og was at Ramah to this day; that the Havoth of Jair, or the cities of Jair, were known to the author, though probably they had not that

that name till after Moses's time; (Numb. xxxii. 41. Deut. iii. 14.)

It is observed also in the text of the Pentateuch, that there are some places that are defective; for example, in Exodus xii. 8. we see Moses speaking to Pharaoh, where the author omits the beginning of his discourse. The Samaritan inserts in the same place what is wanting in the Hebrew. In other places, the same Samaritan copy adds what is deficient in the Hebrew text; and what it contains more than the Hebrew seems so well connected with the rest of the discourse, that it would be difficult to separate them. Lastly, they believe that they observe certain strokes in the Pentateuch which can hardly agree with Moses, who was born and bred in Egypt; as what he says of the earthly paradise, of the rivers that watered it, and ran through it; of the cities of Babylon, Erech, Resen, and Calneh; of the gold of Pison, of the bdellium, of the stone of Sohem, or onyx-stone, which was to be found in that country. These particulars, observed with such curiosity, seem to prove, that the author of the Pentateuch lived beyond the Euphrates. Add what he says concerning the ark of Noah, of its construction, of the place where it rested, of the wood wherewith it was built, of the bitumen of Babylon, &c. But in answer to all these objections, we may observe in general, from an eminent writer of our own country, (Jenkin's Reasonableness of Christianity,) that these books are by the most ancient writers ascribed to Moses; and it is confirmed by the authority of heathen writers themselves, that they are of his writing: besides this, we have the unanimous testimony of the whole Jewish nation, ever since Moses's time, from the first writing of them. Divers texts of the Pentateuch imply that it was written by Moses; and the Book of Joshua, and other parts of Scripture, import as much; and, though some passages have been thought to imply the contrary, yet this is but a late opinion, and has been sufficiently confuted by several learned men. The Samaritans receive no other Scriptures but the Pentateuch, rejecting all the other books which are still in the Jewish canon.

PENTATHLON, or PENTATHLUM, f. [from the Gr. *πεντε*, five, and *αθλον* a contest.] The five principal exercises performed in the Grecian games. These were, wrestling, darting, leaping, running, and quoit-playing. He who bore away the prize in them all was called *pentathlus*; by the Latins, *quinquertio*; as the five exercises themselves were by those latter people called *quinquertium*.

The candidates in the pentathlon, as well as those in all the other gymnastic exercises, contended naked, and were also anointed with oil. Although some doubts have been suggested with regard to the conditions upon which the victory was awarded in the pentathlon, it is certain, that he who vanquished his antagonist in every one of the five exercises was alone entitled to the crown. If all hopes of gaining the pentathletic crown were lost to him who was vanquished in any one trial, it has been queried why the vanquished should contend any longer? The reply to this question is, that the pentathletes were probably obliged by the laws of the olympic games to go through all the five exercises. Although all the competitors, except one, must have despaired of gaining the crown, even from the first trial, yet they might still be desirous of carrying on the contest through the four remaining exercises, if they had not been required to do it by the olympic laws, either with a view of signaling themselves in some of the other contests, or the hopes of ravishing the crown from him by whose victory they had been excluded from the prospect of obtaining it. Pindar, in his thirteenth Olympic ode, congratulates Xenophon of Corinth upon his having gained in one day two olympic crowns; one in the *stadium*, or simple foot-race, the other in the *pentathlon*, which, as he says, never happened to any man before. The reason is, that the regimen of a pentathlete, as we are informed by both Epictetus and Arrian, was very different from that of an athlete, who qualified him-

self for a single exercise alone, as running, wrestling, or any other; whence, as both Plato and Longinus assure us, it seldom happened that a pentathlete, though very eminent in his profession, was able to contend with an athlete in that exercise, as, e. g. running or wrestling, to which alone he had applied himself altogether. The same observation is applicable to all the athletes in general; who differed from each other in their respective regimens and diets, as much or more than in the several exercises to which they peculiarly applied themselves. *West's Pindar.*

PENTECOST, f. [*pentecoste*, Sax. from *πεντηκοστη*, Gr. the fiftieth.] A solemn feast among the Jews, so called because it was celebrated the 50th day after the sixteenth of Nisan, which was the second day of the feast of the Passover: the Hebrews call it the Feast of Weeks, because it was kept seven weeks after the Passover: they then offered the first fruits of the wheat-harvest, which then was completed: it was instituted to oblige the Israelites to repair to the Temple, there to acknowledge the Lord's dominion, and also to render thanks to God for the law he had given them from Mount Sinai on the fiftieth day after their coming out of Egypt.

The modern Jews celebrate the Pentecost for two days. They deck the synagogue and their own houses with garlands of flowers. They hear a sermon or oration in praise of the Law, which they suppose to have been delivered on this day. The Jews of Germany make a very thick cake, consisting of seven layers of paste, which they call *Sinai*. The seven layers represent the seven heavens, which they think God was obliged to reascend from the top of this mountain. See Leo of Modena, and Buxtorf's Synag. Jud.

WHITSUNTIDE, a solemn feast of the Christian church, held in commemoration of the descent of the Holy Ghost on the Apostles, is also called *Pentecost* because the event commemorates happened on the day of the Jewish Pentecost, which came to pass on the fiftieth day after Easter.

Our heavenly Redeemer had frequently, before his passion, promised to his disciples some extraordinary gifts; and at his ascension expressly commanded them to tarry at Jerusalem, until they should be "endowed with power from on high," which he had vouchsafed to assure them they should receive. On the day of the Jewish feast of Pentecost, when the apostles were all assembled together in one place, *Suddenly there came a sound from heaven, as of a rushing mighty wind, and it filled all the house where they were sitting: and there appeared unto them cloven tongues like as of fire, which sat upon each of them: and they were all filled with the HOLY GHOST, and began to speak with other tongues, as the spirit gave them utterance.* Acts ii. In commemoration of this extraordinary supernatural endowment, the church very early established the day of Pentecost, as a solemn Christian festival; a name it still retains, though its more common appellation is that of **WHITSUNDAY, Dominica in Albis**, one of the ancient names also of Low-Sunday.

In the ancient church, Pentecost finished the paschal time, or Easter season; wherein, as Tertullian, St. Jerome, &c. observe, Hallelujah was sung every-where, the office celebrated standing, no fasting allowed, &c.

In the early ages of Christianity also, baptism, excepting in cases of urgency, was administered only at the two great festivals of Easter and Whitsuntide: at the former period from a conceived resemblance between the great events then celebrated of Christ's death and resurrection, and that part of the service of baptism which typifies the dying from sin, and *rising again unto righteousness*; while Whitsuntide was deemed also peculiarly appropriate for that holy sacrament, not only from the apostles having been baptized with the *Holy Ghost and with fire*, but from their having commenced their public ministry on that day; and themselves baptized three thousand persons. In token of the spiritual purity obtained by the holy participation of baptism, the garments of those admitted to that

that sacrament were made of *white* linen; and from this cause ensued the synonymous names of *Whit-Sunday*, *White-Sunday*, *Whitin-Sunday*, or *Dominica Alba*. Much ingenuity, however, has been exerted to prove that *Whit-Sunday* is derived from the French word *huit*, which signifies eight, thereby making the affirmed original name *Eighth Sunday*, which *Whit-Sunday* stands from Easter, reckoning Easter-Sunday as one of them. Some authors state that it was a custom of former times, for the rich to bestow upon the poor, on this day, all the milk of their kine, in order to qualify themselves to receive the gift of the Holy Ghost; and, that milk having been denominated *white meat*, the day was from that cause called *White Sunday*. Other authorities contend that the original name of this season of the year was *Wittentide*, or the time of choosing the *wits*, or *wise men*, to the *wittenagemote* of our Saxon ancestors; that the day was consecrated to Hertha, the goddess of peace and festivity; that, when Paganism gave way to Christianity, the period still kept its primitive title, as well as that given to it of Pentecost; and that most of the festivities of the *Wittentide* were continued to the people, which they yet enjoy in a manner not much surpassing, in a religious point of view, those they before indulged in. Some writers again suppose the word to have been corrupted from *WIED*, the Saxon word for *sacred*; but they do not offer any good arguments for such title being bestowed upon this Sunday, in preference to others at least as sacred in their object. *Pencas* and *Penkast* in the Cornish language, now totally lost, signified *Whitsuntide*; both evidently corruptions of Pentecost. *Brady's Clavis Calendaria*.

PENTECOS'TAL, *adj.* Belonging to Whitsuntide.—I have composed sundry collects, made up out of the church-collects with some little variation; as the collects adventual, quadragesimal, paschal, or *pentecostal*. *Sander-son*.

PENTECOS'TALS, *f.* Oblations formerly made at the feast of Pentecost by parishioners to their parish-priest, and sometimes by inferior churches to the mother church. A payment of this kind yet remains as a charge upon some particular churches; otherwise called *Whitsun-farthings*.

PEN'TECOSTE, a river of Canada, which runs into the river St. Lawrence in lat. 49. 45. N. lon. 66. 45. W.

PEN'TECOSTE. See **WHITSUNDAY ISLAND**.

PENTEKE'LIS, or **PENT EKELIS**, a town of Asiatic Turkey, on the south coast of Natolia: thirty miles west-south-west of Macri.

PENTELICUS, a mountain of Greece: six miles north-north-east of Athens.

PEN'TEMAN (Peter), a Dutch painter, born at Rotterdam in 1650. Nothing is recorded of him except the cause of his death. Being requested to paint an emblematical picture of mortality, representing human skulls and bones, surrounded with rich gems and musical instruments, to express the vanity of this world's pleasures, amusements, or possessions; that he might imitate nature with the greater exactness, he went into an anatomical room, where several skeletons hung by wires from the ceiling, and bones and skulls lay scattered about, and prepared to make his designs. While he was thus employed, owing either to fatigue or to intense study, he fell asleep; but was suddenly roused by the shock of an earthquake, which happened at that instant, on the 18th of September, 1692. The moment he awoke, he observed the skeletons move, as they were shaken, in different directions, and the skulls roll from one side of the room to the other: being totally ignorant of the cause, he was struck with such horror, that he threw himself down stairs, and fell into the street half dead. His friends took all possible pains to efface the impression made on his mind by this unlucky event, and acquainted him with the real cause of the agitation of the skeletons; but in vain; for this transaction affected his spirits in so violent

a manner, that it brought on a disorder, which in a short time ended his days.

PENTEPHAR'MACUM, *f.* [from the Gr. *πεντε*, five, and *φαρμακον*, a remedy.] Any medicine consisting of five ingredients.

PENTERIS, *f.* [Lat.] A vessel made with five benches of oars on a side.

PENTESYRIN'GUS, *f.* in antiquity, a sort of pillory with five holes; wherein were fastened the legs, arms, and heads, of criminals, to prevent their stirring.

PENTHEMIMERIS, *f.* [from the Gr. *πεντε*, five, *ημισυς*, half, and *μερος*, a part.] A part of a verse consisting of two feet and one long syllable; a kind of cæsura.

PENTHESILE'A, a queen of the Amazons, daughter of Mars. She came to assist Priam in the last years of the Trojan war, and fought against Achilles, by whom she was slain. The hero was so struck with the beauty of Penthesilea, when he stripped her of her arms, that he even shed tears for having too violently sacrificed her to his fury. Therfites laughed at the partiality of the hero, for which ridicule he was instantly killed. The death of Therfites so offended Diomedes, that he dragged the body of Penthesilea out of the camp, and threw it into the Scamander. Pliny says that Penthesilea invented the battle-axe.

PEN'THEUS, in fabulous history, a son of Echion and Agave, was king of Thebes in Bœotia. His refusal to acknowledge the divinity of Bacchus was attended with the most fatal consequences. He forbade his subjects to pay adoration to this new god; and, when the Theban women had gone out of the city to celebrate the orgies of Bacchus, Pentheus, apprized of the debauchery which attended the solemnity, ordered the god himself, who conducted the religious multitude, to be seized. His orders were obeyed with reluctance; but, when the doors of the prison in which Bacchus had been confined opened of their own accord, Pentheus became more irritated, and commanded his soldiers to destroy the whole band of the bacchanals. This, however, was not executed; for Bacchus inspired the monarch with the ardent desire of seeing the celebration of the orgies. Accordingly he hid himself in a wood on mount Cithæron, from whence he could see all the ceremonies unperceived. But here his curiosity soon proved fatal; he was desecrated by the bacchanals, and they all rushed upon him. His mother was the first who attacked him, and her example was instantly followed by her two sisters, Ino and Autonoe, and his body was torn to pieces.

PENTHIER POINT, a cape on the west coast of France: six miles south-east of Point St. Matthew. Lat. 48. 15. N. lon. 3. 17. W.

PENTHIEVRE, a fort of France, in the department of the Morbihan, situated on the peninsula of Quiberon, on the east and west sides washed by the sea: seven miles north of Quiberon, and nine south-west of Auray.

PENTHO'RUM, *f.* [appears to have been so called, by Grovonijs, from *πεντε*, five, and *ἄρος*, a column or post, in allusion to the figure of the fruit, which he says resembles five turrets.] In botany, a genus of the class decandria, order pentagynia, natural order of succulentæ, (sem-pervivæ, *Juss.*) Generic characters—Calyx: perianthium one-leaved, five or ten cleft, acute, permanent. Corolla: petals often five (seldom none), linear, very small, between the segments of the calyx. Stamina: filaments ten, bristle-shaped, equal, twice as long as the calyx, permanent; antheræ roundish, deciduous. Pistillum: germén coloured, ending in five conical upright styles, the same length with the stamens, and distant; stigmas blunt. Pericarpium: capsule simple, five-cleft, with conical distant angles, five-celled. Seeds numerous, very small, a little compressed. It differs from *Sedum* in having no nectaries. —*Essential Character*. Calyx five (or ten) cleft; petals none, or five; capsule five-cusped, five-celled; (compound, five-beaked, *Gartner*.)

Penthorum fedoides, or American penthorum, the only species. Stalks about a foot high. Leaves oblong, alternate. Flowers greenish-yellow in terminating clusters, making little appearance; they are alternate, pedicelled, ascending; the segments of the calyx for the most part alternately larger and smaller; antheræ red; styles none; capsule undivided, composed of five partial capsules, ventricose at bottom, rounded-five-cornered, starred at top, five-beaked, opening five ways between the beaks: beaks filiform, short, conical at the base, with a small head at top, spreading out horizontally. Seeds irregular like sawdust, or linear acuminate, shagreened with raised dots, rufescent, fastened to the partitions on every side. Native of Virginia. Biennial, according to Miller, who cultivated it in 1768. Others reckon it to be perennial. It flowers at the end of July, and the seeds ripen in the autumn.

PENT'HOUSE, *f.* [from *pente*, Fr. and *house*.] A shed hanging out aslope from the main wall.—This is the *penthouse* under which Lorenzo desired us to make a stand. *Shakespeare's Merch. of Ven.*—The Turks, lurking under their *penthouse*, laboured with mattocks to dig up the foundation of the wall. *Knolles*.—Those defensive engines, made by the Romans into the form of *penthouses* to cover the assailants from the weapons of the besieged, would he presently batter in pieces with stones and blocks. *Wilkins*.

Sleep shall neither night nor day

Hang upon his *penthouse* lid.

Shakespeare.

My *penthouse* eye-brows and my shaggy beard

Offend your sight; but these are manly signs. *Dryden.*

The chill rain

Drops from some *penthouse* on her wretched head. *Rowe.*

PENT'TICE, *f.* [appentis, Fr. *pendice*, Italian. It is commonly supposed a corruption of *penthouse*; but perhaps *pentice* is the true word. It was also written *pendice*, after the Italian word.] A sloping roof.—Climes that fear the falling and lying of much snow, ought to provide more inclining *pentices*. *Wotton*.

And o'er their heads an iron *pendice* vault

They built by joining many a shield and targe. *Fairfax.*

PENT'TICLE, *f.* [another name for] *Pendice* :

Their targets hard, above their heads they threw,

Which join'd in one, an iron *pendice* make,

That from the dreadful storm preserv'd the crew:

Defended thus, their speedy course they take,

And to the wall without resistance drew;

For that strong *penticle* protected well

The knights, from all that flew, and all that fell. *Fairfax.*

PENTICOT'TA, a town of Hindooſtan, in the circuit of Cicacole: thirty-two miles south-west of Coſſimcotta.

PENTIDATYLO, a town of Naples, in Calabria Ultra: twelve miles south-east of Reggio.

PEN'TILE, *f.* A tile formed to cover the sloping part of the roof: they are often called pantiles.—*Pentiles* are thirteen inches long, with a button to hang on the laths; they are hollow and circular. *Moxon*.

PEN'TIMA, a town of Naples, in Abruzzo Citra: five miles north-west of Sulmona.

PENT'LAND FRITH', the strait which separates the main land of Scotland from the Orkney Islands. It is sometimes called *Pitland Frith*; and indeed the latter is considered by many writers to be its proper and original appellation. This strait is about twelve miles across; and is remarkable for the impetuosity and opposition of its currents, from the meeting tides of the Atlantic and Northern oceans. So strong are these currents at times, that no vessel can navigate against them, however favourable the wind may be. Hence the navigation of this frith is so peculiarly dangerous and difficult, that few vessels attempt to pass it without the assistance of an experienced pilot. Its dangers are also greatly augmented by

several whirlpools, of which those most usually fatal are the Wells of Swinna and the Swalchie of Stroma, near the northern side of that island. On its southern shore is another very hazardous spot, called the "Merry Men of Mey," from the Mey, the name of a gentleman's residence on the opposite coast of Caithness. Here, from the concussion of the opposing tides, the sea is agitated in a very awful manner, even in the finest weather. From these concurrent causes, it is impossible at any time to cast anchor in any part of this frith; which, notwithstanding, is annually entered by between three and four thousand vessels. The number, however, will no doubt rapidly decrease, now that the Caledonian Canal is opened for navigation. Many of the natives of the Caithness coast, and of the islands, are said to derive their livelihood solely from the produce of the numerous ships which are foundered, or dashed to pieces, in their passage through this frith.

PENT'LAND SKER'RIES, three small islets, or holms, at the eastern entrance to the Pentland frith; four miles north-east from Dungby head. Being from their situation extremely dangerous to mariners, a lighthouse is placed upon the largest of them: it was erected in 1794.

PENT'LAND HILL'S, a range or ridge of eminences, which extend from a place about four miles south-west of Edinburgh, towards the confines of Peebles-shire and Lanarkshire. Some of these hills are of considerable elevation; particularly the western summits, two of which, called Capelaw and Caerketan-craig, rise to the height of nearly 1500 feet above the level of the sea. Logan-house hill even exceeds 1700 feet above the same level. The eastern division, near Edinburgh, however, seldom reaches much above one-half that elevation; in some places it is nearly flat on the top, and affords excellent pasturage for large flocks of sheep. Several streams, noted in song, take their rise among these hills; as the North Esk, Glencrofs, and Logan water; the two latter of which dispute the honour of being the scene of Allan Ramfay's Gentle Shepherd. Each of these vales is accordingly distinguished by the name of "Habby's Hough;" and both are frequently visited by poetical parties from the Scottish metropolis during the summer months. The composition of the Pentland hills is principally granite, but on the north side of the Logan summit is a rock of a very singular character, which has obtained the appellation of "Petunse Pentlandica," from its resemblance to the substance employed in the manufacture of Chinese porcelain.

PENTONVILLE. See the article ISLINGTON, vol. xi. p. 438.—We may just mention, that the White-Conduit Spring (p. 437) was, in 1822, entirely covered over, and the building was inhabited by a poor family.

PENTOWEN POINT, a cape on the south coast of Wales, in the Bristol Channel. Lat. 51. 45. N. lon. 4. 15. W.

PEN'TRIDGE, a village in Dorsetshire, by Cranborn-chase, on the borders of Wiltshire. On Penbury-Hill, near this place, is an extensive prospect. Hanley-Six-penny is a village about two miles from Pentridge, and also on the borders of Wiltshire, between Blagdon-Park and Cranburn-Chase. In the latter, that is, about 3 miles off, the parishioners are allowed one day in the year to hunt deer. It had formerly a market.

PEN'TRY, a village of Caermarthen, South Wales; with fairs on the 12th of May and 10th of October.

PENTSTE'MON, *f.* [from the Gr. *πεντε*, five, and *στυμιον*, a stamen; because this genus is distinguished from its allies by having a fifth stamen, more or less perfect, in addition to the four unequal ones which make the character of the class.] In botany, a genus of the class didynamia, order angiospermia, natural order of personatæ. Generic characters—Calyx: perianthium one-leaved, five-parted, permanent: segments lanceolate, almost equal. Corolla: one petalled, two lipped; tube longer than the calyx, gibbous above at the base, wider at top, and

PENTSTEMON.



Shrubby Pentstemon

Engraved for the *Encyclopædia Imperialis* 1823.

and there ventricose underneath; upper lip upright bifid; segments ovate, blunt, shorter than the lower lip: lower lip three-parted; segments ovate, blunt, bent down, shorter than the tube. Stamina: filaments four, filiform, diverging at the tip, inserted into the base of the tube, and shorter than it; the two lower longer. Anthers roundish, distant, included, bifid; with the lobes divaricating. The rudiment of a fifth filament between the upper ones inserted into the tube, the same length with the stamens, filiform, straight, bearded above at the tip. Pistillum: germ ovate; style filiform, the length of the tube, bent down at the tip; stigma truncate. Pericarpium: capsule ovate, acute, compressed, two-celled, two-valved. Seeds numerous, subglobular; receptacle large. — *Essential Character.* Calyx five-leaved; corolla bilabiate, ventricose; rudiment of a fifth stamen bearded above; capsule two-celled. There are four species.

1. Pentstemon lævigata, or smooth pentstemon: stem smooth; barren filament bearded above. Root perennial, creeping, fibrous, white. Stem a foot and a half high and more; round, purple below, brachiata. Lower leaves ovate-acuminate, quite entire, petioled, sometimes purple underneath, on petioles winged to the base. Stem-leaves ovate-lanceolate, opposite, embracing, toothletted, smooth on both sides. Flowering branches in a manner dichotomous, with the flowers two together. Corolla pale purple, somewhat hirsute on the outside.

2. Pentstemon ferrulata, or serrated pentstemon: stem smooth; leaves all sharply serrated, smooth; the upper ones ovate, somewhat hastate; panicle twice or thrice forked; barren filament bearded half way down. Gathered by Mr. A. Menzies on the west coast of North America. It is nearly related to *P. lævigata*, but differs in the copious acute serratures of its leaves, which are also broader, shorter, and more ovate; particularly those on the middle and upper part of the stem.

3. Pentstemon frutescens, or shrubby pentstemon: stem shrubby, branched. This is from the Herbarium of the celebrated professor Pallas, which is now in this country, as noticed under the article PALLAS, in our preceding volume. In one part of his MSS. he calls it *Digitalis dasyantha*. It is represented on the annexed Engraving. It inhabits Kamtschatka and Oonalashka. *Linn. Transf.* vol. x.

4. Pentstemon pubescens, or hairy pentstemon: stem pubescent; barren filament bearded from the tip below the middle. Of this there are two distinct varieties: *α.* Latifolia, or broad-leaved; with the leaves ovato-oblong. *β.* Angustifolia, or narrow-leaved; in which the leaves are lanceolate. See CHELONE, to which this genus is very nearly allied.

PENT'ZIA, *f.* in botany, a genus of plants so named by professor Thunberg in honour of his pupil Charles John Pentz, at whose graduation at Upsal, in 1797, the learned professor's dissertation on *Diosma* was published. It contains but one species, which appears to be our *GNAPHALIUM dentatum*. See vol. viii.

PEN'UEL, *f.* [Heb. the vision of God.] The name of a place on the east of Jordan, near the brook Jabbok; so called, because here Jacob, in his wrestling, saw the face of God, or enjoyed familiar fellowship with him. *Gen.* xxxii. 24.

In following ages the Israelites built a city in this place, which was given to the tribe of Gad. Gideon, returning from the pursuit of the Midianites, overthrew the tower of Penuel, (*Judges* viii. 17.) and put all the inhabitants of the city to death, for having refused sustenance to him and his people, and having answered him in a very insulting manner. Jeroboam the son of Nebat rebuilt the city of Penuel, (*1 Kings* xii. 25.) and Josephus says, that he built himself a palace there.

PENVENAN', a town of France, in the department of the North Coasts: three miles north-west of Treguier, and seven north-east of Lannion.

PENUKON'DA, a town of Hindoostan, in Mysore. sixty-five miles north of Bangalore.

PEN'ULA. See PÆNULA.

PENULA'TOR, *f.* [Lat. *penula*, a napped coat.] A furrier. *Cole.*

PENUL'TIMA, *f.* [from the Lat. *pene*, almost, and *ultima*, the last.] The last syllable but one of a word; and hence the antepenultimate syllable is the last but two, or that immediately before the penultima.

PENUL'TIMATE, *adj.* Belonging to the last syllable but one; belonging to the last but one.

PENUM'BRA, *f.* [*pene*, almost, and *umbra*, shadow, Lat.] An imperfect shadow; a faint or partial shade observed between the perfect shadow and the full light in an eclipse. It arises from the magnitude of the Sun's body; for, were he only a luminous point, the shadow would be all perfect; but, by reason of the diameter of the Sun, it happens, that a place which is not illuminated by the whole body of the Sun, does yet receive rays from a part thereof. — The breadth of this image answered to the Sun's diameter, and was about two inches and the eighth part of an inch, including the *penumbra*. *Newton.*

PENURE'E, a town of Hindoostan, in Bahar: twenty-three miles south of Bahar.

PENU'RIOUS, *adj.* [from *penuria*, Lat.] Niggardly; sparing; not liberal; sordidly mean. — As a *penurious* niggard of his wealth. *Milton's Commus.*

What more can our *penurious* reason grant
To the large whale or ponderous elephant? *Prior.*
Scant; not plentiful:

I have but little gold of late, brave Timon,
The want whereof doth daily make revolt
In my *penurious* hand. *Shakespeare's Timon of Athens.*

PENU'RIOUSLY, *adv.* Sparingly; not plentifully. — The place is most *penuriously* empty of all other good outides. *B. Jonson's Cynth. Revels.*

PENU'RIOUSNESS, *f.* Niggardliness; parsimony. — If we consider the infinite industry and *penurionsness* of that people, it is no wonder that, notwithstanding they furnish as great taxes as their neighbours, they make a better figure. *Addison.* — Scantiness; not plenty.

PEN'URY, *f.* [*penuria*, Lat.] Poverty; indigence. — The *penury* of the ecclesiastical estate. *Hooker.*

Sometimes am I a king;
Then treason makes me wish myself a beggar;
And so I am: then crushing *penury*
Persuades me I was better when a king;
Then I am king'd again. *Shakespeare's Rich. III.*

PENUT'URA, a town of Hindoostan, in the circar of Cicacole: twenty-five miles north of Cicacole.

PENWOR'THAM, a town of Lancashire, with 1049 inhabitants, including 317 employed in trade and manufactures: three miles south-west of Preston.

PEN'Y, a town of Hindoostan, in Bahar: twenty-four miles south-west of Rotasgur.

PEN'YCUIK, a village and parish in the county of Mid-Lothian, or Edinburghshire, Scotland. The village is situated nine miles south from the northern metropolis, and is adorned with a very handsome church, the living of which was formerly a rectory. This edifice is placed on the site of an older structure, which was dedicated to Kentingern, popularly called St. Mungo. The parish is twelve miles in length, and six in breadth. Its surface is extremely various, and exhibits almost every kind of soil, from clay and moss to the poorest gravelly loam. A great number of sheep are bred in this parish; but the greater proportion of it is under tillage. It is watered throughout its whole extent by the river North Esk, and abounds with coal and peat. It also possesses several objects entitled to the attention of the topographer and the antiquary. Near the village is the elegant seat of sir George Clerk, bart. M. P. for the county of Edinburgh. The situation of this mansion is delightful; and its prospects are both picturesque and extensive. In the library here is an excellent collection of books and paintings;

paintings; and in another room is a large assortment of Roman antiquities, principally from the wall of Antoninus, and the neighbouring encampments. Close to the river, within the "policy," is Ossian's Hall, the much admired work of Runciman; and behind the house is an exact model of the celebrated Roman temple, called by Buchanan *Templum Termini*, which formerly stood on the banks of the Carron, and which was known to the vulgar by the appellation of Arthur's Oon. Here is likewise an obelisk, in honour of Ramsay the poet, who frequently resided at Penyuik, and is supposed to have laid the scene of the Gentle Shepherd on the confines of this parish and Glencrofs. About two miles from this seat, lower down the river, stood the ancient castle of Brunstone, the baronial mansion of the Crichtounes, some ruins of which still remain. New-Hall, another residence of the same family, stands three miles north-west from the village. It is supposed to have derived its appellation of *New* from the circumstance of its occupying the site of an *old* religious house. The name of New-House, an inn on the lands of Spittal here, boasts a similar derivation, having been erected to supply the place of an ancient hospitium for the accommodation of travellers. Even at the present day, the weary and benighted traveller is considered as entitled to shelter and protection; and accordingly one of the out-houses, at the Old Spittal, is usually appropriated to that purpose. Traces of several encampments of different forms and eras are yet visible in this parish. Ravens-Nook Castle, situated on the Esk, belonged to the Sinclairs of Roslyn. The government had converted the buildings of two large paper-manufactories here into depots for prisoners of war.

According to the parliamentary returns, the houses in this parish amount to 309 in number, and the inhabitants to 1827.

A fossil tree is in existence near the village of Penyuik, of which phenomenon the following description is given in a letter by sir J. S. Mackenzie, bart. inserted in *Constable's Magazine* for Dec. 1818. "On the south bank of the river North Esk, a short distance above the paper-mill at Penyuik, where the strata usually accompanying the coal-formation of this country are exposed, a large portion of the trunk and several roots of a fossil tree are visible: it rises several feet above the bed of the river, as far as the strata reach; and the roots spread themselves in the rock. It appears as if the tree had actually vegetated on the spot where we now see it. It is, where thickest, about four feet in diameter. The strata, in which the remains of the tree stand, are slate-clay, and the tree itself is sandstone. There is sandstone below and immediately above the slate-clay; and the roots do not appear to have penetrated the lower sandstone, to which they reach. Small portions of coal were observed where the bark existed, the form of which is so distinct on the fossil, that we may conjecture the tree to have been a Scotch pine. This conjecture may appear more probable, from the roots spreading more horizontally than those of other species. There are several rents across the trunk, which may have been caused by frost."

PEN'ZA, a town of Russia, and capital of a government, near the Sura: 644 miles south-east of Petersburg, and 316 east-fourth-east of Moscow. Lat. 53. 30. N. lon. 45. 42. E.

PENZAN'CE, a seaport and market-town in the county of Cornwall, and the most westerly town in England, is situated on the north-west side of Mount's Bay, 287 miles west-fourth-west from London, and only ten miles from the Land's End. It is particularly distinguished for the cheapness of its fish-market, the mildness of its climate, and the fertility of the neighbouring lands: these circumstances have occasioned a considerable increase of population, by the influx of inhabitants from the adjacent villages.

In the year 1595, the Spaniards dispatched four vessels from Bretagne, (of which they were then masters,) to

invade the English coast. They landed near Moushole, which they burnt, together with the church of St. Paul. Meeting with little resistance, they proceeded to Penzance; and, the inhabitants deserting it, they entered the town in three places, and set it on fire, after which they re-embarked. The returning courage and increased numbers of the Cornish, prevented the Spaniards from re-landing, and Penzance has since remained undisturbed by foreign foes.

The parish-church is situated nearly at Madern, two miles from the town; but there is a chapel of ease nearer home, dedicated to St. Mary. There are various religious denominations residing here; Presbyterians, Quakers, Methodists, and Jews, who have separate places of worship. The government is vested in a corporation, consisting of a mayor, recorder, twelve alderman, and twenty-four common-councilmen; but sends no member to parliament. Penzance is one of the four stannary-towns of the Cornish tin-mines; and the petty sessions for the west division of the hundred of Penwith are holden here. There is a charity-school endowed by John Buller, esq. of Morval, in 1711. The town is very pleasant, many of the houses are large and respectable, and most of the streets are paved. A new pier, which was erected by the corporation some years since, affords much convenience to the considerable trade carried on here, consisting chiefly of tin, and the pilchard-fishery. The packets, which form the principal mode of conveyance to the Scilly-islands, sail from Penzance. By the census of 1821, Penzance contained 5224 inhabitants. Among these are a great many good families of gentlemen, though in this utmost angle of the nation; and the veins of lead, tin, and copper, ore, are said to be seen, even to the utmost extent of land, at low-water mark, and in the very sea. So rich, so valuable, a treasure is contained in these parts of Great Britain, though they are supposed to be poor, because so remote from London, which is the centre of our wealth.

The method of laying and pressing their fish, especially pilchards, is as follows: They pile them up on a bed of great length and breadth, indeed as long and broad as the house made for that purpose will permit, and breast-high; then in the wall behind they have a hole, into which they thrust a rafter or post of timber which reaches across the bed of fish, and on the other end of it hang one or two great stones, with a great hook of iron fastened in them for that purpose; of these holes and rafters they have many all along the bed, which keep down the boards wherewith the bed of fish is covered, and so press the fish equally underneath the bed; and they have a gutter to receive and convey the oil which is thus pressed out into a vessel fixed in the ground at one end of the building.

In December 1797, there was found here a vein of the material used by the Chinese in colouring their china-ware. A specimen of the same composition occurs on the PENTLAND HILLS, (see p. 572.) which was supposed to be only one in Europe, or at least in Great Britain.

Here is a good market on Thursday; and fairs on Trinity Thursday and Holy Thursday.

About half a mile west of Penzance are some remains of the celebrated Wherry Mine. They are situated in a part of the bay which is dry at low water, but covered by every returning tide to the depth of several feet. The peculiar situation of this mine renders it an object of curiosity, although the shaft is filled up, and the frame-work nearly annihilated. When the works were in operation, the labour was extremely adventurous; the miners working at the depth of seventeen fathoms below the waves, nearly 120 fathoms from the shore, and momentarily menaced with an inundation of the sea, which roared above them. The dangerous situation of the shaft, the injurious effect of storms and tides, and a partial failure of the lode, induced the proprietors to discontinue working it in 1798.

A large

A large tract of marsh-land adjacent to Penzance, subject to occasional inundations of the sea, has been partly rescued from sterility and waste, through the laudable exertions of Dr. Samuel Moyle, of Marazion. It was effected by means of an aqueduct or pipe, communicating with the sea, which carried off all the drainage-water from the marsh. Several crops of corn and potatoes have been obtained from the parts so saved, and it promises to reward the adventurer for his expense and perseverance. In cutting one of the drains, an earthen pot was discovered, containing nearly a thousand Roman copper coins, which the impressions show to have been issued between the years 260 and 350.

Madern, a village two miles north, is the parish in which Penzance is situated. It was once noted for a spring of water, said to cure lameness and the colic.—Morvath is also north of Penzance, near the sea.

West of, and contiguous to, Penzance, are several small villages and antiquarian objects deserving notice.—Moufe-hole, on the western side of Mount's Bay, is celebrated among antiquaries for having been the residence of Dolly Pentreath, one of the last persons known to speak the Cornish language. She lived to the great age of 102, and was buried in the parish church-yard of St. Paul's.—St. Burien is the name of a parish, which, though at present consisting only of a few wretched cottages, was formerly distinguished by a college of Augustinian canons, founded and endowed by Athelstan about the year 930. The deanery includes the parishes of Burien, Senner, and St. Levan. At the Norman conquest there were secular canons here, and in the 20th of Edward I. a dean and three prebends. The church is built on a high spot of ground; it consists wholly of granite, and its tower forms a conspicuous object from the Land's End, the Scilly Islands, and the North and South Channels.

The greater part of the district round St. Burien, though wild and unsheltered, is interesting to the antiquary, being interspersed with cairns, circles, cromlechs, and other Druidical remains. In the parish of St. Paul is a circular inclosure of stones, called the *Roundago*, fifty-two paces from north to south, and thirty-four from east to west. Some of the stones are erect, others piled in a wall-like form, but without mortar. In the parish of Senner is a circle of similar shape and character, and at Tredineck another of the same kind. In the parish of Burien is a small circle of 19 upright stones, called the *Dance Maine*, or the *Merry Maidens*, the stones are about four feet above the ground, and five feet distant from each other; the diameter of the circle is about twenty-five feet, and at some distance north-west from it are two taller upright stones, called the *Pipers*. Another of these Druidical circles is named *Boscawen-un*, which also consists of 19 upright stones, and is about 25 feet in diameter, having a single leaning stone in the centre. In the parish of Gulval is *Boskednan-circle*, consisting also of 19 stones, but of smaller diameter than the two former. In the parish of St. Just is a considerable structure of this kind, known by the name of the *Botallach circles*, composed of four circles of upright stones intersecting each other. *Lanyon Quoit* is a cromlech, consisting of four upright stones, three of which support the other, a broad flat stone, 23 feet long, by 14 wide. In the parish of Morval is a cromlech, similar to this last, but of smaller dimensions, called *Chûn Quoit*; and half a mile east of Senner church is another, the *quoit* of which is supported by a barrow heaped round it, 14 yards in diameter. In the parish of Madern stand three stones erect, on a triangular plane, the middle one of which is perforated with a large hole near the base, nine inches in diameter. Dr. Borlase conjectures that this perforation was appropriated to superstitious rites, in the days of Druidism.

The same antiquary has described various logan or rock-

ing-stones as formerly extant in this part of Cornwall; the most considerable and curious of which was at Treryn-Castle, in the parish of St. Levan. The chief stone is an immense granite block, supposed to weigh nearly 90 tons, poised on the top of a vast pile of rocks which project into the sea. This enormous mass, it is stated and believed, was once liable, from a peculiarity of position, to be moved to and fro. Treryn-Castle is a large piece of rocky ground, projecting into the sea, and inclosed by two formidable ramparts and ditches, one within the other, stretching in a semicircular form from the sides of the cliffs: the perpendicular rocks form three sides of this fortification, and the land-side is guarded by these thick and high embankments. About a mile and a half west of this, the cape, called *Tolpedn-penwith*, is divided from the main land by a stone wall. The castles *Karniheck* and *Boscagell*, in the parish of St. Just, are also of the same kind, as well as many others on the sea-coast.

A little up in the country towards the north-west is *Godolchan*; which, though a hill rather than a town, gives name to the ancient and noble family of *Godolphin*; and nearer on the northern coast is *Ryalton*, which gave the second title to the earls of *Godolphin*. This place, also, is infinitely rich in mines.

From the tops of the hills, on this extremity of the land, you may see out into what they call the *Chops of the Channel*; which, as it is the greatest inlet of commerce, and the most frequented by merchant-ships, of any place in the world, so one seldom looks out to seaward, but something new presents of ships passing or repassing. The point of the main land called the *Lizard*, which runs out to the southward, and the other promontory called the *Land's End*, make the two angles or *horns*, as they are called, from whence it is supposed this country received its first name, *Cornwall*, or, as *Camden* says, *Cornubia* in the Latin, and in the British *Cerneu*, as running out in two vastly-extended horns.

The *Land's End* is the most westerly promontory in England. It is a point of huge and ragged rocks, forming a barrier to the tumultuous sea, of the most awful and wildly-sublime kind. It was called *Bolerium* by *Ptolemy*; by the British bards *Penringhuaed*, or the Promontory of Blood; and by their historians *Penwith*, or the Promontory to the Left. Near this craggy cliff are three caverns, in which the agitated waters occasionally roar with tremendous fury. Several masses of rock are seen above the surface of the sea, more than two miles west of the *Land's End*, called the "Long Ships." On the largest a light-house was erected in 1797 by Mr. Smith, who obtained a grant for that purpose, and is rewarded by a certain rate on all ships that pass the *Land's End*.

Nature has fortified this part of the island of Britain in a strange manner, and very much worth a traveller's observation. First, there are the islands of *Scilly*, (which see,) and the rocks about them, placed like out-works to resist the first assaults of this enemy the ocean, and so break the force of it; as the piles or *starlings* were placed before the solid stone-work of *London-bridge*, to fence off the force, either of the water or ice, or any thing else that might be dangerous to the work. Then there are a vast number of *funk rocks*, besides such as are visible and above water; which gradually lessen the quantity of water, that would otherwise lie with an infinite weight and force upon the land. It is observed, that these rocks lie under water for a great way off into the sea on every side the said two horns or points of land; so breaking the force of the water, and lessening the weight of it. But, besides this, the whole body of the land, which makes this part of the isle of Britain, seems to be one solid rock, as if it was formed by nature to resist the otherwise irresistible power of the ocean. And, indeed, if one were to observe with what fury the sea comes on sometimes against the

shore, especially at the Lizard Point, where there are but few, if any, outworks to resist it; how high the waves come forward, storming on the back of one another, particularly when the wind blows off-sea; one would wonder, that even the strongest rocks themselves should be able to resist and repel them. And yet, as if all this were not enough, nature has provided another strong fence; and that is, that these vast rocks are, in a manner, cemented together by the solid and weighty ore of tin and copper, especially the latter, with which the stones may be said to be soldered together, lest the force of the sea should separate and disjoint them, and, breaking in upon these fortifications of the island, destroy its chief security. It is very probable that all these isles were once part of the main land; but the sea, violently beating against it, carried off the softer parts, and left the harder. This process of nature and time may be seen in miniature at the western point of the Isle of Wight, and many other exposed places. Undoubtedly, had not such hard bodies as these rocks been there, the sea would have made still greater havock, and carried away much more of the land. This is certain, that there is a more than ordinary quantity of tin, copper, and lead also, fixed by the great Author of Nature in these very remote angles, so that the ore is found upon the very surface of the rocks a good way into the sea, and does not only lie, as it were, upon or between the stones among the earth; which in that case might be washed from it by the sea, but is even blended or mixed in with the stones themselves, so that the stones must be split into pieces to come at it. By this mixture the rocks are made exceedingly weighty and solid, and thereby still the more qualified to repel the force of the sea. See farther under the articles MARAZION, vol. xiv. p. 333. and SCILLY; also Borlase's and Polwhele's Antiquities of Cornwall; Beauties of England and Wales, vol. ii. and Wilkes's British Directory, vol. iv.

PENZEN'SKOE, a government of Russia, bounded on the north by Nizgorodskoi, on the east by Simberkoe, on the south by Saratovkoe, and on the west by Tambov-koe; about 172 miles east to west, and from forty to sixty north to south. Penza is the capital. Lat. 52. 40. to 54. 36. N. lon. 42. to 47. E.

PENZINSKA'IA, a gulf of Russia, at the north part of the Penzinskoe Sea. Lat. 61. to 62. N. lon. 162. 14. E.

PENZIN'SKOE SEA, a large bay of the North Pacific Ocean, between Russia and Kamtschatka, situated to the north-east of the sea of Ochotsk; about 320 miles in length, and from 120 to 160 broad. Lat. 58. to 62. N. lon. 152. to 161. E.

PENZLEIN, a town of the duchy of Mecklenburg; thirty-seven miles south-east of Gultrow, and fifty-three east of Stettin.

PE'ON, *f.* In India a foot-soldier: one employed also as a servant or attendant. The original word is said to be *peadah*. See the article HINDOOSTAN, vol. x. p. 177. and the corresponding Plate.—Little boys, or *peunes*, who, for four-pice a day, are ready to run, go errands, or the like. *Sir T. Herbert's Travels*.

PE'ONY, *f.* A flower. See PÆONIA.—A physician had often tried the *peony*-root unseasonably gathered without success; but, having gathered it when the decreasing Moon passes under Aries, and tied the slit root about the necks of his patients, he had freed more than one from epileptical fits. *Boyle*.

PE'OPLE, *f.* [*peuple*, Fr. *populus*, Lat.] A nation; those who compose a community. In this sense we have *peoples*.—Prophecy again before many *peoples* and nations and tongues. *Rev.* x. 11.—Ants are a *people* not strong, yet they prepare their meat in summer. *Prov.* xxx. 25.

What is the city but the *people*?
True, the *people* are the city. *Shakespeare's Coriol.*

The vulgar.—The knowing artift may judge better than the *people*. *Waller*.

I must like beasts or common *people* die,
Unless you write my elegy. *Cowley*.

The commonalty; not the princes or nobles:

Myself shall mount the rostrum in his favour,
And strive to gain his pardon from the *people*. *Addison*.

Persons of a particular class.—If a man temper his actions to content every combination of *people*, the music will be the fuller. *Bacon*.—A small red flower in the stubble-fields country *people* call the wincopipe. *Bacon*.—Men, or persons in general. In this sense, the word *people* is used indefinitely, like *on* in French.—The frogs petitioning for a king, bids *people* have a care of struggling with heaven. *L'Estrange*.—*People* were tempted to lend by great premiums and large interest. *Swift's Miscell.*—Watery liquor will keep an animal from starving by diluting the fluids: for *people* have lived twenty-four days upon nothing but water. *Arbutnot on Aliments*.

To PE'OPLE, *v. a.* To stock with inhabitants. Suppose that Brute, or whosoever else that first *peopled* this island, had arrived upon Thames, and called the island after his name Britannia. *Raleigh's Hist.*

He would not be alone, who all things can;
But *peopled* heaven with angels, earth with man. *Dryden*.

PE'OPLISH, *adj.* Vulgar. Not in use.—Rudeness, and *peplishe* appetite. *Chaucer's Tr. and Crest*.

PE'OR, a famous mountain beyond Jordan, which Eusebius places between Heshbon and Livia. The mountains Nebo, Pisgah, and Peor, were near one another, and probably made but the same chain of mountains. It is very likely that Peor took its name from some deity of the same name, which was worshipped there; for Peor, Phegor, or Baal-peor, was known in this country. See Numb. xxv. 3. Deut. iv. 3. Psal. cv. 28.

PE'OR, was a city of the tribe of Judah, which is not read in the Hebrew, nor in the Vulgate, but only in the Greek of the Septuagint (Josh. xv. 60.). Eusebius says it was near Bethlehem; and Jerome adds, that in his time it was called *Paora*.

PEO'RIA, a township of St. Clair, in the Illinois territory, with 93 inhabitants.

PE'ORY, a town of Hindoostan, in Dowlatabad: thirty-five miles north-north-west of Darore.

PEPARE'THOS, in ancient geography, a small island of the Ægean Sea, on the coast of Macedonia, about twenty miles in circumference. It abounded in olives, and its wines have always been reckoned excellent. They were not, however, palatable before they were seven years old. *Pliny*.

PEPAS'MUS, *f.* [from the Gr. *πεπαινω*, to mature.] Maturation of morbid humours.

PEPAS'TIC, or PEP'TIC, *f.* [*πεπαστικός*, or *πεπτικός*, Gr. formed from *πεπαινειν*, to digest, or ripen.] A kind of medicament of the consistence of a plaster, proper to bring vitious and corrupt humours to a head, and dispose them for suppuration.—Butter, roots of mallows, of fleurs-de-lys, onions, and leaves of oxylapathum, are esteemed good *pepastics*, or maturatives. *Chambers*.—The word is also used for such medicines as promote the digestion of food in the stomach; properly *peptics*.

PEPAS'TIC, *adj.* Suited to digest crudities in the stomach.

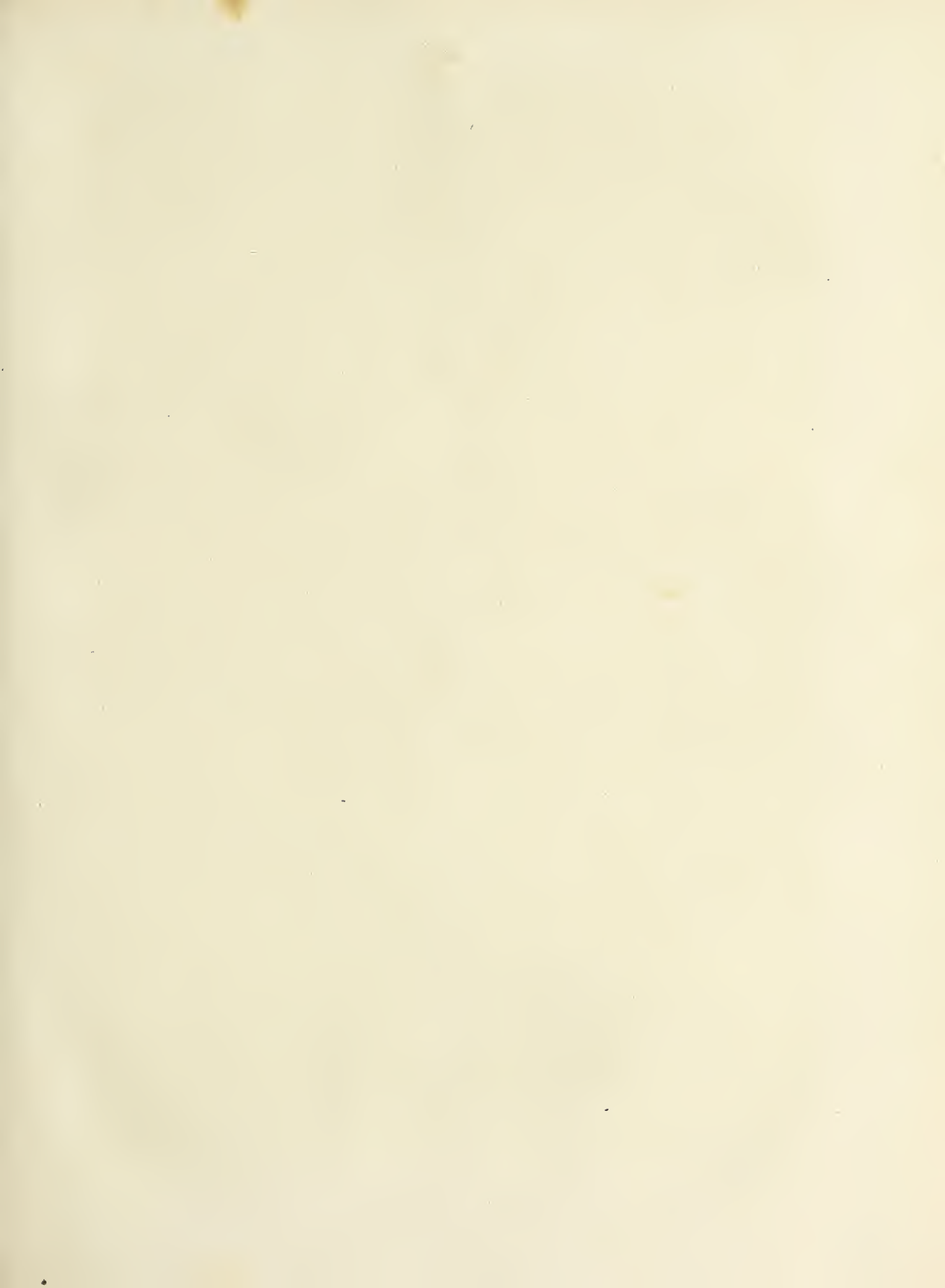
PEPECHAISIN'AGAN, a river of Canada, which runs into the St. Lawrence in lat. 48. 26. N. lon. 68. 55. W.

PEP'ERAH, a town of Hindoostan, in Gurry Muddella: ten miles south of Gurra.

PEP'ERAH, a fort of Hindoostan, in Bahar: forty-eight miles east of Durbungah. Lat. 26. 8. N. lon. 86. 58. E.

PEPERAL'LY, a town of Hindoostan, in Bahar: thirty miles north of Durbungah.

PEPER'AH,





Water Parslane.

PEPERIAH, a town of Hindooftan, in Bahar: 54. miles east-fourth-east of Hajypour.

PEP'IN LE GRO'S, PEPIN LE BREF, &c. see the article FRANCE, vol. vii. p. 651—6.

PEP'IN LA'KE, an expansion of the river Mississippi. Lat. 42. 20. N. lon. 92. 45. W.

PEP'LION, *f.* in botany. See EUPHORBIA.

PEP'LIS, [a name borrowed from Dioscorides, whose *πεπλίς*, nevertheless, is evidently the Linnæan Euphorbia pepelis, and essentially different in characters and qualities from the genus of which we are about to treat.] WATER PURSLANE; in botany, a genus of the class hexandria, order monogynia, natural order of calycanthemæ, (salicariæ, *Juss.*) Generic characters—Calyx: perianthium one-leaved, bell-shaped, permanent, very large, with the mouth twelve-cleft; toothlets alternate, reflex. Corolla: petals six, ovate, very small, inserted into the throat of the calyx. Stamina: filaments six, awl-shaped, short; antheræ roundish. Pistillum: germ oval; style very short; stigma orbiculate. Pericarpium: capsule superior, cordate, two-celled; partition opposite. Seeds very many, three-sided, very small. In many florets on the same plant the corolla is entirely wanting. In *P. tetrandra* the parts of fructification are less by one-third.—*Essential Character.* Calyx bell-shaped, with a twelve-cleft mouth; petals six, inserted into the calyx, (or none.) capsule two-celled. There are three species.

1. *Peplis portula*, or common water-purslane: flowers apetalous. This is an annual creeping plant. Stems numerous, branched, dichotomous, from half a foot or a span to a foot in length, smooth, angular, jointed, of a reddish colour. Leaves opposite, obovate, orbiculate or spatulate, tapering into the petiole, smooth, quite entire. Flowers very small, solitary, opposite, sessile; corolla and filaments pinky red; petals deciduous, regularly six, but more frequently one, two, or three, and sometimes none; calyx greenish white, smooth, angular-plaited, striated; antheræ dark coloured; stigma white. Capsule small, globular, membranaceous, very thin, knobbed on account of the protuberant seeds, valveless; partition membranaceous, corresponding with the external groove of the capsule; receptacle fleshy, roundish, compressed a little, fastened to the partition on both sides. Seeds about thirty in each cell, obovate acuminate, convex on one side, flat on the other, pale. Native of many parts of Europe, in bogs, marshes, ditches, and especially where water has stagnated in winter and becomes dry in summer. It flowers from July to September; and is represented on the annexed Plate.

2. *Peplis tetrandra*: flowers one-petalled, four-stamened. Calyx bell-shaped, with the border eight-cleft; corolla tubular, with the border four-parted; stamens four; germ growing to the tube of the calyx; stigmas two, capsule inferior, two-celled, crowned. According to Jussieu, the corolla is monopetalous, four-stamened; the germ inferior, the stigma double; the capsule two-celled, two-valved, many-seeded; with a stipule between the leaves: it is therefore more nearly allied to the Rubiacæ, and particularly to *Oldenlandia* or *Gomezia*; but it is distinguished from them by its eight-toothed calyx. In the opinion of Swartz, the corolla, fruit, number, and habit, do not admit of its ranging with *Peplis*. It seems rather to be a *Hedyotis*, and differs little in appearance from *H. pumila*. It is an annual plant, native of the West Indies, in dry shady places at the foot of mountains or trees. Willdenow also says the *P. tetrandra* of Linnæus is a *Hedyotis*, of which indeed it has all the appearance. He adds, in its stead, the following new species.

3. *Peplis Indica*: flowers spiked, bracteated; leaves sessile. Native of the East Indies. Stem ascending, square, smooth, six inches or more in height. Leaves opposite, oblong-obovate, abrupt, entire, veiny, smooth. Flowers sessile, opposite, each accompanied by a lanceolate bract, twice its own length; calyx with only eight teeth; petals wanting; stamens four. See EUPHORBIA.

PEPLOU'D, a town of Hindooftan, in the Candesh country: eighty miles south of Indore, and thirty north-east of Burlampour. Lat. 21. 42. N. lon. 76. 45. E.

PE'PLUS, *f.* A long robe worn by the women in ancient times, reaching down to the feet, without sleeves, and so very fine, that the shape of the body might be seen through it. The Athenians used much ceremony in making the peplus, and dressing the statue of Minerva with it. See the article PANATHENÆA, vol. xviii. p. 313.

PE'PO, *f.* in botany. See CUCURBITA and MOMORDICA.

PEPONG', or PEPUNG. See PEPUNG.

PEP'PER, *f.* [peppon, Sax. *pipor*, Lat. *poivre*, Fr.] An aromatic pungent spice.—We have three kinds of *pepper*; the black, the white, and the long, which are three different fruits produced by three distinct plants. Black *pepper* is a dried fruit of the size of a vetch, and roundish, but rather of a deep brown than a black colour: with this we are supplied from Java, Malabar, and Sumatra; and the plant has the same heat and fiery taste that we find in the *pepper*. White *pepper* is commonly factitious, and prepared from the black by taking off the outer bark; but there is a rarer sort, which is a genuine fruit naturally white: long *pepper* is a fruit gathered while unripe and dried, of an inch or an inch and a half in length, and of the thickness of a large goose-quill. *Hill.*—See the article PIPER.

Scatter o'er the blooms the pungent dust
Of *pepper*, fatal to the frosty tribe. *Thomson's Spring.*

To PEPPER, *v. a.* To sprinkle with pepper, or with the appearance of it:

Note the lining of the royall robe,
Its powder'd ermine, *pepper'd* too with stings,
That, like a nettle, make the wearer rub. *Davies.*

Of praise a mere glutton, he swallow'd what came;
And the puff of a dunce he mistook it for fame;
Till, his relish grown callous almost to disease,
Who *pepper'd* the highest was surest to please. *Goldsmith.*

To beat; to mangle with shot or blows.—I have *peppered* two of them; two I have paid, two rogues in buckram suits. *Shakespeare's Hen. IV.*

Thou art hurt.—I am *pepper'd*;
I was i' the midst of all, and bang'd of all hands;
They made an anvil of my head; it rings yet;
Never so thresh'd: do you call this fame? *Beaum. and Fl.*

PEP'PER (Guinea). See CAPSICUM.
——— (Jamaica). See MYRTUS.

PEP'PER-BA'Y, a bay on the west coast of the island of Java: thirty miles south-fourth-west of Bantam. Lat. 6. 24. S. lon. 105. 40. E.

PEP'PER-BOX, *f.* A box for holding pepper.—I will not take the leacher; he cannot creep into a half-penny purse nor into a *pepper-box*. *Shakespeare.*

PEP'PER-CORN, *f.* A grain of pepper; any thing of inconsiderable value.—Our performances, though dues, are like those *pepper-corns* which freeholders pay their landlord to acknowledge that they hold all from him. *Boyle.*

Folks from mud-wall'd tenement
Bring landlords *pepper-corn* for rent. *Prior.*

PEP'PER-GIN'GERBREAD, *f.* What is now called *spice-gingerbread*; and in the north *pepper-cake*:

Swear me, Kate, like a lady as thou art,
A good mouth-filling oath; and leave in sooth,
And such protest of *pepper-gingerbread*,
To velvet-guards and Sunday citizens. *Shakespeare.*

PEP'PER-GRASS. See PILULARIA.

PEP'PER-WORT. See LEPIDIUM.

PEP'PERBERG, a town of the island of Java, on the south coast: seventy-five miles south of Batavia.

PEP'PER-

PEP'PERELBOROUGH, a township of America, in York-county, and state of Maine, on the north side of Saco-river, near the mouth, which separates it from Biddeford to the south. A bank, by the name of Saco Bank, was established here in 1803. It lies about twelve miles south-west of Portland. It was incorporated in 1772; and contains 1842 inhabitants.

PEP'PERELL, a township of Massachusetts, on the east branch of Nashaway-river, and on the north line of Middlesex county; forty miles north by west of Boston; incorporated in 1753, and containing 1333 inhabitants.

PEP'PERING, *adj.* Hot; fiery; angry.—I resented highly that he [lord Lansdown] should complain of me before he spoke to me; I sent him a *peppering* letter; and would not summon him by a note, as I did the rest; nor ever will have any thing to say to him, till he begs my pardon. *Swift's Journal*, 1711.

PEP'PERMINT, *f.* Mint eminently hot. See MENTHA.

PEPSIQUI'ACH POINT, lies on the northern side of Chaleur-bay, now called Papibiach Point; about three leagues west-north-west of East Nouvelle. It is a barren plain, nearly a league long, where is carried on a very extensive fishery.

PEP'SIS, *f.* [Greek.] The concoction of food; the maturation of humours.

PEP'TIC, *adj.* [Greek.] Helping digestion. See PEPASTIC.

PEPUNG', two small islands of the East-Indian Sea, near the coast of China. Lat. 23. 22. N. lon. 107. E.

PEP'USCH (John Christopher), a very learned musician, was born at Berlin in 1667; and made so great a progress in music at the age of fourteen, that he was sent for to court, where he gave such proofs of his abilities that he was appointed to teach the prince, father of the late king of Prussia. He remained at Berlin till he was about twenty, when he went to Holland, where he first began to publish his compositions. Continuing there about a year, he came to England soon after the Revolution. His first employment in London was playing the tenor in the band at Drury-lane play-house; but, having convinced the managers that he deserved a better place, he was advanced to the harpsichord about 1700. In 1707 he had acquired English sufficient to adapt Motteux's translation of the Italian opera of *Thomyris* to airs of Scarlatti and Bononcini, and to new-set the recitatives. In 1709 and 1710, several of his works were advertised in the first edition of the *Tatlers*, particularly a set of Sonatas for a flute and bass, and his first book of Cantatas. In 1713 he obtained, at the same time as Crofts, the degree of doctor of music at the university of Oxford. And soon after this, upon the establishment of a choral chapel at Cannons, he was employed by the duke of Chandos as maestro di capella; in which capacity he composed anthems and morning and evening services, which are still preserved in the Academy of Ancient Music. In 1715 he composed the masque of *Venus and Adonis*, written by Cibber; and, in 1716, the *Death of Dido*, by Booth; both for Drury-lane. These pieces, though not very successful, were more frequently performed than any of his original dramatic compositions. In 1723 he published an Ode for St. Cecilia's Day, which he had set for the concert in York-buildings. And, about the year 1724, Dr. Berkeley, dean of Londonderry, afterwards bishop of Cloyne, having formed a plan for erecting a college in one of the Bermudas, or Summer Isles, among the several persons of distinguished abilities whom he had engaged to accompany him thither, fixed on Dr. Pepusch. But, having embarked with his associates for the intended settlement, the ship was wrecked, and the undertaking frustrated. Pepusch returned to England after this accident, and married Margarita de l'Epine, who had quitted the stage, where she had acquired a fortune that was estimated at 10,000*l.* These possessions, however, did not incline the doctor to relax in his musical studies or pursuits. He

had always been a diligent collector of ancient music and musical tracts; and he was now enabled to gratify this passion without imprudence. He still continued to compose for the play-house in Lincoln's-Inn-Fields; and had the Squire of Alsatia for his benefit there in 1726, "with singing by Mrs. Chambers, also singing in Italian and English by Mrs. Forfyth, Mrs. Davies, and Mrs. Grimaldi, being the first time of their respective appearances on the stage." Soon after he was very judiciously chosen by Gay, to help him to select the tunes for the *Beggar's Opera*, for which he composed an original overture upon the subject of one of the tunes (*I'm like a skiff*), and furnished the wild, rude, and often vulgar, melodies, with most excellent basses.

After this period he composed but little, applying himself chiefly to the theory of music, and explaining the mysteries of composition to young professors. He had always been extremely anxious for the prosperity of the Academy of Ancient Music, of which he was one of the first founders, and continued very active in its service to the time of his death. As a consequence of his musical erudition and zeal for the advancement of his art, he published, in 1731, a correct edition of a short "Treatise on Harmony," which the seventh earl of Abercorn is supposed to have assisted him in putting into English. This nobleman had so long studied composition under Dr. Pepusch, and so frequently conversed with him on the subject, that he was supposed more able to explain his principles in English than the doctor himself. The first edition of this small tract appeared without the plates or the consent of the author. This work contains many elementary rules for composition that are practical and useful; but it likewise contains many prejudices and exploded doctrines, which to revive would shackle genius, and throw the art back into Gothic times.

In 1737 he was appointed organist of the Charter-house, which afforded him a tranquil retreat well suited to his time of life and love of study; and he was visited and consulted as an oracle, not only by young musical students, to whom he was always kind and communicative, but by every master who modestly supposed he had still something to learn. Here he greatly augmented his library, which consisted of musical curiosities, theoretical and practical, of all kinds. In 1739 he lost a son, his only child, upon whose genius and disposition there was every reason to found the greatest expectations; and in 1740 Mrs. Pepusch died; after which, his time seems to have been chiefly devoted to the study of the genera and systems of the ancient Greek music, concerning which he presented a paper to the Royal Society in 1746, No 481. and was soon after elected a member of that learned body.

Dr. Pepusch died in the year 1752, at the age of eighty-five; and was buried in the chapel of the Charter-house, where a tablet was placed, and inscribed to his memory, by his friends and associates of the Academy of Ancient Music.

As a practical musician, though an excellent harmonist, the doctor was possessed of so little invention, that few of his compositions were ever in general use and favour, except one of his twelve cantatas, "Alexis," and his airs for two flutes or two violins, consisting of simple easy themes or grounds with variations, each part echoing the other in common divisions for the improvement of the hand. But, though only one cantata of the two books he published was ever much noticed, there is considerable harmonical merit in them all; the recitatives are in general good, and the counterpoint perfectly correct and masterly. Among all the publications of Pepusch, the most useful to musical students was, perhaps, his correct edition of Corelli's Sonatas and Concertos in score, published in 1732. He treated all other modern music, in which there was fancy or invention, with sovereign contempt. Nor is it true, as has been asserted, that "he readily acquiesced in Handel's superior merit." Handel despised the pedantry of Pepusch; and Pepusch, in re-

turn, constantly refused to join in the general chorus of Handel's praise.

The sole ambition of Pepusch, during the last years of his life, seems to have been the obtaining the reputation of a profound theorist, perfectly skilled in the music of the ancients; and, attaching himself to the mathematician De Moivre and Geo. Lewis Scot, who helped him to calculate ratios, and to construe the Greek writers on music, he bewildered himself and some of his scholars with the Greek genera, scales, diagrams, geometrical, arithmetical, and harmonical, proportions, surd quantities, apotomes, lemmas, and every thing concerning ancient harmonics that was dark, unintelligible, and foreign to common and useful practice. But, with all his pedantry and ideal admiration of the music of the ancients, he certainly had read more books on the theory of modern music, and examined more curious compositions, than any of the musicians of his time; and, though totally devoid of fancy and invention, he was able to correct the productions of his contemporaries, and to assign reasons for whatever had been done by the greatest masters who preceded him. But, when he is called the most learned musician of his time, it should be said, "in the music of the 16th century." Indeed, he had at last such a partiality for musical mysteries, and a spirit so truly antiquarian, that he allowed no composition to be music but what was old and obscure. Yet, though he fettered the genius of his scholars by antiquated rules, he knew the mechanical laws of harmony so well, that, in glancing his eye over a score, he could by a stroke of his pen smooth the wildest and most incoherent notes into melody, and make them submissive to harmony; instantly seeing the superfluous or deficient notes, and suggesting a bass from which there was no appeal. His industry deserves to be honourably recorded: he told Dr. Burney, that, when he was a young man, he determined never to go to bed at night till he knew something that he did not know in the morning.

His very valuable library of scarce musical authors was dispersed after his death. He bequeathed a considerable part of his best books and manuscripts to Kelner, an old German friend, who played the double-bass in the theatres and concerts of the time; some to Travers, and these and the rest were at last sold, dispersed, and embezzled, in a manner difficult to describe or understand. *Burney's Hist. of Music.*

PEPUZA, in ancient geography, a town of Asia, in Phrygia Pacatiana.

PEPUZIANs, in ecclesiastical history, a sect of ancient heretics, who had their name from a pretence that Jesus Christ appeared to one of their prophetesses in the city of Pepuza in Phrygia, which was their holy city. The name of this prophetess was *Quintilia*; hence they are called *Quintilians* also. In this sect, the women were permitted to perform the sacerdotal and even episcopal functions; grounding their practice on Gal. iii. 28. where St. Paul says there is no distinction of males and females. They attributed extraordinary gifts to Eve for having first eaten of the tree of knowledge; told great things of Mary the sister of Moses, as having been a prophetess, &c. They added, that Philip the deacon had four daughters, who were all prophetesses, and were of their sect. In these assemblies it was usual to see the virgins entering in white robes, personating prophetesses. *Chambers's Cyclopaedia.*

PEPYLYCHNUS, in ancient geography, a river which bounded Macedonia.

PEP'YS'S ISLANDS. See FALKLAND ISLANDS.

PEQUANACK, a town of America, in Morris-county, New Jersey, separated from Bergen-county on the north by Pegunnock-river: contains 3853 inhabitants.

PEQUANNOCK POINT, and RIVER. The *River* is a small stream which runs south through the towns of Huntington and Stratford, in Fairfield-county, Connecticut, and discharges itself into a bay in the sound,

VOL. XIX. No. 1326.

where vessels may anchor. The *Point* forms the western extremity of the bay, near which are some rocks: five miles south-west of Stratford-river.

PEQUEA CREEK, a river of Pennsylvania, which runs into the Susquehanna in lat. 39. 54. N. lon. 76. 22. W.

PEQUESIGEHAU'GEM, or BEAR LAKE, the source of a river of the same name, which is the north-easterly branch of Maggakadawa river; it is of an irregular form, about three miles long, and two wide.

PEQUEST CREEK, a river of New Jersey, which runs into the Delaware in lat. 40. 47. N. lon. 75. 10. W.

PEQUIGNY, a town of France, in the department of the Somme, memorable for an interview and treaty between Edward IV. king of England, and Louis XI. king of France, in the year 1474: one post and a half north of Amiens, and three and three quarters south of Abbeville.

PER, *prep.* [Latin.] By, through. A word much used in composition.

PER SE', *adv.* [Latin.] By himself, herself, or itself abstractedly:

They say he is a very man *per se*,

And stands alone. *Shakespeare's Tr. and Cress.*

PERA, *f.* in botany. See PERULA.

PERA, in ancient geography, a place near Mount Hymettus in Attica, where was a temple of Venus, with a fountain, which procured a happy delivery for the females who drank of it, according to the relation of Suidas.

PERA, one of the suburbs of Constantinople, where ambassadors and Christians usually reside. See CONSTANTINOPLE, vol. v.

PERA, a town of Portugal, in Algarva: eight miles east of Villa Nova de Portimao.

PERA, a seaport, capital of a kingdom on the west coast of Malacca, on a river of the same name: 170 miles north-west of Malacca. Lat. 4. 23. N. lon. 101. 15. E.

PERA, or PU'LO PE'RA, a small island in the Eastern Indian Sea, at the entrance of the Straits of Malacca. Lat. 5. 54. N. lon. 98. 36. E.

PERACTIC, *f.* A mathematical instrument used in surveying.

PERACTION, *f.* The act of finishing. *Cole.*

PERACUTE, *f.* [*peracutus*, Lat.] Very sharp; very violent.—Malign continual *peracute* fevers, after most dangerous attacks, suddenly remit of the ardent heat. *Harvey.*

PERA'DO, *f.* in botany. See ILEX.

PERADVENTURE, *adv.* [*par adventure*, Fr.] Perhaps; may be; by chance.—That wherein they might not be like unto either, was such *peradventure* as had been no whit less unlawful. *Hooker.*—What *peradventure* may appear very full to me, may appear very crude and maimed to a stranger. *Digby.*—Doubt: question. It is sometimes used as a noun, but not gracefully nor properly.—Though men's persons ought not to be hated, yet, without all *peradventure*, their practices justly may. *South.*

PERÆA, in ancient geography, a province of Asia Minor, which commenced on the frontiers of the Doride, towards Mount Phœnix, north-east of the Isle of Rhodes, and terminated at Dædala. The first writer who mentions this province is Polybius. It was for a long time subject to the Rhodiats, and a town called Cryassus was situated in it.—Also, a country on the other side of Jordan, which was one of the divisions of Palestine. According to Josephus, Peræa had for its limits on the east Rabba, or Philadelphia; on the west, the Jordan; on the south, Macherontes; and on the north, Pella.—Also, a small country of Asia, on the banks of the Tigris.—Also, a canton of Greece, in the territory of Corinth, the inhabitants of which were called Paræi.

PERÆQUATORRES, *f.* among the Romans, assessors appointed to regulate the census according to every man's

circumstances, by easing those that were overcharged, and raising the taxation if too low.

PERÆTHUS, in ancient geography, a town of the Peloponnesus, in Arcadia. Pausanias says, that among the ruins of this town there was visible a temple of the god Pan.

PERAFITA, a town of Spain, in Catalonia: ten miles north-north-west of Vique.

To PER'AGRATE, *v. n.* [from the Lat. *per*, through, and *ager*, a field.] To wander through the country; to rove about.

PERAGRA'TION, *f.* The act of passing through any state or space.—A month of *peragrations* is the time of the moon's revolution from any part of the zodiac unto the same again, and this containeth but twenty-seven days and eight hours. *Brown.*

PERAGU', *f.* in botany. See CLERODENDRUM.

PERAGU'A. See CASSINE.

PERALADA, a town of Spain, in Catalonia: twenty-two miles north-north-east of Gerona.

PERALES, a town of Portugal, on the left bank of the Tagus, opposite Abrantes.

PERALTA, a town of Spain, in Navarre, celebrated for its wine: seven miles south-south-west of Olite.

PERALTA (Francisco de), a Jesuit, and *Moderator* of the English college at Seville. He is to be enumerated among the foreigners who have written upon English history, having published "An Account of the State of the Catholick Religion in England, the Persecution of the Catholicks, and the Martyrdom of two Priests and one Layman in that Country," Seville, 1616. He also edits "A Letter from P. Rodrigo de Cabredo, giving an Account of the happy Death of the Lady Donna Louisa de Carvajal in London," Seville, 1614. *Gen. Biog.*

PERALU', *f.* in botany. See FICUS.

PERAM', a small island in the Gulf of Cambay. Lat. 21. 30. N. lon. 72. 3. E.

PERAMA, *f.* in botany. See MATTUSCHKÆA.

To PERAM'BULATE, *v. a.* [from the Lat. *per*, through, and *ambulo*, to walk.] To walk through. To survey, by passing through.—Persons the lord deputy should nominate to view and *perambulate* Irish territories, and thereupon to divide and limit the same. *Davies on Ireland.*—To visit the boundaries of the parish.

PERAMBULATION, *f.* The act of passing through or wandering over.—The duke looked still for the coming back of the Armada, even when they were wandering and making their *perambulation* of the northern seas. *Bacon.*—A travelling survey.—France is a square five hundred and fifty miles traverse, thronging with such multitudes, that the general calcul, made in the last *perambulation*, exceed eighteen millions. *Hovell.*—A district; limit of jurisdiction.—It might in point of conscience be demanded, by what authority a private person can extend a personal correction beyond the persons and bounds of his own *perambulation*? *Holyday.*—Survey of the bounds of the parish annually performed.—*Perambulation* of parishes is to be made by the minister, churchwardens, and parishioners, by going round the same once a-year, in or about Ascension week: and the parishioners may well justify going over any man's land in their *perambulation*, according to usage; and it is said may abate all nuisances in their way. *Jacob.*

PERAM'BULATOR, *f.* A wheel for measuring roads.—The method of doing this is either with an instrument and chain, or else with a *perambulator*, or measuring-wheel. *Alingham on Maps.*

PERAMBULATOR is also an instrument for measuring distances; called also *odometer*, *pedometer*, *way-wiser*, and *surveying-wheel*.

This useful and common instrument is represented on the same Plate with the PENTAGRAPH, at p. 567. This perambulator consists of a wheel A, fig. 3, two feet seven inches and a half in diameter; consequently half a pole, or eight feet three inches, in circumference. On one end

of the axis (drawn separately at fig. 4.) is a nut, three quarters of an inch in diameter, and divided into eight teeth; which, upon moving the wheel round, fall into the eight teeth of another nut *e*, fixed on one end of an iron-rod Q, and thus turn the rod once round in the time the wheel makes one revolution. This rod, lying along a groove in the side of the carriage of the instrument, has at its other end a square hole, into which is fitted the end *b* of a small cylinder P. This cylinder is disposed under the dial-plate of a movement, at the end of the carriage B, in such a manner as to be moveable about its axis: its end *a* (fig. 5.) is cut into a perpetual screw, which falling into the 32 teeth of a wheel perpendicular thereto, upon driving the instrument forward, that wheel makes a revolution each 16th pole. On the axis of this wheel is a pinion with six teeth, which falling into the teeth of another wheel of 60 teeth, carries it round every 160th pole, or half a mile. This last wheel, carrying a hand or index round with it over the divisions of a dial-plate, whose outer limb is divided into 160 parts, corresponding to the 160 poles, points out the number of poles passed over. Again, on the axis of this last wheel is a pinion, containing 20 teeth, which falling into the teeth of a third wheel which hath 40 teeth, drives it once round into 320 poles, or a mile. On the axis of this wheel is a pinion of twelve teeth, which, falling into the teeth of a fourth wheel having 72 teeth, drives it once round in twelve miles. This fourth wheel, carrying another index over the inner limb of the dial-plate, divided into 12 for miles, and each mile subdivided into halves, quarters, and furlongs, serves to register the revolutions of the other hand, and to keep account of the half-miles and miles passed over as far as twelve miles.

The use of this instrument is obvious from its construction. Its proper office is in the surveying of roads and large distances, where a great deal of expedition, and not much accuracy, is required. It is evident, that driving it along and observing the hands, has the same effect as dragging the chain and taking account of the chains and links.

Its advantages are its hardness and expedition; its contrivance is such, that it may be fitted to the wheel of a coach, in which state it performs its office, and measures the road, without any trouble at all.

The following is a description of an instrument invented by Mr. Edgeworth for the same purpose. "This *odometer*," says Mr. Edgeworth, "is more simple than any which I have seen, is less liable to be out of order, and may be easily attached to the axle-tree bed of a post-chaise, gig, or any other carriage. One turn and a half of the screw is formed round the nave of one of the hinder wheels by a slip of iron three quarters of an inch broad and one-eighth of an inch thick; this is wound round the nave, and fastened to it by screws passing through five or six cocks, which are turned up at right angles on the slit of iron. The helix so formed on the nave of the carriage-wheel acts as a worm or screw upon the teeth of the wheel A, fig. 6. upon the arbor of which another screw of brass B is formed, which acts upon the brass wheel C. This wheel C serves also as a dial-plate, and is divided into miles, halves, quarters, and furlongs; the figures indicating the miles are nearly three quarters of an inch long, so as to be quite distinct; they are pointed out by the index D, which is placed as represented in the plate, in such a manner as to be easily seen from the carriage. These two brass wheels are mounted by the irons EE upon a block of wood F, eight inches long, two inches thick, and five inches broad. This block may be screwed upon the axle-tree bed by two strong square-headed wood screws. If the carriage permits, this block should be fixed obliquely on the axle-tree bed, so that the dial-plate may be raised up toward the eye of the person looking out from the carriage. H is a ratchet-wheel attached to the arbor of the wheel A, which, by means of the click I, allows the wheel to be set with a key or handle

fitted to the squared end of the arbor at K. L is a long spring screwed on the block; it presses on the wheel A, to prevent it from flaking by the motion of the carriage. A small triangular spring is put under the middle of the dial-plate wheel for the same purpose. If the wheel of the carriage is exactly five feet three inches in circumference, the brass-toothed wheel which it turns should have 20 teeth, and that which serves as a dial-plate should have 80; it will then count five miles. If the carriage-wheel is either larger or smaller, a mile should be carefully measured on a smooth road, and the number of turns which the carriage-wheel makes in going this mile may easily be counted by tying a piece of fine packthread to one of the spokes, and letting the wheel, as it moves slowly forward, wind up the packthread on its nave. When the wheel has proceeded a half or a quarter of a mile, unwind the string and count the number of turns which it has made. By the addition of another wheel of 81 teeth placed under the dial-plate wheel and moved by the screw C, with a proper hand fitted to it, and proper figures on the dial-plate, this machine would count four hundred miles."

In the Letters and Papers of the Bath Agricultural Society, we find a description of an improved perambulator, called a *pedometer*, by Mr. Lewin Tugwell, of Beverstone. As the account contains some remarks upon the two instruments we have already described, we shall give it entire.

"In the Cyclopædia of Chambers, under the article *Perambulator*, it is said, that the proper application of that machine is, for surveying of roads and large distances, "where great expedition, and not much accuracy, is required." This want of accuracy, as will be obvious enough to every inspector, arises from the too-small dimensions of its measuring-wheel, which, in its application, too readily adapts itself to the casual inequalities of the surface; and hence the desideratum of some contrivance for admitting a larger wheel, to obviate that defect. This, some years since, was attempted by Mr. Edgeworth, whose machine for the purpose seems the most simple that can be conceived; he, however, simplicity being in mechanics a criterion of excellence, (and probably from considering, in addition to the above-mentioned defect in the old machine, its too great complexity,) seems to have gone into the opposite extreme, and, almost through the whole of his machine, to have sacrificed utility to an unnecessary degree of simplicity. Mr. Edgeworth, in conformity to the above-mentioned simplicity of his odometer, found it necessary to attempt nothing more in its operations than the measuring of roads, distances, &c. and, even for this, unless where the stones had previously been broken, and the roads worn smooth, (instances, for any considerable length, rarely to be met with,) I found it, on trial, very inadequate.

"In the specimen I have now sent, nothing has been omitted to render it capable of measuring roads in general, with greater facility, accuracy, and expedition, than can be done by any other mode I have seen or heard of; while it also equally excels in surveying or measuring of lands. By the common mode of measuring these, by Gunter's or any other chain, the progress (comparatively, in respect to that made by the pedometer) is usually slow; and, while it ingrosses the constant attention of two or more persons in company, the result is sometimes erroneous. A person using the pedometer has not only, when at work, no need of an assistant; but, while of himself he measures with greater accuracy and expedition than is done by the chain, if an unemployed companion casually attend him, he is at liberty, for the most part, while the work goes forward, to take a share in conversation on any indifferent subject. The idea of land-measuring by this mode arose from an imposition, which is, perhaps, but too frequently practised. A labourer's task-work being to be measured, no one was at hand to carry the chain (the usual term) but the labourer himself; when

the land was measured, and the money paid, he went to the ale-house, got drunk, and boasted of having outwitted his master, in having shortened the chain, by gathering some of the links in his hand at its fore end.

"This instrument is represented at fig. 7. A, the stock of the pedometer. BBB, twelve spokes; one end of each inserted in the stock; the other fastened, with a screw, to the outward ring, or periphery, of the wheel. C, the periphery, being an iron ring, $16\frac{1}{2}$ feet, or one pole, in circumference, and divided into 25 equal parts, corresponding to the links of his chain for land-measuring, &c. DDD, twelve small plates, denoting the separate spokes, each including two links of the chain above mentioned. The twelfth spoke is divided at its foot for taking in the odd or 25th link. E, an iron axis, being a screw with 320 circumvolutions, separately marked on an engraved index on one of its sides: in its application, it is screwed fast into the stock of the wheel, and, when at work, revolves with it. F, a style or alidade, being an expanding screw-nut, embracing the axis, and screwing along it, as the latter revolves with the wheel; and, as each revolution of the wheel, when rolling on the surface, describes an exact longitudinal pole, (and consequently four of them a chain,) the style, being pendent, and moving to its proper figure, denotes the length of ground passed over, as divided into chains and poles on the index of the axis E, and into links on the periphery C. G, a small adjusting-screw, by turning of which the style may be instantaneously moved back to the beginning of the index, when, in land-measuring, the given line has been ascertained in chains, poles, &c. H, a cross or square, with sights for determining, in land-measuring, the perpendiculars; suspended at its ends on the axis, and occasionally to be detached therefrom, when used, with a touch only of the finger and thumb. It farthermore acts (by the lower end of the style F embracing also its standard) in preventing the said style from being carried round, by any possible accident, with the axis as it revolves, which, before it was used, had sometimes taken place, and greatly embarrassed the account; and, as the 320 divisions, marked poles on the index of the axis, are calculated for describing an exact mile, the style F, having passed over them, will then screw no farther; but, moving round with the axis, takes with it the standard, and, striking it on the wrist of the operator, prevents the possibility of his proceeding farther, till he has drawn his hand from between the said standard and the axis: having received the necessary hint, he turns the screw G, puts back the style F to the bottom of the index, and goes on as before. The standard of the cross, being divided into five lengths, occasionally substitutes the ten-link rod, which is used for measuring off-sets, &c. and is also used for small distances inaccessible to the wheel."

It has been supposed that the ancient Romans were acquainted with an instrument of this kind. The foundation of this opinion is an expression of Julius Capitolinus in his life of the emperor Perrinax. The words are, "*Peralia (vehicula), iter metientia, et horas monstrantia*; Carriages for measuring the length of the road, and marking the time of the journey."

PERA'MES, a town of New Jersey: eight miles north of Hackensack.

PERAMI', a town of the island of Cuba: twenty-five miles south-east of Villa del Principe.

PERAN IN THE SANDS, a village in Cornwall, on the British Channel, north-east of St. Agnes. It has been almost destroyed by the sea-fands forced into it by the north-west wind, so that the inhabitants have been obliged to remove their church.

PERANGUST', *adj.* [from the Lat. *per*, and *angustus*, strait.] Very narrow. *Cole*.

To PERARATE, *v. a.* [from the Lat. *per*, through, and *aro*, to plough.] To plough through. *Cole*.

PERARO'LO, a town of Italy, in the Cadore: two miles south of Cadora.

PERAROO'R,

PERAROO'R, a town of Hindoostan, in the Carnatic: ten miles south of Tiagar.

PERASEMAJO'KI, town of Sweden, in the province of Wafsa: fifty miles east-north-east of Christinestadt.

PERASHACOT'TA, a town of Hindoostan: eighteen miles west-north-west of Coimbatore.

PERAS'TA, a town of Albania, on the Cattaro.

PERAS'TA, a town of European Turkey, in Romania, on the coast of the sea of Marmora: twelve miles north-east of Galipoli.

PER'ASTORFF, a town of Austria: five miles south-fourth-west of Ips.

PER'AVAIL. See PARAVAIL, vol. xviii.

PERAY' (St.), a town of France, in the department of the Ardèche, and chief place of a canton, in the district of Tournon. The place contains 1652, and the canton 7492, inhabitants.

PERBI'GA, a town of Hindoostan, in Bahar: forty-five miles south-fourth-west of Patna.

PERBUTPOUR, a town of Hindoostan, in Allahabad: forty miles north-east of Gazypour.

PER'CA, *f.* [Lat. from *περκη*, Gr. of *περκος*, spotted with black.] The PERCH; a genus of fishes of the order thoracici. Generic characters—Jaws unequal; teeth sharp, incurved; gill-covers scaly, of three laminae, the upper serrate; gill-membrane seven rayed; lateral line arched with the back; scales (in most species) hard and rough; fins mostly spinous; vent nearer the head than the tail.

Of the numerous species of perch, only three were known to the ancient Romans; and, as a proof how greatly natural history is improved in our own times, Artedius knew but seven; Bloch says he has thirty undescribed species, most of them from India; yet he describes but five or six, being the species found in Germany. In order more easily to distinguish the different species, Linnæus divided them into two classes; in one he placed those with two dorsal fins, in the other those with only one, which he subdivided into such as have the tail-fin divided or undivided. Only five species are found in the lakes and on the coasts of Britain; the river-perch, the sea-perch, the baffle, the ruffe, and the black perch.

These fish are remarkably tenacious of life; some of them, particularly the river-perch, have been carried sixty miles among straw, and have survived the journey. Their fins are so prickly, that they are said to defy the attacks of the pike: this, however, is only true with regard to the larger perches, if it can be credited at all; for there is no animal which the pike will more readily devour than a small perch. From the ease with which the river-perch is taken and transported, it has become the most common inhabitant of our fish-ponds, and affords a very wholesome and palatable food. See Gmelin's Linn. 1306. Turton's Linn. 809. Bloch, ii. 56. Shaw's Gen. Zool. iv. 545. and Cope, iv. 248—428. which last author has separated a considerable part of the genus Perca, and Sciæna also, into a new genus *Centropomus*, from the Gr. *κεντρον*, a spine or prickle, and *πωμα*, the operculum, or gill-cover. He has also added several new species, for some of which he has instituted new genera, but which we shall bring, as nearly as possible, into their proper places in this genus, and we shall also some of the new genera and species of Bloch.

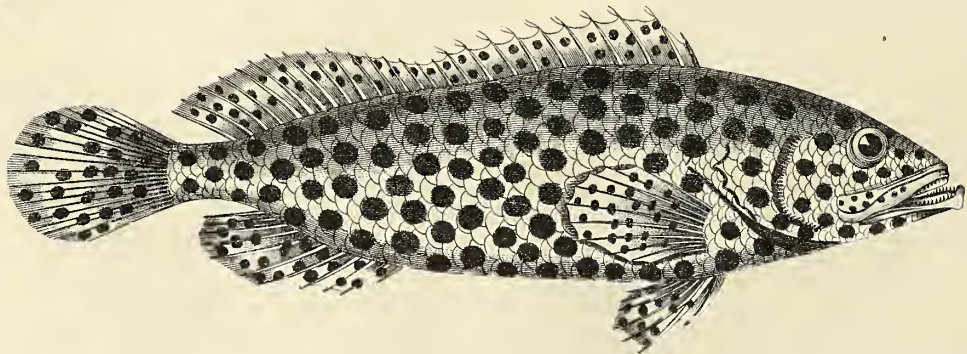
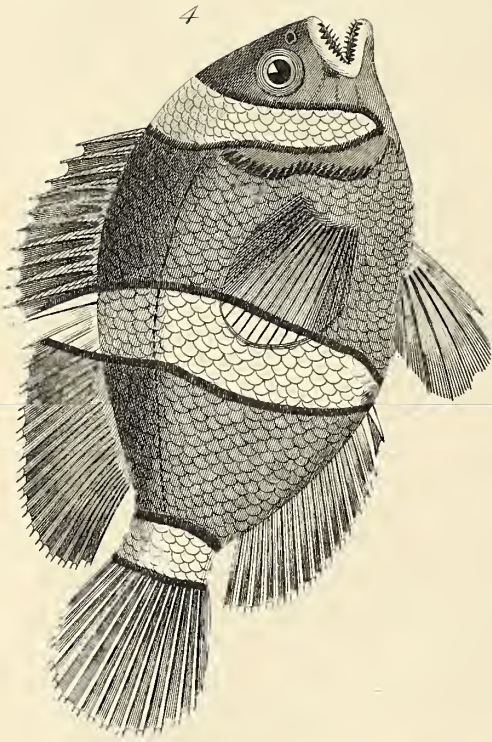
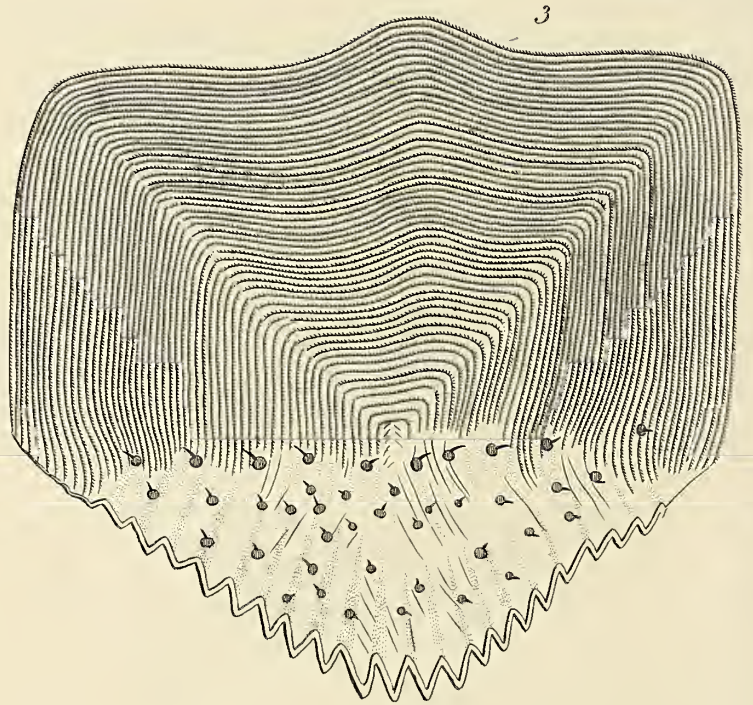
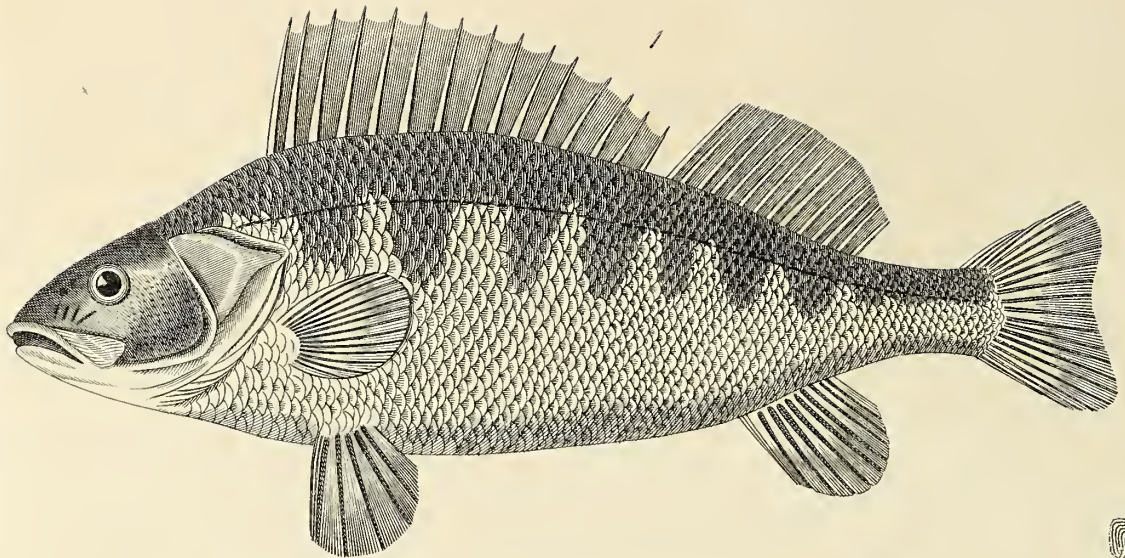
I. Dorsal Fins two, distinct.

1. *Perca fluviatilis*, the common or river perch: eleven rays in the anal fin, the first of them hard, and 16 soft rays in the second dorsal, are the specific character of this fish. There are 7 rays in the membrane of the gills, 14 in each pectoral fin, 5 in each ventral, 25 in the tail, 15 in the first dorsal. This is a very handsome fish, especially when it has lived in pure clear water; it sparkles with gold-yellow and green, intermixed with stripes of black; and the beauty is heightened by the contrast of its beautiful red fins. The aperture of the mouth is wide;

the jaws of nearly equal length, armed with little sharp teeth; there are also small teeth in three different parts of the roof of the mouth, and in four different places in the gullet. The tongue is short and smooth; the nostrils double, and not far from the eyes; in front of the nostrils are two small apertures, the use of which is not known. The eyes are large; the pupil is black; the iris bluish, edged with yellow within. The covers of the gills are furnished with very small scales; the upper plate is jagged, and armed with small prickles towards the belly; the aperture of the gills is wide. The back is round; there are six bands or stripes on each side, of different lengths; and more of them in old fish. The scales are hard, and strongly fixed to the skin. The belly is broad, and white; the anus is nearer to the tail than to the head. The pectoral fins are of a reddish colour; the ventrals, anal, and tail, are of a deep red; and the dorsals violet; the first dorsal has a black spot at the extremity, and the rays are hard; in the other fins the rays are soft, simple in the dorsals, branched in the rest.

As this fish is found in most parts of Europe, the ancients were acquainted with it; and among them it was deemed one of the first delicacies of the table. Rondeletius, and after him Gefner, blames the physicians in his time for ordering the river-perch to their patients in febrile disorders, after a prescription of Galen, who meant the sea-perch, a fish much lighter, as he alleges, and easier of digestion. Experience, however, has shown that this distinction is made without a difference; both the sea and river kind being found equally palatable and salubrious. In the time of Willughby this prejudice against the river-perch had been forgotten. It lives in fresh water, whether stagnant or running. Its length is sometimes two feet; its common weight from three to six pounds; sometimes in England they have been known to weigh nine pounds, but this is very rare; in Lapland and Siberia they attain however a very considerable size; in a church in Lapland is preserved the dried head of a perch which is almost a foot long; so that the fish must have been at least six feet long. According to Falck, this fish is also found in Russia, in Siberia, in the districts of the Kirgises and the Songoriches, in the rivers and fresh-water lakes, and also in such salt-water lakes of which the waters, when most salt, that is in summer, do not contain more than a drachm of salt to 12 oz. of water. In the fresh and salt lakes of the districts of Ifette, Ischmia, and Baraba, they are found in plenty, where they grow only about a hand's breadth long, and are rather bitter to the taste; the fishermen gut them, and dry them well in the air and sun, having first wrapped them in branches of willow. Falck saw many at Baraba and Kamskoi in the open air, lying one over the other, but covered at top to defend them from the rain. They are then sold to certain traders who travel most of the year to buy dried fish, particularly pike and carp, which they sell retail in distant provinces. The perches fished up in the Rhine are much esteemed. There is an ancient proverb in Swisserland, which proves its agreeable and salutary qualities to have been long known in that country; and at Geneva they make a very delicate dish of the small perch they catch in the lake Lemane, which, when prepared after their manner, they call *mille cantons*.

This species spawns in April in shallow places, and in May in those which are deeper. Their mode of excluding their ova is singular: the female seeks for a pointed stick or something of that kind, and suffers it to enter the navel, and squeeze the ovary; after that she recedes, making a kind of wriggling motion till the ova are all excluded, which are inclosed in a common skin in form of a net; this skin, which is a perforated gut, is two inches thick, and two or three ells long, like the spawn of frogs: when examined through a microscope, four or five of these eggs are seen united by a hard skin, and the skin forms an angle where the eggs unite, so that they appear square or hexagonal; in the middle of each egg, is a little



J. Pass sc.

1. The Common River Perch. 2, 3. Scale of the Sea Perch.
 4. The Tontelton. 5. The Japan Perch.

the transparent bubble, round which is the yolk, and round that the white. In a perch of two pounds and three quarters weight, the ovary weighed seven ounces, and contained 258,800 eggs: according to the calculation of Harmer, a perch of only half a pound weight had 281,000 eggs, "an immense number," says Bloch; "but necessary for the preservation of a species continually exposed to the rapacity of so many of the inhabitants of the flood, and of which the eggs are so often lost, dispersed by storms, and devoured by aquatic birds: add to this, the male can never fecundate all these eggs, and many remain fastened together by a viscous matter, and those which lie underneath remain barren." But from later observations we may conclude, that the perch produces a much larger number of eggs still: Citizen Pictet of Geneva wrote to Cedepe, in Floreal, an 6. or May 1798, that he opened a perch caught in the lake of Geneva, which weighed about 650 grammes, or 1 $\frac{1}{2}$ lb. avoirdupoise: and that the ovary made about one-fourth of the whole weight, the number of eggs being 992,000. The perch spawns, like the pike, from the third year; and about that time, if opportunity serve, they leave the lakes to get into streams and rivers.

The perch swims as swiftly as the pike, remaining at a certain depth, which must be observed when this species is fished for with a bait. Like the pike, they devour their own species; and are so bold and heedless, that they sometimes lose their lives in seizing their prey: for the stickleback, when it feels itself caught, writhes about, and works its prickles into the mouth of the perch, which is thus left to die of hunger. Some indeed assert that the perch is as ravenous as the pike, and not so easily checked in pursuit of his prey. "I saw once in Mr. Hawes's subscription-water on the Lea, a perch chase some small fry that had gathered round the ground-bait, until, one small fish, in trying to escape, leaped on the shelving bank of the river out of the water. The perch immediately followed, and pounced his prey on dry land, not deterred by the presence of myself and another person. The perch weighed about two pounds." Sporting Mag. Nov. 1822.—And Walton calls the perch "a fish of prey, that, like pike and trout, carries his teeth in his mouth; he dares venture to kill and destroy several other kinds of fish."

The perch is subject to a peculiar malady under the ice: the body is swelled, and, if fished for at this time in deep lakes, a sort of wedge-shaped bladder comes out at the mouth; but, when taken out of more shallow water, this bladder is found at the navel. Bloch examined several in this condition; he found that this bladder was nothing but the skin of the mouth which came away; so that fishermen are greatly deceived who suppose that the air-bladder thus comes out of the body, for this fish has properly no air-bladder, but instead thereof a thin skin which goes from one side of the ribs to the other.

The flesh of the perch is white, firm, and well-tasted; and, not being fat, furnishes good food for weak stomachs. With its skin a very good glue is prepared, which the Laplanders use in gluing their bows. As this glue serves many good purposes, it may not be amiss to speak of the manner of preparing it. The Laplanders make it as follows: they tear the skin from the largest perch, and dry it; then soften it again in cold water, that the scales may be rubbed off; commonly they take four or five of these skins at once, and put them in a reindeer's bladder, or wrap them in birch-bark, that they may not touch the water; they put the skins into a pot with boiling water, laying a stone on them to sink them to the bottom, and thus keep them boiling for an hour; when soft and slimy, they are drawn out, and plastered over the wood their bows are made of. It is evident, that, with a little change in the process, it would be easy to have this glue in pieces, like ours. Perch, if kept in ponds, should be by themselves, for they will devour the young of any other fish; they may be fed by throwing in fish of small value among them: a pond might

also be stocked by means of the spawn, as has been proved by experiment.

β. Linnæus and Pennant make a variety of the hunch-backed perch; but Bloch is of opinion that the bending of the back-bone is owing to accident, and cannot constitute any distinguishing character. The species however varies in the number of transverse stripes on the body: Johnson saw some with 12, Aldrovandus and Willughby with 9, Sheffer with 8, Cedepe with 7, Pennant with 4, Marigli and Bloch saw some without any: the usual number is 6, as represented on the annexed Engraving, at fig. 1.

2. *Perca Americana*, the American perch: red; 13 rays in the second dorsal fin. There are 9 rays in the first dorsal, $\frac{3}{5}$ (printed by mistake $\frac{3}{7}$ in Gmelin and Turton) in the second, 15 in the pectorals, $\frac{1}{6}$ in the ventrals, $\frac{2}{1}$ in the anal, and 18 in the tail. (The upper small figures denote the spinous rays.)

The name of this species shows its country: it lives in the brackish waters of North America; that is, in the mouths of rivers or lakes communicating with the sea. It resembles the preceding; but the back is flatter, there are no transverse stripes, nor any spot at the extremity of the first dorsal fin. The lower lip, throat, membrane of the gills, and upper edge of the opercula, are of a beautiful red. There is one spine in the second dorsal fin; but in general in this genus, the first dorsal consists of spinous rays, the second wholly of articulated ones.

3. *Perca lucioperca*, the pike-perch, or sander: fourteen rays in the anal fin, and $\frac{2}{3}$ in the second dorsal. There are 7 rays in the membrane of the gills, 15 in the pectoral fin, 7 in the ventral, 22 in the tail, 14 in the first dorsal, and 23 in the second. This fish resembles the pike in its long body and strong teeth, and the perch by its hard scales and blackish rays; hence the name. The head is long, without scales, and ends in a blunt point; the mouth is wide; the upper jaw protrudes a little, and each jaw has forty teeth of different sizes. There are teeth also in the palate and throat. The pupil of the eye is dark brown, the iris brownish red; and it is remarkable that the eye has a cloudy aspect, like a man afflicted with a cataract. The back is round, with spots of dark-blue and reddish colour; the sides are silvery, and the belly white. The pectoral fins are yellowish, the others of a whitish cast; the tail is bifurcated, and the dorsals are spotted with black.

This excellent fish is found in Germany, Russia, and Hungary; and, as it delights in clear deep waters, it is taken mostly in those lakes which have a bottom of sand or clay, and communicate with running streams: those caught at Plantensee in Hungary are sent to Vienna as a rarity, for presents to the nobles of that city. According to Falck, this species is found in all the fresh-water lakes and great rivers of Russia. They grow three or four feet in length; and in the Danube sometimes weigh 20lbs. or more. They are voracious, and commonly rest at the bottom of the water. They thrive best in ponds where there are smelts, which the sander easily makes his prey, because they likewise haunt deep places. The ovary of a sander of three pounds weighed four ounces and a half towards the end of December: the ova were very minute; the 128th part of an ounce contained 618, making in the whole 355,986 eggs. This species seems not very tenacious of life, but will die in warm weather soon after being taken out of the water, and even when put into water-tubs for transportation; so that, when they are to be moved from place to place, they should be kept in constant motion, and a cold season should be chosen: but the best way to breed them in a distant part is to use the fecundated eggs, which must be carefully taken from the branches or stones, and carried in a vessel with a little water. They must be well fed if you want them to thrive: young fry of small value, such as rud, roach, &c. will answer the purpose; but smelts and gudgeons are the best. Though they yield not to the pike in voracity, they will not eat when kept in reservoirs, &c. therefore

if kept long they lose their flavour. The flesh in general is white, well-tasted, tender, and easy of digestion; and when fresh is good food for ailing people; in autumn, and in the spring before spawning, they are fattest. They are exported from Germany and Prussia, fresh, salted, and smoked, into different countries, and are reckoned good food. When sent away fresh, they pierce the tail, and, when it has bled sufficiently, the fish is packed up in snow or grass; if salted or smoked, it is put into tubs, being prepared various ways.

4. *Perca Volgenfis*, the Volga perch: colour gold green; 23 rays in the second dorsal fin. The first dorsal fin 13 rays, 14 in the pectorals, 6 in the ventrals, 15 in the tail. Cedepe regards this as a variety of the preceding; Gmelin considers it an intermediate species between the preceding and the river-perch, or perhaps as a hybrid race produced from both. It was first described by the celebrated Pallas. Inhabits chiefly the Volga and neighbouring rivers. Body with six transverse interrupted black bands, scales large and rough, iris silvery; two large teeth at the tip of the lower jaw, dorsal fins with five bands, the rays strong and rigid.

5. *Perca zingel*, the zingel: the upper jaw protruded like a nose; 19 rays in the second dorsal fin. The pectoral fin has 14 rays, the ventral 6, the anal 13, the tail 14, the first dorsal 16. The head is large, flattened above and below; and, as well as the body, is armed with hard jagged scales which adhere very firmly. The back is round; the mouth is large, and opens downwards; the jaws and roof of the mouth are armed with sharp teeth; the tongue is hard, and loose; the upper jaw much longer than the lower. The nostrils are double, placed in the upper jaw, some way before the eyes; the pupil of the eye is black, encircled with a yellow iris. The aperture of the gills is wide, and the cover is only a single plate. The ground-colour of the fish is yellow, varied with brown stripes which go across, and between them are spots of the same colour. The belly is white. The rays of all the fins are yellow, and branched at the extremities, except those of the first dorsal, which are simple, and pointed; the tail-fin has a crescent-shaped furrow.

This species is natural to the southern parts of Germany; they are found in the different lakes and rivers of Bavaria and Austria, and even in the Danube; also in Russia, in the Volga, the Irtisch, and the rivers which run into them. They are from fourteen to sixteen inches long, and weigh two or three pounds. The flesh is white, firm, and easy of digestion; and is eaten by the gentry. They are fond of clear water, spawning in stony places in April and May. They are voracious, as may be seen by their teeth; the pike only will venture to attack them, on account of the hardness of their scales and the prickles which defend their back: thus it is not surprising that they increase very fast, in spite of their great enemy, man.

6. *Perca asper*, the smaller zingel: the upper jaw protruded; 13 rays in the second dorsal fin; body yellowish, with transverse black stripes. There are 7 rays in the branchiostegæ membrane, 13 in the pectoral fins, 4 in the ventrals, 11 in the anal, 18 in the tail, 8 in the first dorsal. The body is long; the head broad; the mouth, which opens downwards, is small, and crescent-shaped, with teeth scarcely visible: near the aperture of the mouth are the nostrils, which are double; those in front are round, and covered with a skin like the sucker of a pump; but the hinder ones are oblong, and without covers. The pupil of the eye is black, the iris white with a reddish border. One small piece forms the covering of the gills, as in the preceding; this is contrary to the generic character, and therefore the species is removed by Cedepe. The ground-colour of this fish is yellowish, with three or four black stripes running across. The back is round, and black; the belly white, short, and smooth. The fins are of a pale yellow. The body is covered with large, hard, rough, scales; the fish goes tapering off towards the tail, where it is not much bigger

than a quill. The lateral line is not far from the back, with which it keeps a parallel line. The anus is nearer to the head than to the tail-fin, which last is bifurcated. The rays of the fins are branched, except those of the first dorsal, which are single, and sharp-pointed.

This species is found not only in France in the Rhone, and in the lakes and rivers of Bavaria, but also in the Volga and the Jaik. It grows to the length of eight inches, and lives in clear water. The ova are small and whitish. The spawning-time is in March, when they are caught in great quantities; after this they retire to the depths; they are also taken in winter from under the ice. They live on worms and insects: in seeking for these in the clay, they often swallow pieces of the clay, which in some of the rivers they inhabit is mingled with particles of gold, which being found in their stomachs has caused it to be said that in certain countries they fed upon gold. Their flesh is wholesome and well-tasted: and they are brought to the tables of the great. As they are hardy, they may be easily transported into other waters; spring and autumn are the most proper time.

Gesner, Aldrovandus, and Jonston, consider this as only a variety of the preceding species; and, as it agrees with that in many respects, we have given it the name of the smaller zingel. But it differs in the following particulars: 1. The zingel weighs two or three pounds; this species seldom more than an ounce or an ounce and a half. 2. The head of the zingel is sharper, the mouth larger. 3. The tail of the zingel is thicker, shorter, and less round, than in this species. 4. The zingel has fifteen rays in the first dorsal fin and nineteen in the second: this species has only eight in the first and thirteen in the second. 5. The zingel has the end of the tail-fin blunt or rounded at the extremity: this species has it sharp. 6. The zingel is of a lighter colour. 7. The zingel has 48 vertebræ, and 22 ribs on each side; this species 42 vertebræ, and 16 ribs on each side.

7. *Perca labrax*, (*P. punctata*, Gmel.) the bass: scales small; fourteen rays in the second dorsal fin; back dusky tinged with blue, belly white. The membrane of the gills contains 5 rays, the pectoral fin 18, the ventral 6, the anal 14, the tail 20, the first dorsal 9. The body is long; the head tapers off almost to a point: having a wide mouth and broad lip-bones, this species somewhat resembles the salmon, and the Germans have given it that name. The jaws are of equal length, and the teeth short and sharp; the palate and throat are rough like a file. The nostrils are double, separated by a membrane. The eyes are high in the head; they have a black pupil, a red iris, and a nictating membrane. The back is of a brownish colour, sides and belly white; the anal and dorsal fins are reddish, the tail blackish. It is found in the sea of Greece, since the Grecian naturalists describe it; also in England, and in several parts of France, Italy, Sardinia, and Malta. It grows to a large size: Rondeletius says three ells in length, Willughby says about fifteen pounds weight; Duhamel says, that at Noirmoutier in France there are caught some of thirty pounds. This fish is distinguished by an uncommon degree of voracity, and hence was termed *lupus*, a wolf, by Ovid, a name generally adopted by succeeding writers. In the salt-water pools of Italy, it sometimes weighs fifteen pounds; and the flesh is extremely grateful to the taste. In the lakes they are frequently found by the fishermen frozen to death, as they suppose, but more probably suffocated by the exclusion of the air from the surface of the water; a circumstance from which Willughby takes occasion to caution those who keep them in ponds to break the ice frequently during the continuance of frost. This species inhabits indiscriminately lakes, rivers, and the sea; to the former, however, they probably ascend from the sea, for they do not seem to breed in fresh water. They are usually found near the surface of the water, especially at the mouth of a stream emptying itself into the sea. They are delicate eating, and were highly prized by the Romans, especially if caught in the Tiber, and more particularly

ticularly under the bridges of Rome. They are still much esteemed at Venice. Being very greedy, they are easily caught with a bait; and may be taken with nets all the year round, but chiefly in the months of August, September, and October. According to Aristotle, this species spawns in summer and in winter; but the summer spawn is the best; they deposit their ova at the mouths of rivers.

8. *Perca alburnus*, the whiting-perch: dorsal fins unarmed; 3 rays in the membrane of the gills, tail-fin entire. In the first dorsal fin $\frac{1}{8}$ rays, $\frac{1}{4}$ in the second, 22 in the pectorals, $\frac{1}{2}$ in the anal, and 19 in the tail. Observed by Catesby and Dr. Gardner in the sea at Carolina. It is remarkable for having only one short spine in the first dorsal fin, that fin being generally made up of stiff rays. There are five or six excrescences on the lower jaw; the tail is a little forked. Colour of the body light brown, with darker bands; length one foot or more. The gill-coverts are obscurely serrated. Body oblong. In the figure given by Catesby, (ii. 12. f. 2.) the second dorsal, which is described by Bloch to consist of 24 rays, is entirely omitted; and the fish has no appearance of belonging to this genus.

9. *Perca pusilla*, the little perch: body oval, compressed, rough; only an inch and a half long. Six rays in the membrane of the gills, 9 in the first dorsal, 23 in the second, 14 in the pectorals and tail, $\frac{1}{2}$ in the ventrals, and $\frac{3}{4}$ in the anal. Inhabits the Mediterranean sea; first described by Brunnich. The surface of this pretty little fish shines with the splendour of rubies set in silver. The back is raised; irides white: the head is armed with large prickles, snout pointed, lower jaw longest, and very rough beneath. The ventral spine is very strong, and serrate on the anterior edge.

10. *Perca loubina*, the Cayenne perch: jaws rounded in front, and furrowed, the lower much the longest; gill-cover 2-spined; scales rhomboidal, and ciliated; lateral line visible upon the tail-fin. Six rays in the membrane of the gills, 8 in the first dorsal fin, $\frac{1}{4}$ in the second, $\frac{3}{4}$ in the anal, 16 in the pectorals, $\frac{1}{2}$ in the ventrals, and 21 in the tail.

Transmitted from Cayenne to France by Citizen Le Blond; *loubine* is its name in that country. The third piece of each operculum terminates in a long membranous appendage. In the furrowed parts of the jaws there are no teeth, but the other parts and front of the palate are full of very small even teeth. The head, body, and tail, are long, and compressed.

11. *Perca Novæ Britannæ*, the Utopian perch: two spines in the second piece of each operculum; colour reddish, with 14 longitudinal stripes, alternately brown and white, upon each side. Seven rays in the membrane of the gills, 10 in the first dorsal, $\frac{1}{3}$ in the second, $\frac{1}{2}$ in the anal, $\frac{1}{2}$ in the ventrals, 14 in the pectorals, and 20 in the tail. Observed by Commerçon at Port Praslin in July 1768. Length a foot; haunts the coral and madrepora on the shores of New Britain; is good food. Fins yellow and red; a number of raised lines and stripes on the head, like carved-work. The upper lip is moveable; teeth small, like a file, in both jaws; a semicircular indented bone over each eye. The first dorsal fin is edged above with purple, below with red; a purple spot on the anal.

12. *Perca triacantha*, the three-spined perch: three spines in each piece of each operculum; lower jaw longest; scales small, and raised; tail rounded; colour dark, with eight longitudinal white stripes. Six rays in the membrane of the gills, and in the first dorsal fin, 14 in the second, 9 in the anal, 16 in the pectorals, $\frac{1}{2}$ in the ventrals, and 19 in the tail. This and the two following were first described by Ceppe from the Dutch collection brought to Paris during the war, but probably restored at the peace of 1815. Of the present species the upper lip is double; several rows of small sharp teeth in the jaws, tongue, palate, and at the entrance of the gullet.

13. *Perca pentacantha*, the five-spined perch: five spines in the first dorsal fin, two or three to the last piece of each operculum; lower jaw longest; scales very small; tail rounded; lateral line with several sinuities; one white stripe along the back, and four along each side. Seven rays in the membrane of the gills, 14 in the second dorsal, 10 in the anal, 14 in the pectorals, and 15 in the tail. The upper is retractile; teeth very small.

14. *Perca Fourcroy*, the scaly-finned perch: scales on the base of the dorsal, pectoral, and tail, fins; tail spear-shaped; one spine to the second piece of each operculum; scales rounded and toothed. Six rays in the membrane of the gills, 10 in the first dorsal, 23 in the second, $\frac{3}{4}$ in the anal, 17 in the pectorals, $\frac{1}{2}$ in the ventrals, and 17 in the tail. Snout long; upper lip double, and flexible; a longitudinal furrow on the head; eyes large, teeth very small.

15. *Perca lophar*, the lophiar: silvery; ventral fins connected. Seven rays in the first dorsal fin, 27 in the second, 16 in the pectorals, $\frac{1}{2}$ in the ventrals, $\frac{3}{4}$ in the anal, and 17 in the tail. Caught in the Propontis, near Constantinople; size and shape of a herring; back greenish-brown; head with elevated grooves placed longitudinally between the eyes; anterior gill-coverts serrate only at the sides; rays of the first dorsal fin hardly spinous, the other and anal very fleshy at the anterior base; ventrals connected by means of a ridge upon the belly; tail forked, the rays blackish at the tips.

16. *Perca Arabica*, the Arabian perch: silvery, with 16 or 17 longitudinal black lines on each side; a golden spot, black in the middle, on the tail. Six rays in the first dorsal fin, $\frac{1}{4}$ in the second, 14 in the pectorals, $\frac{1}{2}$ in the ventrals, $\frac{3}{4}$ in the anal, and 17 in the tail. Inhabits Arabia, as its name imports. Body oblong lanceolate, truncate, beneath without spots or lines; scales lax, broad, deciduous, denticulate, disposed in about ten rows. Crown flat; iris yellow; between the eyes a ridge, obtuse on the fore part and forked behind; behind the eyes are three elevated bones. Teeth long, subulate, straight, remote; in each jaw on each side three, the middle one larger; and in the middle of the lower jaw are two stronger remote ones; lips nearly equal; palate covered with setaceous teeth; tongue flat, smooth. Anterior gill-coverts slightly serrate at the hinder angle and beneath only. Dorsal fins remote; the first brown, all the rest yellowish-brown; dorsal, ventral, and anal, triangular, pectoral lanced; tail bifid, the segments lanceolate.

17. *Perca skibea*, the skip-jack: three notches in each operculum; lower jaw the longest, tail much forked. There are 7 rays in the membrane of the gills, 7 in the first dorsal fin, 24 in the second, 15 in each pectoral, 6 in each ventral, 26 in the anal which is adipous, and 18 in the tail. Observed by Bosc near the mouths of rivers in Carolina; it is a rare species. It can dart pretty far out of the water. The flesh is well tasted. In each jaw there is a row of flattened teeth, nearly equal, distinct. The second dorsal is longer than the first, almost equal to the anal, which last is so fat that the rays can scarcely be counted. This fish is green on its upper surface, silvery beneath; irides yellow; pectoral fins yellowish, with a black spot at the base. This and three following are from Ceppe: the present species was communicated by M. Bosc to that gentleman, who calls it *Pomatofus*; *poma* in Greek signifies the gill-cover, and *tomus*, an incision; because the opercula are deeply cut in.

18. *Perca edentula*, the toothless perch: no teeth; scales rounded; tail crescent-shaped; opercula not serrated. Seven rays in the membrane of the gills, 10 in the first dorsal, which is of a triangular shape, 32 in the second, 14 in the anal, 13 in the pectorals, 6 in the ventrals, and 16 in the tail. This was also communicated by Bosc, who saw it at Carolina, where it is called *yellow-tail*. From the opercula not being serrated, Ceppe has made it a distinct genus, *Leiofostomus*, which in Greek signifies "smooth or toothless mouth." The fins are all yellow or yellowish,

fish, and dotted with black. The upper surface is silvery brown, the under parts silvery white. The eyes are large; irides yellow; the nostrils double; the end of the snout blunt; head, body, and tail, compressed. Length four inches, height one and a half. It is pleasant food; found in the fresh-water rivers of Carolina, in North America.

19. *Perca fasciatus*, the banded perch: tail straight; colour brown and white, with seven or eight transverse brown stripes or bands; opercula very little serrated.

20. *Perca perculus*, the round-tailed perch: tail rounded; 27 rays in the second dorsal; colour greyish, with eleven or twelve oblique lines upon each side. The brown-grey of the body is shaded with white on the belly. The ventral fins are yellowish; anal and pectorals variegated yellow and brown; the irides are brown above, silver or gold on the rest of the surface.

21. *Perca Nilotica*, the Nile perch: the dorsal fins hardly distinct; tail entire. Eight rays in the first dorsal, $\frac{1}{2}$ in the second, 14 in the pectorals, $\frac{1}{6}$ in the ventrals, $\frac{1}{3}$ in the anal, and 15 in the tail. Inhabits the river Nile and the Caspian Sea.

II. Dorsal Fin single. Tail undivided.

22. *Perca undulata*, the undulated perch: dorsal fins hardly united; body brown, waved; a brown spot at the pectoral fins. Ten rays in the first dorsal fin, $\frac{2}{3}$ in the second as far as they can be distinguished, 18 in the pectorals, $\frac{1}{2}$ in the ventrals, $\frac{1}{2}$ in the anal, and 19 in the tail. Inhabits Virginia and Carolina, where it is called the *croker*: the scales are red; the eyes gold-colour; the gullet is wide, and there are several rows of little teeth in the jaws. Length three feet. Five short teeth in the anterior gill-covert. Tail red, "and entire," says Gmelin; but Catesby describes it otherwise.

23. *Perca ocellata*, the ocellated perch: dorsal fins hardly united; a black ocellate spot encircled with white at the base of the tail. Ten rays in the first part of the dorsal fin, $\frac{1}{2}$ in the second, 16 in the pectorals and tail, 6 in the ventrals, $\frac{1}{8}$ in the anal. Noted at Carolina by Dr. Garden; called there the *teffe*. The first ray of the dorsal and ventral fins very short.

24. *Perca argus*, the argus perch: silvery bluish, with numerous ocellate brown spots. This species, which is added by Turton, though he does not say from what source, grows to about the length of a foot, and is a very beautiful fish. The spots on the body are white in the centre; those on the head, pectoral and ventral fins, smaller, without the white centres.

25. *Perca marina*, the sea-perch: red, with 7 transverse dusky lines on the sides; a black spot on the gill-coverts; dorsal spines 15. In the dorsal fin $\frac{1}{2}$ rays, in the pectorals 19, ventrals $\frac{1}{2}$, anal $\frac{1}{4}$, tail 14. This is caught in the Mediterranean Sea, about Norway, and in other European seas; a foot in length. Head large, deformed; snout long and pointed; teeth small, numerous; strong spines on the head and gill-coverts. Eyes large. It is good food. The dorsal, anal, and tail, fins, are often yellow with darker spots; and sometimes there are red lines on the pectorals. On the annexed Plate, at fig. 2. is shown a scale of the sea-perch of the natural size, and the same magnified at fig. 3. from Adams's Essays on the Microscope.

26. *Perca scandens*, the climbing perch: dorsal fin with $\frac{1}{2}$ rays; scales rough, with a whitish denticulate edge. Twelve rays in each pectoral fin, $\frac{1}{6}$ in the ventrals, $\frac{1}{8}$ in the anal, and 17 in the tail. This species was discovered at Tranquebar in Nov. 1791, by Lieut. Daldorff, and is described in the Linnæan Transactions, vol. iii. p. 62. It has the very singular faculty of climbing up trees by means of the spines on the opercula and the spinous rays of the dorsal and anal fins, aided by the motion of the tail. It was observed in a cleft in the bark of a fan-palm more than six feet above the rivulet; and when disturbed began to mount higher with apparent facility; when taken down it crawled along upon the sand, and lived

more than four hours out of the water. The body is covered with a black slimy mucus, which is very abundant on the opercula; and the natives of Tranquebar think the wounds made by the opercular spines very dangerous, probably on account of the introduction of some drops of that mucus, which they suppose to be poisonous. The upper surface is dusky green, lighter on the sides, pale golden beneath. Length one palm. Mouth toothed each side before the lips; front porous, the scales with an entire edge. Eyes lateral, flat; pupil large, black, iris shining golden. Gill-coverts scaled, spinous, the middle spines longer. Dorsal and anal fins, when folded, hid in a longitudinal cavity; pectorals oblong, obtuse; ventrals somewhat connected, reddish; tail a little rounded; the rays bifid.

27. *Perca nobilis*, the handsome perch: body silvery with eight brown bands. In the dorsal fin $\frac{1}{2}$ rays, pectorals 15, ventrals $\frac{1}{4}$, anal $\frac{1}{2}$, tail 17. Inhabits North America. The spinous rays of the dorsal fins are silvery at the sides; the orifices of the nostrils are at the end of a kind of tube or cylinder.

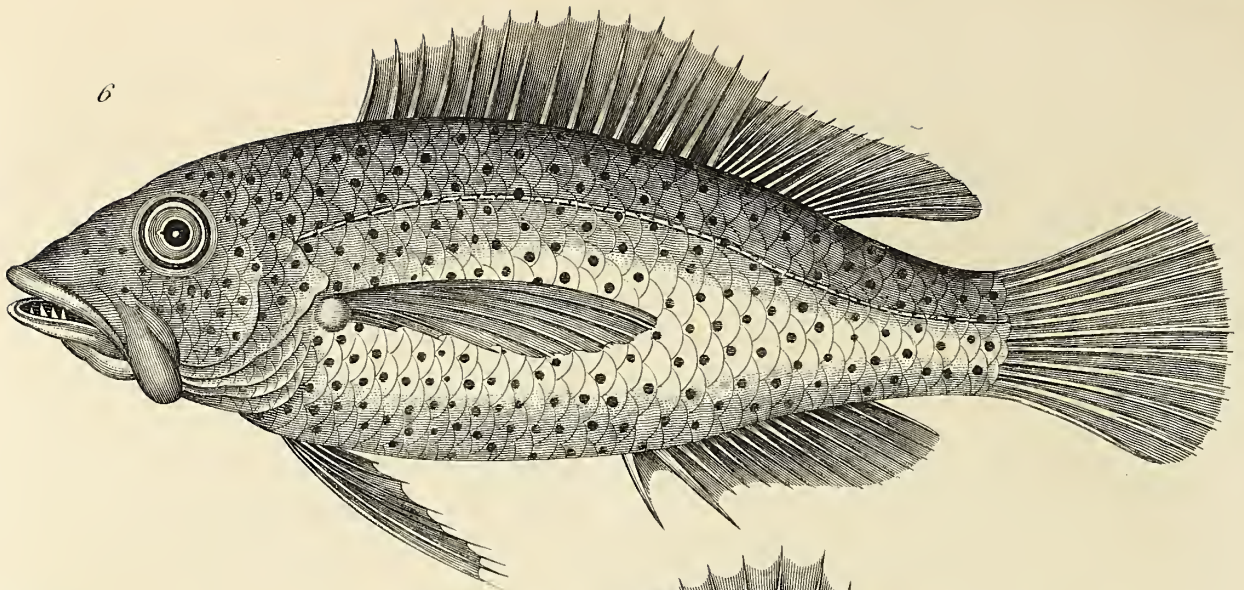
28. *Perca polymna*, the tonleton: brown, with three white bands, the middle one passing through part of the dorsal fin. There are six rays in the membrane of the gills, 16 in the pectoral fins, $\frac{1}{6}$ in the ventrals, $\frac{1}{2}$ in the anal, 14 in the tail, and $\frac{1}{2}$ in the dorsal. The head is small, declining, and covered with little hard serrated scales. The mouth is narrow; the jaws of equal length, and armed with a number of small teeth, the longest in front. The tongue and roof of the mouth are smooth; but there are two bones in the gullet with teeth like a file. The nostrils are single, and round; the pupil of the eye black, the iris blue. On the inner side of the front operculum is a single gill, and there is a furrow in the edge of the hinder one; this last is much more serrated than the former; the aperture of the gills is wide, and the membrane loose. The trunk is broad; the back sharp, the belly round. The lateral line is interrupted near the end of the dorsal, and appears again in the middle of the tail. The ground colour is a light brown, making an agreeable contrast with the three white stripes edged with black. The rays of the ventral and pectoral fins are branched, except the prickly rays; the soft rays of the other fins are bifurcated. It is a small fish; native of the East Indies and South America. See the Plate, fig. 4.

β . There is a variety of this species, which differs in the following particulars only: It is longer; the fins are edged with black, and are partly ash-colour; the middle band has a double border, black and white; and the lateral line is continued without interruption.

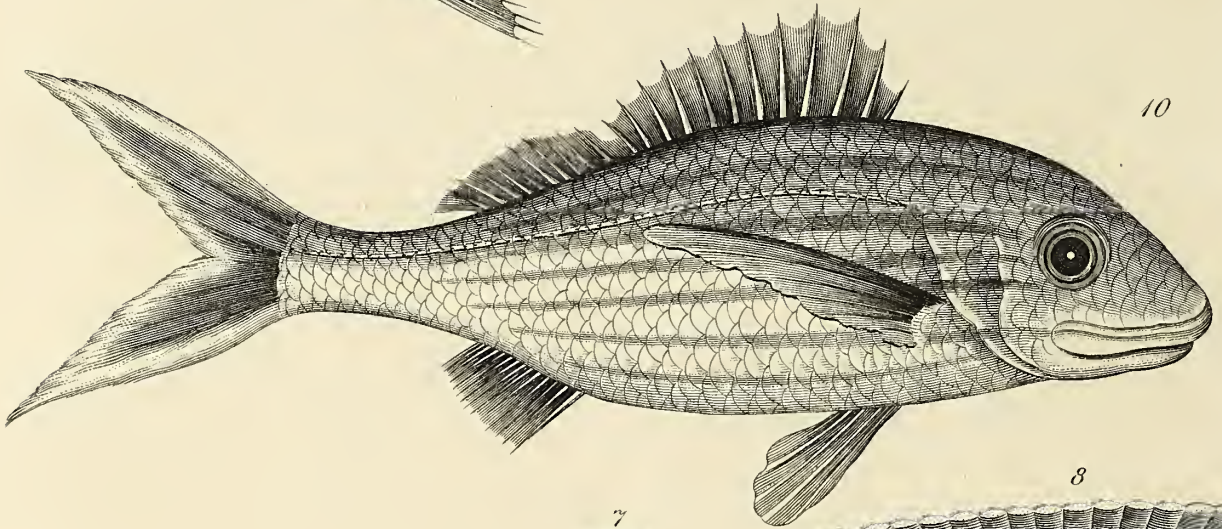
29. *Perca merra*, the Japan perch: body white, with numerous brown spots; lower jaw longest; the posterior gill-covert spiny; tail-fin rounded. The membrane of the gills has five rays, the pectoral fins 15, the ventrals $\frac{1}{2}$, the anal $\frac{1}{4}$, the tail 16, the dorsal $\frac{1}{2}$. The body is long, the head sloping; the jaws are armed with short and pointed teeth, of which the two in front are the longest; the tongue is smooth and at liberty, the palate is exasperated with little teeth. The nostrils are single, and nearly mid-way between the mouth and eyes; the pupil is bluish in a silvery iris. Under the front operculum appears the single gill; three spines distinguish the second. The gills have a wide aperture, and the membrane is for the most part at liberty. The scales are very small, hard, and serrated. The spots are brown, lighter towards the belly, and nearly round. The back is brown, the belly white, the fins transparent, and covered with spots similar to those on the body and head; there is a furrow on the back to receive the dorsal fin. The sea of Japan produces this fish, where it is called by the natives *ikan merra*, which specific name Bloch has preserved in his new genus of *Epinephelus*, or wall-eye. This fish is represented at fig. 5.

30. *Perca cottoides*, the bull-head perch: two dotted lines across all the fins. In the dorsal $\frac{1}{2}$ rays, in the pectorals 14, ventrals $\frac{1}{2}$, anal $\frac{1}{2}$, caudal 12. Brown spots, almost

6



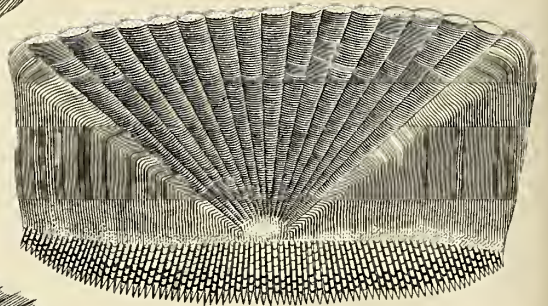
10



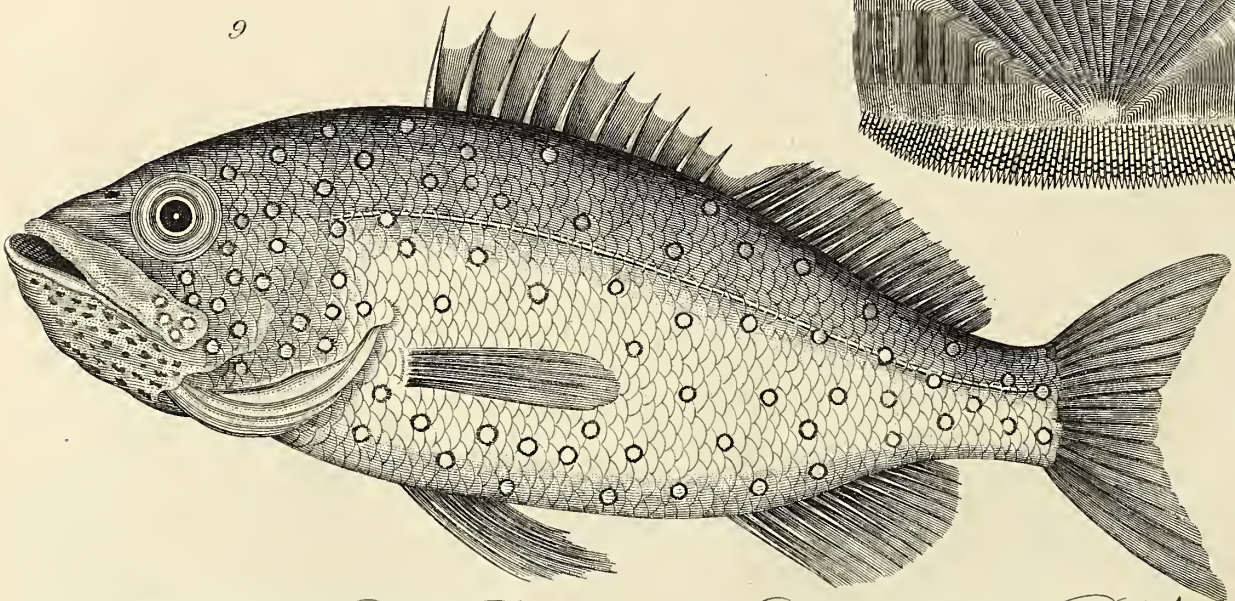
7



8



9



J. Pass sc.

6. The dotted Sea Perch. 7. 8. Scale of the Bloody Perch.
 9. The Red-spotted Sea Perch. 10. The black-tailed Sea Perch.

almost round, all over head, body, and fins. Inhabits India.

31. *Perca Philadelphica*, the Philadelphia perch: a black spot in the middle of the dorsal fin; scales and gill-covers ciliate. In the membrane of the gills $\frac{7}{8}$ rays, in the dorsal fin $\frac{19}{21}$, in the pectorals 16, ventrals $\frac{1}{6}$, anal $\frac{3}{10}$, tail 11. Observed in North America by Dr. Garden. The body is spotted and barred with black; beneath red. Hinder gill-cover sharpened to a point; two first rays of the dorsal fin short.

32. *Perca palpebrofa*, the eyelid perch: a brown spot upon the eyelids; lateral line curved. In the dorsal fin $\frac{13}{13}$ rays, pectorals 15, ventrals $\frac{1}{6}$, anal $\frac{2}{11}$, caudal 17. This is a small American species.

33. *Perca atraria*, the black perch: body black; fins spotted with white. In the dorsal fin $\frac{20}{21}$ rays, 20 in the pectorals, 7 in the ventrals, 26 in the anal, 20 in the tail. Inhabits Carolina, where, according to Dr. Garden; it is called *black fish*. The anterior piece of the gill-cover is denticulate, the posterior ciliate; the lateral line straight; whitish lines, as well as spots, on the dorsal fin.

34. *P. chrysoptera*, the gold-finned perch: the lower fins gold-yellow spotted with brown. In the dorsal fin $\frac{12}{12}$ rays. Observed at Carolina by Catesby and Garden. The head is long, and entirely covered with small scales; mouth small; lower jaw longest; one row of sharp bent teeth in each. Gill-covers very finely toothed; lateral line straight, back rounded and raised.

35. *Perca Mediterranea*, the Mediterranean perch: all the fins tawny except the dorsal; a black spot on the pectorals. In the dorsal fin $\frac{12}{12}$ rays, pectorals and tail 13 each, ventrals $\frac{1}{6}$, caudal $\frac{1}{3}$. Inhabits the Mediterranean. Body green, with dusky lines parallel with the lateral line on the upper part, those on the lower part broader, and fine blue; about a span long; compressed, oblong. Head above naked, with transverse and wavy blue lines; iris golden, with a circle of blue in the middle. Dorsal fin filamentous, the hind part higher.

36. *Perca vittata*, the lined perch: five white and brown transverse lines, nearly equidistant, on the body. In the dorsal fin $\frac{13}{13}$ rays, in the pectorals 18, ventrals $\frac{1}{6}$, anal $\frac{2}{2}$, tail 16. Inhabits America; the second spine of the anal fin very strong.

β . There is a variety, with the lines on the body widened into bands; which inhabits Japan, and is about eight inches long.

37. *Perca punctulata*, the dotted perch: small blue spots on the body. There are 10 rays in the pectoral fins, $\frac{1}{6}$ in the ventral, $\frac{3}{3}$ in the anal, 14 in the tail, and $\frac{2}{2}$ in the dorsal. The head is free from scales as far as the eyes; the mouth large; the jaws armed with very small teeth; the bones of the lips are large. The eyes are oval, almost vertical; the pupil is black and blue, the iris yellow. The opercula are not jagged; the membrane is in great part loose. The scales are large; the lateral line nearly straight, but nearer to the back than to the belly; the anus is nearer the tail than the head. The fins are rounded. This beautiful species is found in both Indies. Plumier observed it at the Antilles, Catesby at Carolina, and Valentine at the Moluccas. It grows as large as the river-perch, and tastes like it. Its fine silvery ground is lost in red towards the back; and the small light-blue spots, or dots, form a pleasing variety. It is represented on Plate II. at fig. 6.

38. *Perca guttata*, the hind, or bloody perch: red spots on a red ground. The pectoral fins have 10 rays, the ventrals $\frac{1}{6}$, the anal $\frac{2}{2}$, the tail 15, the dorsal $\frac{1}{5}$. The head is large, and without scales as far as the opercula. The mouth is wide; the jaws of an equal length, and armed with sharp teeth. The eyes are oval, and near the top of the head; pupil black, iris gold-colour, with red spots. The opercula are large, smooth, and the hinder one ends in a blunt point; the aperture is very large, and strong rays support the membrane, which is in part loose. The belly is convex; the anus nearer the

tail than the head. The lateral line runs nearly straight through the middle of the body. The scales are pretty large. The fins are rounded; their soft rays ramified. The whole body is red; and the spots of a darker red have a fine effect. This species is found in the waters of both Indies: Catesby saw it at the Bahama islands, Plumier at the Antilles. It grows two feet long, haunting shallow places. Its flesh may be eaten. The scales are of a singular appearance under the microscope: at fig. 7, we have given one of the natural size, and, at fig. 8, greatly magnified, from Adams.

39. *Perca bimaculata*, the acara: two round black spots upon each side. The pectoral fins have 14 rays, the ventrals $\frac{1}{6}$, the anal $\frac{2}{2}$, the tail 15, the dorsal $\frac{1}{5}$. The head is sloping, compressed, and without scales as far as the opercula, which are smooth. The pupil of the eye is black, inclosed in a golden iris. The body is broad; the anus is nearer the tail than the head. The lateral line is somewhat bent, and runs nearer the back than the belly; the belly is silver-coloured, the back brown. The spots which form the specific character, lie one of them over the pectoral fin, the other over the tail-fin. The fins are of a brown colour; tail rounded. This species is found in the rivers of Brazil; it does not exceed nine inches in length; and is good eating.

40. *Perca Brasiliensis*, the Brazilian perch: oval black spots upon the lateral line. The pectoral fins contain 12 rays, the ventrals $\frac{1}{6}$, the anal $\frac{2}{2}$, the tail 16, the dorsal 23. The body is long; snout blunt; jaws of equal length, armed with little sharp teeth; nostrils single, and very near the eyes; the pupil of the eye is black, the iris yellow and white. The opercula and body are covered with small, hard, silvery, scales. The belly is long, and the anus is much nearer the tail than the head. The back is round, and bluish; the sides and belly silvery, the fins gold-yellow. The dorsal, pectoral, and tail, fins, have soft rays only. This species is also found in the streams of Brazil, growing to the length of seven or eight inches; it is good food, and easy of digestion.

41. *Perca maculata*, the spotted perch: red spots on a white ground. The pectoral fin has 12 rays, the ventral $\frac{1}{6}$, the anal $\frac{2}{2}$, the tail 12, the dorsal $\frac{1}{4}$. The body is long, laterally compressed, and covered with large silvery scales. The aperture of the mouth is large, and the lower jaw is the longest; they are armed with small teeth; the lip-bones of the upper jaw are very large. The nostrils are double, and very near the eyes; the eyes are almost vertical, having a black pupil with a blue-and-red iris. The opercula are not serrated; the posterior piece ends in a point, but soft. The head is bare of scales, as far as the opercula. The fins are rounded. This species is found in the Atlantic Ocean, near the Antilles.

β . Of this species there is a variety, which has the white ground intermingled with brown or black, and a dot of darker red in the centre of each red spot.

42. *Perca scriba*, the written perch: zigzag marks, like writing, on the head; pectoral and tail fins yellow. In the dorsal fin $\frac{10}{10}$ rays, in the pectorals 13, ventrals $\frac{1}{6}$, anal $\frac{2}{2}$, tail 15. Its country is not known.

43. *Perca gigas*, the giant perch: three feet long; body clouded; 3 spines in the gill-cover, 11 in the dorsal fin, which consists in the whole of $\frac{1}{1}$ rays. In the pectoral fins 16, ventrals $\frac{1}{6}$, anal $\frac{2}{2}$, caudal 15. This has gained the name of *gigas* from its size; it is not however so large as the *fasciata*, or white-banded perch, which we shall describe by and by. The present species inhabits the Mediterranean. Body oval, compressed at the sides, whitish-yellow with dusky-brown waves. Head naked on the fore-part, beneath red; iris pale yellow. Mouth large; teeth in the palate and gullet, the four upper fore-ones larger and conic; lips simple; tongue large, smooth. Lateral line dusky, parallel with the back and gradually curved; vent nearer the tail. Dorsal fin filamentous, the seventh ray shorter; pectorals rounded, red on the outside.

44. *Perca rogaa*, the red-and-black perch: reddish-black; tail equal; fins black; gill membrane dusky red. In the dorsal fin $\frac{9}{8}$ rays, pectorals 18, ventrals $\frac{1}{6}$, anal $\frac{1}{3}$, tail 14. Inhabits Arabia, among coral and madrepora; more than two feet long; crown convex, sloping between the eyes; iris black without, then yellow, and blue within; lips broad, very obtuse, the upper shorter and protractile; teeth numerous, setaceous, with frequently two strong remote fore teeth; before the nostrils a small cirrus. Gill-covers scaly, the posterior three-toothed; shoulders gibbous; lateral line not visible. Fins obtuse; dorsal filamentous; ventrals rounded.

45. *Perca lunaria*, the lunular perch: body rusty-black; pectoral fins black, behind yellow; dorsal and caudal behind pale hyaline; a lunular spot on the tail. Rays of the fins as the preceding, which this species resembles much. Inhabits Arabia. Ventral fins obversely triangular, black, and like the anal and dorsal with a dusky-red stripe towards the outer edge, the latter white at the posterior edge; tail with a hyaline lunule, and behind this reddish.

46. *Perca tauvina*, the small-scaled perch: body oblong-linear, brown with rusty-black dots; tail rounded; scales small, denticulate. In the dorsal fin $\frac{11}{8}$ rays, pectorals and tail 17, ventrals $\frac{1}{6}$, anal $\frac{1}{2}$. Inhabits Arabia, among coral and madrepora; not very good food. Head wedged, sloping from the crown; teeth small, remote, nearly equal, rigid, with a canine tooth in each jaw on each side; gullet and base of the tongue covered with teeth; lips obtuse, the upper shorter, retuse. Anterior gill-covert denticulate behind, posterior three-spined. Lateral line parallel with and nearer the back. Fins rusty-black with darker spots, the hinder edge whitish; pectorals and ventrals nearly equal.

47. *Perca fasciata*, the white-banded perch: red, with broad whitish transverse bands. Seven rays in the membrane of the gills, in the dorsal fin $\frac{11}{8}$, pectorals and tail 17, ventrals $\frac{1}{6}$, anal $\frac{3}{2}$. In Gmelin and Turton, the rays of the pectoral fins are mis-printed 7. This is larger than the *gigas*, being upwards of a yard long. Jaws equal, with two strong conical teeth in each, besides several rows of very small setaceous teeth in the upper, and one in the lower. Inhabits the Red Sea; scales small. Head large; eyes large, approximate, separated by two longitudinal furrows; iris greenish-rufous; lips rounded, obtuse, equal. Anterior gill-covert slightly toothed behind, posterior pointed, spinous. Pectoral fins on short pedicels, nearly connected by a membrane; lateral line nearer the back.

48. *Perca miniata*, the red-and-blue perch: scarlet, covered with blue dots; tail rounded. In the dorsal fin $\frac{7}{4}$ rays, in the pectorals 17, ventrals $\frac{1}{6}$, anal $\frac{3}{2}$, tail 15. This and the following were observed by Forsskael among the coral near the shores of the Arabian sea. It feeds on fish; the scales are small, round, and striate; flesh good. Crown marked with the letter V before the eyes; iris red without, yellow within; nostrils round, simple, with a conic cirrus; lips very broad, obtuse, sprinkled with blue dots; the upper shorter, protractile; teeth setaceous, with two strong canine ones in each jaw. Gill-covers slightly ferrate behind. Fins all rounded behind, the ventrals only pointed, the anterior edge blue.

There are two other varieties. β . Of a brown colour with ocellate blue spots; called *belah* by the Arabs. γ . Bright red, with blue dots; called by the Arabs *nagen*.

49. *Perca sumnaria*, the speckled perch. Of this species there are three varieties.

α . Body ashy brown, covered with white specks; tail rounded. In the dorsal fin $\frac{11}{8}$ rays, 17 in the pectorals, $\frac{1}{6}$ in the ventrals, $\frac{1}{2}$ in the anal, 15 in the tail. Resembles the last. There is an oblong black spot beneath the eyes on each side; iris brown; head and fins brown, dotted with white; tail short, with a black spot above.

β . *P. fusco-guttata*: body bluish, with brown dots; the dorsal fin with only 7 rays, which are all spinous, 18 in the pectorals and tail.

γ . *P. areolata*: whitish-ash, with yellowish-brown dots.

50. *Perca Sinenfis*, the Chinese perch: yellowish; tail oval; lower jaw shortest. In the dorsal fin $\frac{19}{8}$ rays, in the pectorals 18, ventrals $\frac{1}{6}$, anal $\frac{2}{3}$, tail 17. Inhabits China: resembles the river-perch, but is smaller. Mouth oblong, rounded; lateral line curved; tongue, palate, and fins, yellowish; dorsal reaching from the head to the tail, narrower in the middle.

51. *Perca picta*, the painted perch: three longitudinal stripes, somewhat bent; the first directed towards the middle of the dorsal fin, the second towards its extremity, the third towards the tail fin, which is rounded. In the dorsal fin, which is long and low, $\frac{19}{8}$ rays, $\frac{3}{6}$ in the anal, 14 in the pectorals, $\frac{1}{6}$ in the ventrals, 16 in the tail. The prevailing colour in this species is white; the upper part of the dorsal is dotted white and brown; the anal white, but black at the tip; tail white, with a black line on each side. Observed by Thunberg at Japan, in the sea.

III. Dorsal Fin single. Tail divided.

52. *Perca Ascensionis*, the red-and-white perch: above reddish, beneath whitish. Eight rays in the membrane of the gills, $\frac{11}{2}$ in the dorsal fin, 16 in the pectorals, 8 in the ventrals, 14 in the anal, and 26 in the tail. Found in Ascension Isle, in the Atlantic Ocean. Body narrow; scales rounded, and denticulate in front; both pieces of the gill-coverts serrate; the second dorsal spine serrate also.

53. *Perca louti*, the carmine perch: body oblong-lanceolate; colour carmine, with pale violet dots; hind edge of all the fins yellow. In the dorsal fin $\frac{7}{4}$ rays, 17 in the pectorals, $\frac{1}{6}$ in the ventrals, $\frac{3}{2}$ in the anal, 15 in the tail. This species inhabits the Arabian sea, among madrepora and corals, and grows to the length of a yard. The scales are small, round, and striate, but not serrated. Crown naked, convex; iris carmine; nostrils simple, with a conic cirrus before them; lips obtuse, the upper shorter, and protractile; teeth setaceous, flexible, remote, conic, some of them stronger. Gill-covers scaly, the anterior very entire, posterior three spined behind; lateral line nearer the back, and not parallel; pectoral and ventral fins without spots, the former oval, the latter with a falcate angle; tail linear.

54. *Perca venenosa*, the red-spotted sea-perch: pectoral fins tipped with yellow; tail lunate; body dark green, with blood-red spots. In the dorsal fin $\frac{19}{2}$ rays, 12 in the anal, 20 in the tail. Inhabits America; scales small, and smooth. This beautiful species is suspected of being poisonous, which must be in consequence of particular food, as it is not hurtful at all times. See the Plate, fig. 9.

55. *Perca melanura*, the black-tailed perch: tail-fin black, edged with yellow; pectorals white; body above black, below white with yellow stripes. The dorsal fin has $\frac{7}{2}$ rays. It inhabits North America; and was first made known by Catesby. Length, a foot or more. The gullet is wide, and red within; the scales are broad, and of a brown colour edged with red. This is represented at fig. 10.

56. *Perca seditrix*, the jumping perch: tail forked, red on the hind part; belly pale yellow, with grey lines. In the dorsal fin $\frac{7}{8}$ rays, $\frac{3}{9}$ in the anal, 3 large spines in the anterior part of the caudal. Inhabits America. Upper surface mostly brown; some dull yellow spots above the lateral line; on the opercula a mixture of white, red, and yellow. It can "jump" a considerable way out of the water, whence Catesby calls it *saltatrix*; and swims so fast that it can keep up with a ship in full sail; hence the Linnæan name, *seditrix*, or "follower."

57. *Perca unimaculata*, the pacu: a round black spot on each side, at the end of the pectoral fin. The pectoral fins contain 13 rays, the ventrals $\frac{1}{6}$, the anal $\frac{1}{6}$, the tail 15, the dorsal $\frac{11}{8}$. The head is small, and the scales reach no farther than the eyes; the rostrum declines; the opercula are not serrated, and the aperture of the gills is wide.

wide. The pupil of the eye is black, in a silvery iris; there is a yellow spot between the eyes. The jaws are of equal length, with even sharp teeth. The body is broad, of a silvery colour, with longitudinal stripes of yellow. The fins are all yellow.

This species is from Brasil, where it is called *paen*. Its flesh is excellent. Prince Maurice says it grows as large as a carp; but Marcgrave says it does not exceed a foot in length. It is one of the migratory kinds; for it quits the sea in spring for the rivers, and returns in autumn.

58. *Perca juba*, the jub: two brown spots on the fin of the tail. Each pectoral fin has 12 rays, the ventral's $\frac{1}{6}$, the anal $\frac{1}{2}$, the tail 27, the dorsal $\frac{1}{2}$. The head bends down very much; the jaws are of equal length, with sharp teeth; the bones of the lips are strong. A black stripe edged with yellow appears above and below the eye. The opercula are smooth, and the aperture of the gills is wide. The body is broad; the back arched. The fish is silver-coloured, except the back, which is violet inclining to black, with yellow longitudinal stripes. The fins are yellow at the base, but orange-colour upwards. The fish grows twice the size of the last; but it does not ascend the streams; it stops between rocks and at the mouths of rivers, and is caught in great numbers all the year round on the coasts of Brasil. This is very good food: Marcgrave reckons the tongue and the flesh of the cheeks great delicacies; Piso says, that, when roasted, it is one of the best fish in that country.

59. *Perca argentata*, the silver perch: $\frac{1}{2}$ rays in the dorsal fin, $\frac{1}{3}$ in the anal. The membrane of the gills contains 5 rays, the pectoral fins 14, the ventrals $\frac{1}{6}$, the tail 18. The head is small, bare to the opercula, and ends blunt; the mouth, teeth, and jaws, are small likewise. The opercula are not serrated; the nostrils are single, and near the eyes; the pupil is black, the iris yellow and white. The body is somewhat long; the tail is crescent-shaped. The colour of the fish is silvery; the fins grey; but the pectorals, ventrals, and anal, are reddish at their base; the back is dark. This species is from Japan.

60. *Perca Japonica*, the Japanese perch: ten spines in the dorsal fin and two in the anal. There are 5 rays in the membrane of the gills, 14 in the pectoral fins, 6 in the ventral, 8 in the anal, 16 in the tail, 20 in the dorsal. The head is small, without scales as far as the eyes; the jaws are of equal length, with teeth like a file. The pupil of the eye is black, surrounded with a golden iris. There are a number of thin yellow stripes along the body. The ground-colour of the fish is white; the back brownish; the fins incline to grey, with soft four-branched rays, except those which form the specific character. This species is found at Nippon, a large island in Japan.

61. *Perca stigma*, the branded perch: dorsal fins filamentous; gill-covers branded, as if marked with a hot iron. In the dorsal fin $\frac{1}{2}$ rays, 13 in the pectorals, $\frac{1}{6}$ in the ventrals, $\frac{2}{9}$ in the anal, 17 in the tail. Inhabits India.

62. *Perca diagramma*, the warna: brown longitudinal stripes on a white ground form the specific character. There are 5 rays in the membrane of the gills, 16 in the pectoral fins, $\frac{1}{6}$ in the ventral, $\frac{2}{11}$ in the anal, 19 in the tail, and $\frac{2}{8}$ in the dorsal, but Linnæus makes 11 spines in the dorsal a part of the specific character. The head is sloping, compressed, and covered with small scales; the nostrils are double, nearer the eyes than the snout. The eyes are large, with a glistening membrane; the pupil is black, the iris gold-yellow. The anterior operculum is only serrated in front, and in its inner surface bears a single gill; the scales of this operculum are less than that of the other; the aperture of the gills is large, and half of the membrane is loose. The trunk is compressed; the belly long; the scales are very small, hard, serrated, prominent on the back, and forming a furrow to receive the dorsal fin. The general colour of this fish is white; but the stripes and spots on the pectoral, ventral, and anal, fins, are brown; the dorsal and tail fins partake of both co-

lours. This species haunts the East-Indian seas. Its flesh is fat and good. It grows a foot long, and as thick as a cod. It will attack fish larger than itself; hence the Indian name *ikan warna*, *warna roepanja*, "the fool-hardy fish." Seba calls it *Perca maxilla superiore longiore*, though the jaws really are of equal length.

63. *Perca striata*, the striated perch: body striate. In the dorsal fin $\frac{1}{2}$ rays, 15 in the pectorals, $\frac{1}{6}$ in the ventrals, $\frac{1}{11}$ in the anal, 17 in the tail. Inhabits North America; differs from *P. melanura* chiefly in not having the tail black. Gill-covers subferrate; second ray of the anal fin very strong.

64. *Perca lineata*, the five-lined perch: five alternate white and brown lines on the body; dorsal fin filamentous $\frac{1}{2}$ rays; pectorals 15, ventrals $\frac{1}{6}$, anal $\frac{1}{11}$, tail 16. Country not known.

65. *Perca cernua*, the ruffe: $\frac{1}{2}$ spines in the dorsal fin, and several indentions in the head. There are 7 rays in the membrane of the gills, 14 in the pectoral fins, 6 in the ventrals, $\frac{2}{8}$ in the anal, 17 in the tail. The body is long, and slimy; the head is large, flattened above and below; the neck and back are of a blackish colour. The eyes are large, pupil blue, iris brown, with a yellow spot. The jaws are of equal length, and are armed, as well as the palate and gullet, with small and very sharp teeth. The sides are yellow, inclining to green and brown; yet there are some all over of a gold-yellow, and hence Tragus has called it *gilt-fish*. The sides, and the pectoral, dorsal, and tail, fins, are marked with little black spots. The belly is wide; the anus is nearer the head than the tail. The breast is white; the fins yellow; the tail is bifurcated.

This species is indigenous to the northern countries of Europe, where it lies in deep rivers and lakes with a sandy or marly bottom, and whose waters are clear. They are very plentiful in Prussia; and, according to Klein, in fishing one day under the ice at Frisch-hoff, they took as many ruffes and small salmon as filled 780 barrels; but they are remarkably gregarious, going commonly in shoals. It is a small species, seldom exceeding six or eight inches in length, but in the lakes near Prenzlau they are said to grow to a great size. According to Falck, the species is also an inhabitant of all the fresh-water lakes and large rivers of Russia and Siberia. They are reckoned among the rapacious kinds, living on worms, insects, and the young of other fish. Their enemies are the pike, the perch, the eel, and the aquatic fowl. They spawn in March and April, laying their eggs in deep places, on sand-hills, or other hard bodies. The eggs are small, of a yellowish-white colour: in an ovary weighing but three drachms, 75,600 eggs have been counted. They multiply fast, but are slow in their growth. In spring they leave the great lakes for the rivers, and return in autumn. They are caught in great numbers under the ice. Their flesh is tender, well-tasted, and easy of digestion; and is therefore recommended to valetudinarians. The lakes of Golis and Wandelitz are famous for producing the best of this species. As they afford agreeable and wholesome food, and are too small to do much mischief among other fish, they are well worth being bred in lakes and ponds. The best seasons to catch them for this purpose are spring and autumn; but they should be taken out of the shallowest waters they may be found in, as, when fished up from great depths, they fatigue and spend themselves in the nets, and die soon after they are out of the water: yet in general they are hardy, and may be transported alive a long way in the winter; for though, as we observed of the river-perch, they appear to be dead, they will recover on being put into cold water. And indeed this fish (or the next species) may be preserved in glass jars with fresh water, and be made very tame; it must be fed; for it cannot subsist on the animalcula of river-water, as small dace can. No fish shows the circulation of the blood in a finer manner than ruffes, whose fins are exceedingly transparent. Besides,

sides, it is a creature vastly tenacious of life, and will live twenty or thirty minutes out of water, without receiving much damage. *Phil. Transf.* N^o 478.—This little fish is shown at Plate III. fig. 11.

66. *Perca acerina*, the great ruffe: $\frac{17}{3}$ rays in the dorsal fin; in the pectorals 25, ventrals $\frac{1}{6}$, anal $\frac{1}{6}$, tail 17; but the specific character is not certain, for Cope and some others give $\frac{17}{2}$ rays to the dorsal fin. In figure, colour, and habits, this resembles the ruffe; but the head is longer, and has several indentions; jaws equal. Found in the Euxine, or Black Sea, and during summer in the great rivers which run into it.

67. *Perca nigra*, the Cornish perch, or black-fish: body black, narrow, with small thin scales. This inhabits Cornwall; it is a very indistinct species; length 15 inches. The teeth and scales are small; dents in the head; jaws equal; nostrils large, double.

68. *Perca harpes*, the sickle-finned perch: very long and strong jagged teeth in the front and at the articulation of both jaws, with small compressed triangular teeth in the upper jaw between the large ones in the front and those in the corners; dorsal and anal fins very large, and sickle-shaped; the anal growing round a large fleshy triangular scaly process; caudal convex in the middle, and extended on each side into a very long sickle; a compressed triangular barble on each side near the joining of the lips. Eight rays in the membrane of the gills, $\frac{10}{8}$ in the dorsal fin, 10 in each pectoral, 6 in each ventral, $\frac{3}{1}$ in the anal, and 15 in the tail. This fish, which is represented in the paintings on vellum (copied from Plumier's MSS.) in the National Museum at Paris, is introduced by Cope as a new genus, *Harpe*, which signifies a sickle, from the shape of the fins. It is a beautiful species; its broad shining scales reflect the brightest tints of gold and sapphire-blue. The gold colour prevails on the lips, the irides, the sides, the under part of the body and tail, top of the dorsal fin, and upon the forks or sickles of that fin, the ventrals, anal, and tail; the rest of the surface is azure varied and enlivened by the golden tints. Nostrils single; head and two-thirds of the opercula naked, but there are several rows of scales on the base of the dorsal fin; the tail is widest where it joins the fin.

69. *Perca schræfer*, the bald-head: black stripes along the body; no scales on the head. The membrane of the gills has 6 rays, the pectoral fins 14, the ventrals $\frac{1}{2}$, the anal $\frac{2}{3}$, the tail 15, the dorsal $\frac{13}{8}$. The body is long; the head smooth, and of an oblong shape; there is a dent in the upper part, and it is sprinkled with black dots. The jaws are armed with file-shaped teeth; the palate is rough also, but the tongue is smooth. The lips are fleshy; the nostrils are double, and near the eyes: these have a nictating membrane, blue pupil, and yellow iris. The anterior operculum is serrated, the divisions standing at a distance from each other; and underneath lies the single gill. The scales on the breast are very small and smooth, covering the base of the pectoral fins; the scales on the body are larger, hard, and serrated, forming a furrow on the back to receive the dorsal fin. The black stripes are usually three in number, running from head to tail, and appear on the skin when the scales are removed. The anus is nearer the tail than the head, though at some distance from the anal fin. The back and sides are yellowish; the belly silvery; the fins bluish, with black spots on the front part of the dorsal. This species is found in the Danube and the rivers which run into it; it is probably by mistake that Bonaterre places it in the *jeas* of the fourth instead of the rivers, for it has never been described or considered as a sea-fish. It grows about ten inches long; the flesh is white, firm, wholesome, and well-tasted. It feeds on young fry and aquatic insects, which are often found in its stomach. It spawns in March and April; it is a hardy fish, seeks clear streams, and is sometimes carried by inundations into the lakes, where it thrives equally well. The ovary is single, but

the seed-vessels are double; the air-bladder is long, and fastened on each side to the ribs. The ribs are eight on each side; the vertebræ 39 in number. The ovary of a single fish contains about 120,000 yellow eggs of the size of a grain of millet.

70. *Perca argentea*, the white perch: shining white, with a black spot on the spinous part of the dorsal fin; nostrils tubular. In the dorsal fin $\frac{17}{2}$ rays, pectorals 12, ventrals $\frac{1}{6}$, anal $\frac{1}{11}$, caudal 17. Inhabits America; anterior part of the back carinated.

71. *Perca cabrilla*, the red-striped perch: four longitudinal blood-red stripes on the body. In the dorsal fin $\frac{19}{4}$ rays, 16 in the pectorals, $\frac{1}{2}$ in the ventrals, $\frac{1}{6}$ in the anal, 17 in the tail. Inhabits the Mediterranean. Sharp teeth, smaller than the rest, in the middle of the jaws; sides of the head red; a filament sometimes behind each dorsal fin.

β . It varies with yellow and violet spots; 14 rays in the pectoral fins, and 16 in the anal.

72. *Perca radula*, the scraper-perch: scales crenulate; white dots disposed in lines on the body. In the membrane of the gills 7 rays, dorsal fin $\frac{13}{5}$, in the pectorals 12, $\frac{1}{6}$ in the ventrals, $\frac{1}{3}$ in the anal, and 17 in the tail. Inhabits India; the dorsal fin is very long; no spots on the body.

73. *Perca formosa*, the squirrel-fish: alternate yellow and blue longitudinal stripes on the head. There are 5 rays in the membrane of the gills, 16 in the pectoral fins, $\frac{1}{2}$ in the ventrals, $\frac{1}{2}$ in the anal, 17 in the tail, and $\frac{13}{5}$ in the dorsal. The head slopes but little, and is all over scales; the mouth is large, the tongue broad, loose, and slippery; there is a hairy membrane on the palate. The jaws are of equal length, with one row of sharp teeth, which are crooked or bent; those in the upper jaw somewhat largest. The nostrils are double, and near the eyes. The front operculum is somewhat serrated, the hinder one smooth; the aperture of the gills is large, the membrane almost concealed. The body is broad; the back round; the ventral cavity is long, and the anus is nearer the tail than the head. The scales are blue edged with yellow, hard and serrated. The fins are yellow-tawny, spines of the dorsal blue; the anal, being covered with scales like the *Chætodons*, is stiff; the dorsal and tail fins are partly covered with scales; tail lunate. This species is found in the East Indies and in the Atlantic Ocean; Catesby found it in the Bahama Isles, Dr. Isert in the Isle of St. Croix, and Renard at the Moluccas. This is a large species; and is represented on the same Plate at fig. 12.

74. *Perca facer*, the rose-coloured perch: body rose-coloured; second ray of the dorsal fin very long. This is added by Dr. Turton from the Naturalist's Miscellany, 371. It inhabits the Mediterranean, and is about a foot long; the hinder gill-cover ends in a spine; tail lunate.

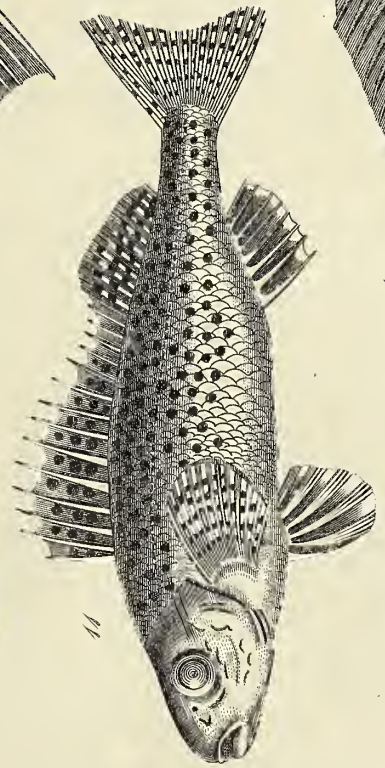
75. *Perca lunulata*, the reddish perch: colour reddish; a black lunular spot at the base of the tail-fin. In the dorsal fin $\frac{19}{4}$ rays, in the pectorals 16, ventrals 7, anal $\frac{1}{2}$, caudal 17. This and the two following are described by Mungo Park in the *Linn. Transf.* iii. 35. It inhabits Sumatra. Crown convex, naked; jaws equal; teeth conic, a little curved, the caning ones in the upper jaw stronger; ventral fins golden, the rest reddish. This delicate species is delineated at fig. 13.

76. *Perca aurata*, the yellow-striped perch: colour whitish, with a longitudinal yellow stripe. In the dorsal fin $\frac{19}{5}$ rays, pectorals 18, ventrals 6, anal $\frac{1}{6}$, caudal 18. This also inhabits Sumatra. The eyes are large, iris yellow; under the eye a single reflected spine. Anterior gill-covers toothed behind, the posterior nearly entire; lateral line nearer the back, a little curved on the hind-part; pectoral fins pale yellow; tail gold-yellow, the rest whitish-brown.

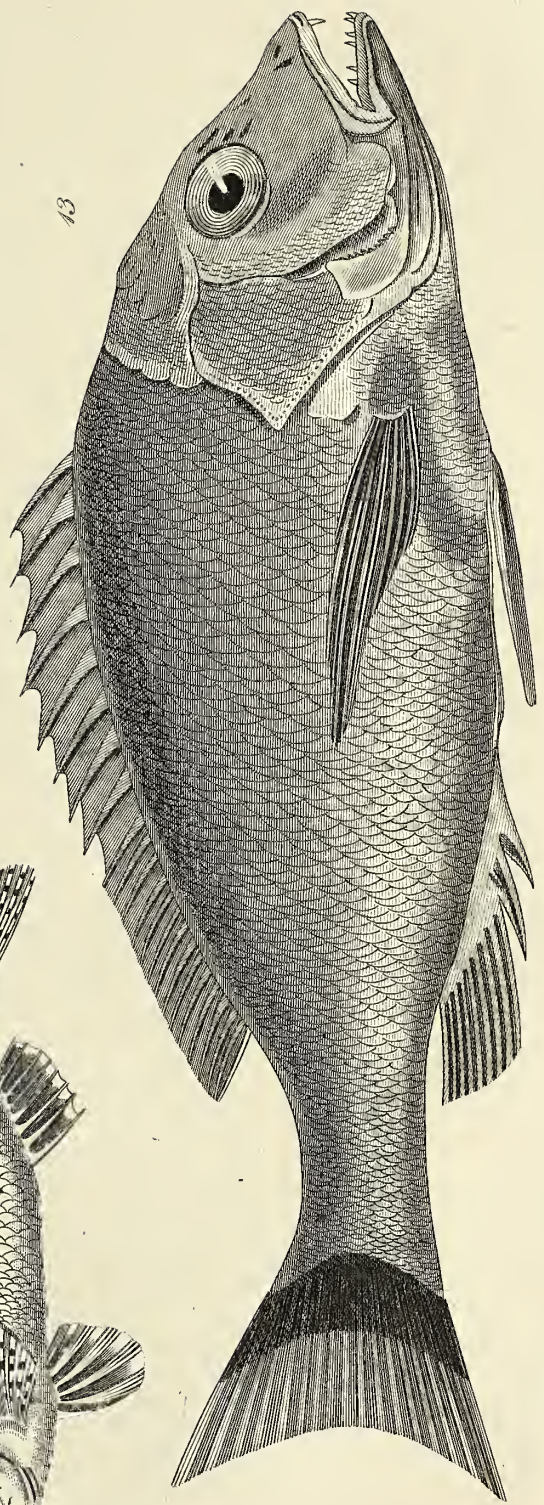
77. *Perca Sumatrensis*, the Sumatra perch: body dark silvery; fins longitudinally striate. In the dorsal fin $\frac{17}{2}$ rays, pectorals 14, ventrals 6, anal $\frac{1}{11}$, tail 18. Inhabits in shoals



12



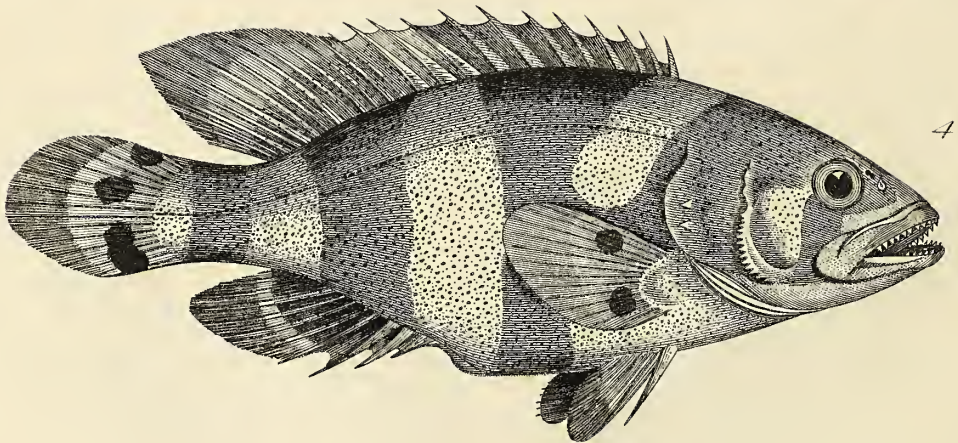
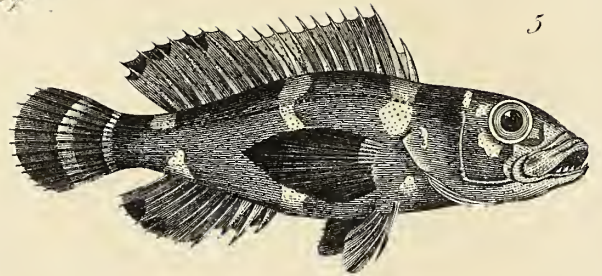
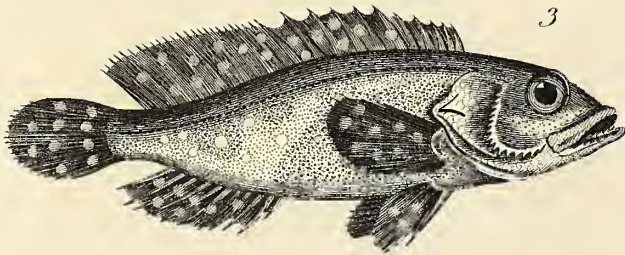
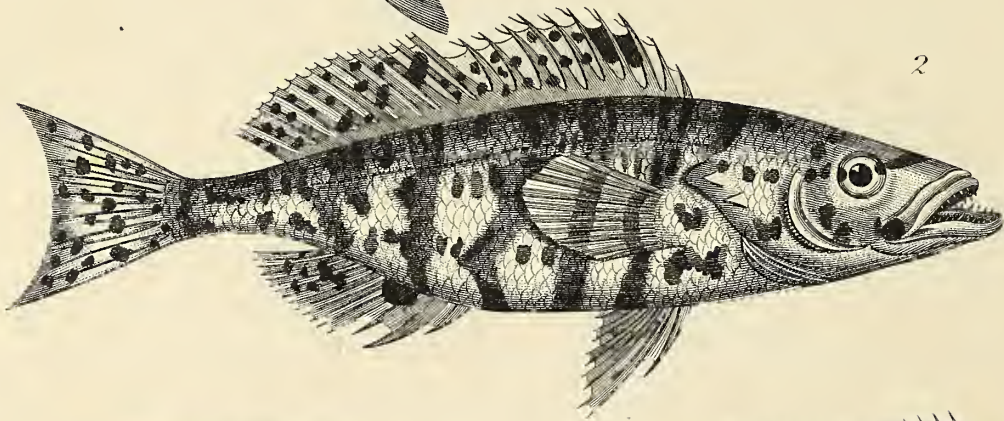
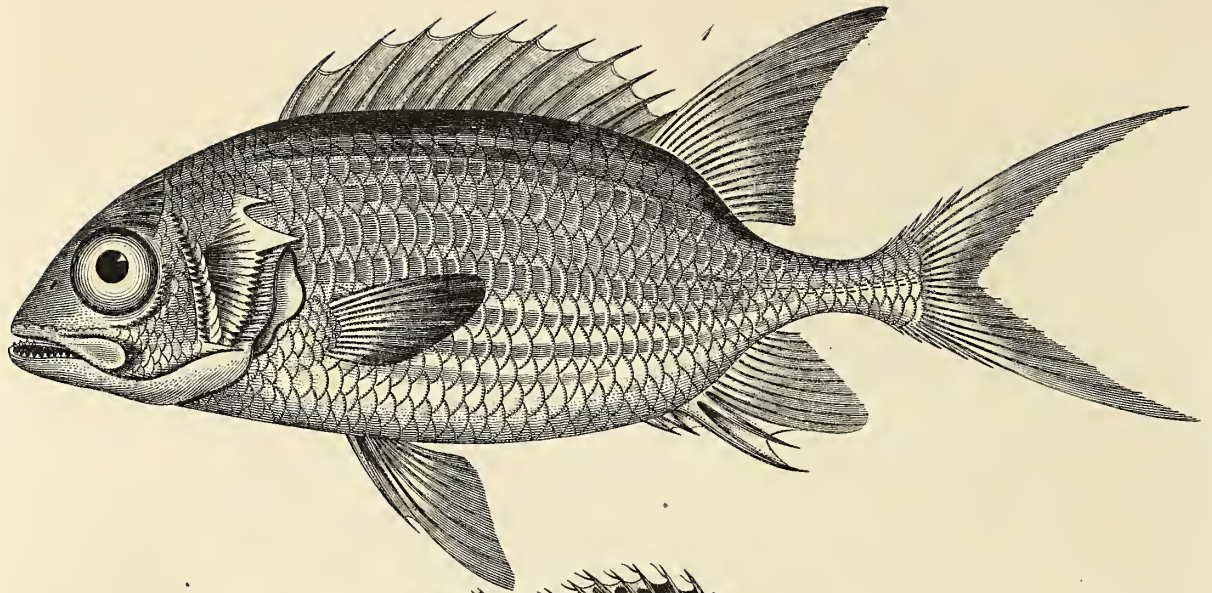
14



13

11. The Huffer. 12. The Squirrel Fish. 13. Reddish Perch.

Engraved for the Encyclopædia Londinensis. 1823.



Five species of Holocentrus.

froals the coasts of Sumatra; three inches long; scales small, denticulate, dotted with brown. Head small, wedged, the nose and front brown; iris brown-silvery, mouth small; the lower jaw a little longer. Lateral line parallel with the back, a little bent down at the end of the dorsal fin. Pectoral and ventral fins yellow, the rest brown, streaked with yellow.

78. *Perca trutta*, the trout-perch: gill-cover in four pieces, ending in a blunt process; nostrils double; colour blackish brown. Six rays in the membrane of the gills, $\frac{2}{3}$ in the dorsal, 13 in the anal and pectorals, 6 in the ventrals, 18 in the tail. This and the following were communicated to Cope by Bosc; they both inhabit Carolina. The trout-perch has a small-elevation on the snout; the mouth opens very wide; lower jaw the longest, both armed with a great number of very small teeth; the tongue is fleshy; two rows of small teeth on a triangular plate in the roof of the mouth; laminae similarly armed above and below the entrance of the gullet. The eye is large, with a yellow iris; the sides of the head covered with small scales. The lateral line runs parallel with the back; and there is a furrow to receive the spines of the dorsal fin; the ventrals are united by a membrane. The belly is white. This species is plentiful in all the rivers of Carolina, where it is called *trout*. Length near two feet; flesh firm and well-tasted.

79. *Perca iridea*, the iris-perch: gill-cover in four pieces, terminating in a blunt process; tail rather lunate; a large oval black spot edged with white at the extremity of the dorsal fin, and a little black spot at the hinder angle of the operculum. In the dorsal fin $\frac{3}{4}$ rays, $\frac{2}{3}$ in the anal, 9 in the pectorals, $\frac{1}{2}$ in the ventrals, and 24 in the tail. A little groove on the head before the eyes; the teeth are very small; the ventral fins united, as in the preceding. Less than six inches long; colour brown grey, spotted and dotted with darker brown; a delicate pale yellow line across most of the scales; two sloping lines, and several small black spots, on the dorsal fin. This species is also very numerous in the fresh waters of Carolina, and are particularly fought after in the spring.

80. *Perca trifurca*, the trident perch: tail-fin three-lobed; seven blue bands across the body. In the dorsal fin $\frac{1}{2}$ rays, pectorals 16, ventrals $\frac{1}{2}$, anal $\frac{3}{4}$, tail 20. Observed at Carolina by Dr. Garden. It is prettily variegated, especially the head and the ventral fins; gullet yellow; gill-covers very finely toothed. The third and fourth spinous rays of the dorsal fin with a filament as long as the spine itself.

81. *Perca trachichthys*, the New-Holland perch: abdomen cataphracted with large carinate scales; mouth wide, toothless, descending. Eight rays (the four lowermost rough on the edges) in the membrane of the gills, 14 in the dorsal fin, pectorals 13, ventrals 7, anal 12, caudal 24. This species is added by Dr. Turton as a separate genus, *Trachichthys*, from the Nat. Miscel. No. 106. Pl. 378. The head is rounded in front, and the eyes are very large, with a silvery iris. It inhabits New Holland; about five inches long, and two deep; body coated with rough scales, so strongly and closely inserted, that it is not possible to detach one from the rest without bringing with it a portion of the skin. Gill-covers armed on the upper part with a strong rough spine, and a small one on the lower. Scales fringed and covered with small spines, those on the abdomen projecting into a shortish spine, pointing backwards and forming a sharp keel. Tail strongly forked: edges of all the fins paler; three first rays of all the fins, except the pectorals, strong, rough, and finely ferrate outwards.

IV. Opercula aculeated, as well as scaly. *Holocentri*.

The HOLOCENTRUS [from the Gr. *δλος*, all, and *κεντρον*, a spine] is a very considerable genus in Bloch; as, besides some newly-discovered species, he has included in it all the perches which have the dorsal fin undivided. These last we have restored to their proper places in the

second and third divisions. The genus has been adopted by Cope, and more recently by Dr. Shaw; but the difference upon which it is founded is so small, that we have no hesitation about placing the remaining new species here as an appendix to the genus *Perca*; for the designation *holocentrus*, or "all-spiny," applies almost exclusively to the spines on the opercula, or gill-covers. See vol. xiii. p. 778, 9. The generic characters, as stated by Drs. Bloch and Shaw, are—Habit of the genus *Perca*; gill-covers scaly, ferrated, and *acuminated*; scales, in most species, hard and rough; one dorsal fin. See Bloch vii. 45. Cope iv. 327. Shaw iv. 553.

1. Tail divided, either forked or lunated.

1. *Holocentrus fogo*, the Welchman: this species is distinguished by having eight rays in the ventral fin, one spine at the first piece of the gill-cover, two at the second. It has 8 rays in the membrane of the gills, 17 in the pectoral fins, $\frac{1}{2}$ in the ventral, $\frac{1}{4}$ in the anal, 29 in the tail, $\frac{1}{2}$ in the dorsal. The body is compressed, and almost rectangular. It does not go tapering to the tail, like most fish: but grows narrower all at once; and the tail preserves the same thickness quite to the fin, which is forked. The jaws and palate are rough, like a file, the teeth being extremely small and sharp; the tongue is broad and slippery; the lip-bones of the upper jaw are double, and very strong. The eyes are large and protruded; the pupil is black, the iris silvery inclosed in a yellow ring. The head is furrowed between the eyes, and devoid of scales. There is one spine to the front operculum, two to the hinder one; both are ferrated on the edge; and there is a row of transverse scales on the foremost one. The gills have a wide aperture. The whole body is covered with large, hard, ferrated, scales, strongly adhering to the skin. Two rows of scales stand up along the back, forming a furrow in which the fish can withdraw the dorsal fin. The scales cover also part of the anal fin, which occasions that part to appear as broad as the belly. The lateral line is scarcely visible. A beautiful red shines through the silver colour of the scales, and, being intermixed with straw-colour stripes, forms an agreeable diversity. Its long red fins, and its large eyes, give it a beautiful appearance in the water. As the bones of the head terminate all in spines larger or smaller, Artedius has made it a genus of itself by the name of *holocentre*, or all-prickly. There are ten short spines at the origin of the tail-fin. A round bone is observed under the pectoral fin, which is only an apophysis or production of the omoplatus, or bone under the gill-cover; which assists the action of the pectoral fin. Another remarkable thing in this fish is an aperture which is discovered in the upper part of the mouth when the upper jaw is brought forward; to explain this, it must be remarked, that the jaws of fishes are divided in the middle, and both movable, whereas in most other animals the lower jaw only is so; in the middle, where the two halves of the upper jaw meet, each half has a process rising straight up, which carries the muscles for drawing back that jaw; this process goes under the skin between the nostrils; and, when it is drawn back by the protrusion of the jaw, the unbroken skin covers the space in other fishes; but in this species the skin is interrupted, and exhibits an aperture. This species is found in all the four quarters of the globe. Plumier made a drawing of it at the Antilles; Brown saw it at Jamaica; Duhamel describes it as belonging to the waters of Europe; and Bloch received it from Africa, where it is called *fogo*. It is the handsomest of the genus; and is much esteemed as food. The annexed Plate IV. is designed to exhibit the species of perch called *Holocentrus*; the present beautiful species (from Bloch, t. 232.) is shown at fig. 1.

β. A variety, which differs in the following particulars. The space between the eye and mouth is much narrower; and the snout is obtuse; only one small spine about the head. The 11th spine of the dorsal fin, instead

of being the shortest, is the longest, forming the beginning of the second division of that fin; the third spine of the anal fin is not near so long, and that fin contains two soft rays more; lastly, the longitudinal straw-colour stripes on the body are not visible. From these differences it is evident it might have been assumed as a new species; its name in Dutch is *roede haal/skop-vijsch de Vocean*.

2. *Holocentrus virescens*, the green holocenter: $\frac{12}{4}$ rays in the dorsal fin, and the tail-fin semilunar. There are 6 rays in the membrane of the gills, 14 in the pectoral fins, $\frac{1}{6}$ in the ventrals, $\frac{3}{6}$ in the anal, and 18 in the tail. The body is mostly of a green colour; the head is long; the lower jaw is protruded, and both are armed with sharp teeth, of which the two in front are the longest. There is a long thin bone on each side of the upper jaw. The nostrils are double; the opercula are striped with yellow. The eyes are large, and situated high in the head; the pupil is black, the inner iris is a broad circle of red, the outer one is narrow and white. The front operculum is serrated, and the hinder one is armed with two spines, sometimes with three. The lateral line runs arched near the back, with spines all the way like the teeth of a saw. The vent in the middle of the body. The fins are dark green on the edges; but towards the belly, the green colour fades away to white. The whole body is covered with hard serrated scales. This species is from the East Indies.

3. *Holocentrus tigrinus*, the chequered holocenter: body spotted and striped; tail-fin semilunar. There are 6 rays in the membrane of the gills, 13 in the pectoral fins, 6 in the ventrals, $\frac{3}{6}$ in the anal, 15 in the tail, and $\frac{12}{4}$ in the dorsal. The head is long, narrow, compressed, and truncated; the jaws are armed with little sharp teeth standing apart, and the under jaw is the longest; the tongue is slippery and loose, the palate rough; the nostrils are double, and near the eyes; the pupil is black in a silvery iris. The front operculum is dentated at both rims; the hinder one terminates in a membranous point, and is armed with three flat spines: this fish is also furnished with the single gill. The aperture of the gills is wide, and the membrane loose. The whole body is covered with minute serrated scales; both head and body are interspersed with brown spots of various shapes, but those on the fins are mostly round. The back is brownish; the sides bluish above the lateral line, silvery below it. This species is from the East Indies; and, according to Valentine, is delicate food. See fig. 2.

4. *Holocentrus quinque-lineatus*, the five-striped holocenter; five blue stripes on each side the body, and the tail crescent-shaped. The membrane of the gills has 6 rays, the pectoral fins 16, the ventrals 6, the anal $\frac{3}{6}$, the tail 20, and the dorsal $\frac{12}{4}$. The head is short, compressed, and bare of scales as far as the operculum, which is covered with small scales, but those on the body are large. The lower jaw is the longest, and each is armed with a row of small teeth standing apart, besides which there are a great number irregularly placed in the upper jaw and palate; nostrils double. The eyes are large; pupil black, iris yellow. The posterior operculum terminates backwards in a membranous point; but in the middle of its front rim is a spine which shuts into a corresponding furrow in the back of the other operculum; this is serrated at the lower rim, and the other is furnished with a flat spine. Four of the blue longitudinal stripes arise near the eye, the fifth from the aperture of the gills, which is very wide. The lateral line runs near and parallel with the back. This fish is yellow; the head and fins violet inclining to red; it is from Japan, but its habits are not known.

5. *Holocentrus Bengalensis*, the Bengal holocenter: four stripes along the body, and the tail crescent-shaped. There are 6 rays in the membrane of the gills, 14 in the pectoral fins, 6 in the ventrals, $\frac{3}{6}$ in the anal, 18 in the tail, and $\frac{12}{4}$ in the dorsal. The head is compressed, smooth in front, behind covered with round tenacious scales. The jaws are of equal length, armed with sharp

hooked teeth; the five front teeth in the upper jaw are much longer than the rest, and behind these is a great number of short thin teeth, which extend over the palate also, but the tongue is smooth; nostrils double. The front operculum is serrated both ways; and furnished with a notch to receive a kind of hook from the hinder one: this hook seems in some respect to assist in the work of respiration; for Bloch observed, in opening the mouth of the fish, that the front operculum receded, and pressed the hinder one against the breast by means of that hook; and this motion closed the aperture of the gills: it is probable that this operation favours the retention of the water taken in for a longer time, in order to cool the blood. The hinder operculum has two spines, and a small part of it is serrated. The gills have a wide aperture; the membrane is loose. The body is compressed, the scales are small and serrated; the anus is in the middle of the body. The back and head of this fish are red; the sides and belly white. The stripes are blue, with a brown edging; they arise from the head; the three first terminate in the dorsal fin, the last in that of the tail. The pectoral and ventral fins end in a point; the anal and dorsal are rounded.

6. *Holocentrus epinephelus*, the wall-eyed holocenter: seven transverse stripes on the body; small scales on the head; a membrane over the eye; tail lunate. The membrane of the gills has 5 rays, the pectoral fins 14, the ventrals 6, the anal $\frac{3}{6}$, the tail 15, the dorsal $\frac{12}{4}$. This and five other species, which have a membrane over the eye, are made a separate genus by Bloch, (Part. x.) called *Epinephelus*, or wall-eye.

The head slopes but little, and ends in an obtuse point. The under jaw is somewhat the longest; both are furnished with small teeth, and the palate also, but the tongue is smooth. The eyes are prominent, near the top of the head; the pupil is bluish, and the iris yellow; close to them are the nostrils, which are single. The single gill appears under the front operculum; the hinder one has two spines. The aperture is wide, and the membrane partly at liberty. The belly is short and broad, and the anus nearer the head than the tail. The lateral line is very near the back, and in the same direction. The colour of this fish is white, with seven broad stripes of brown across the body from back to belly, and two which intersect them longitudinally. The ventral fin ends in a point; the tail is crescent-shaped, the rest rounded. This species is found at Jamaica.

7. *Holocentrus perca*, the perch-holocenter: one spine bending toward the head in the last piece of each operculum; small scales on the head and opercula; the scales in general radiated and serrated. There are 7 rays in the membrane of the gills, 15 in each pectoral, $\frac{1}{6}$ in each ventral, 17 in the tail, $\frac{12}{4}$ in the dorsal, and $\frac{3}{6}$ in the anal. The lower jaw is somewhat longer than the upper, which is movable; the front teeth are long, the other small, and as close as the teeth of a file; there are teeth also in the palate and throat; but not on the tongue, which is very white. The nostrils are double. The head and belly are of a red colour; the back, sides, and tail-fin, gold brown. This and the three following are described by Cope from Commerçon's MSS. no writer having mentioned them before. Native of Burton's Straits; ten or twelve inches long. In the first piece of each operculum is a notch to receive the sharp spine of the second piece. The Molucca Indians brought several of this species to the ship in which Commerçon and Bougainville were voyaging in the year 1768.

8. *Holocentrus flavo-cæruleus*, the yellow-and-blue holocenter; tail-fin crescent-shaped, three spines in the hinder operculum; opercula and head with small scales; a membrane over each eye. Seven rays in the membrane of the gills, 18 in each pectoral, $\frac{1}{6}$ in each ventral, 15 in the caudal, $\frac{12}{4}$ in the dorsal, and $\frac{3}{6}$ in the anal. The nostrils are double; the lower jaw somewhat longer than the upper, which is retractile; teeth and tongue like the preceding.

preceding. The general colour of this fish is bluish; but the fins are yellow; hence the name. Found at the Isle of France; larger than the preceding. Sometimes the tips of the pectoral fins are black, and the upper jaw yellowish, the same between the eyes, and a yellow spot on the hind part of the head; but there is seldom any colour besides yellow and blue on any part of it. The first rays of the dorsal fin end in a filament. The species lives on crabs and young fish, which it swallows whole. Flesh pleasant and wholesome food.

9. *Holocentrus caudâ vittatâ*, the striped-tail holocenter: two spines in the hinder opercula; ventral fins with 5 rays, and fastened by a membrane to the belly; general colour blue; the tail with from three to ten longitudinal alternate white and black stripes. Six rays in the membrane of the gills, 16 in each pectoral, 15 in the tail, $\frac{15}{3}$ in the dorsal, $\frac{5}{1}$ in the anal. The nostrils are double. The vent nearer the head than to the tail-fin. This species is commonly less than the perch-holocenter. The upper jaw is flexible, and somewhat shorter than the lower; both jaws, and the palate, are armed with numerous small teeth like a saw; the tongue is smooth. Inhabits the Isle of France.

10. *Holocentrus nigricans*, the blackish holocenter: one or two spines in the hinder piece of each operculum, and a small serrated bone near each eye; a scaly plate at each end of the base of the ventral fins; prevailing colour bluish black. Five or 6 rays in the membrane of the gills, 20 in each pectoral fin, $\frac{1}{6}$ in each ventral, 15 in the tail, $\frac{15}{3}$ in the dorsal, and $\frac{1}{6}$ in the anal. The head is small; the eyes blue; nostrils double. The lower jaw is somewhat longer than the upper, which is movable; the teeth small, white, close together like the teeth of a comb; but none on the palate or tongue. The lateral line is very short, extending no further than the end of the dorsal fin.

11. *Holocentrus leopardus*, the leopard-holocenter: tail lunate; four large spines on the first piece of each operculum, one spine on the second; body spotted all over. There are 14 rays in the pectoral fins, 18 in the tail, $\frac{18}{3}$ in the dorsal, $\frac{1}{3}$ in the anal, $\frac{1}{3}$ in the ventrals. The upper jaw is somewhat shorter than the lower, and the lip double; there are six large strong hooked teeth, and several rows of smaller ones, in each jaw. This and the following were first described by Cope.

12. *Holocentrus ciliatus*, the ciliated holocenter: scales ciliate, teeth almost setaceous, one small spine at the hind part of the opercula. There are 17 rays in the pectoral fins, $\frac{1}{6}$ in the ventrals, 19 in the tail, $\frac{15}{3}$ in the dorsal, $\frac{1}{6}$ in the anal. The body is of a lengthened form; teeth in several rows, very small.

13. *Holocentrus Thunbergi*, Thunberg's holocenter: 7 articulated rays in each ventral fin, a single spine in the posterior part of each operculum; the hind part of the tail much lower than the front; scales striped and dented; prevailing colour silvery, but without spots. Seven rays in the membrane of the gills, 13 in the pectoral fins, 18 in the tail, $\frac{18}{3}$ in the dorsal, $\frac{1}{3}$ in the anal. The dorsal fin is divided, as it were, but it is in fact only one fin; the back is raised. The upper lip is double; three blunt teeth appear in the lower jaw on each side. Inhabits the seas of Japan; first described by Thunberg.

14. *Holocentrus albo-ruber*, the white-and-red holocenter: 12 spines in the dorsal fin; many spines between the eyes; which are very large; colour red, with eight or nine longitudinal stripes of white on each side. This and the eight following species are described only by Cope; the present and the next from the coloured Chinese drawings in the National Museum at Paris; these two therefore inhabit China.

15. *Holocentrus albo-fasciatus*, the white-banded holocenter: 11 spinous rays in the dorsal fin; spines before and behind the eyes, which are very large, with a black iris; colour red, with one transverse white bar near the tail-fin.

16. *Holocentrus diacanthus*, the two-spined holocenter: two spines in the anal fin; scales very broad, and edged with white; head, body, and tail, dotted with white; a black spot on the second piece of each operculum. Five rays in the membrane of the gills, 16 in each pectoral fin, 6 in each ventral, 16 in the tail, $\frac{15}{3}$ in the dorsal, and $\frac{2}{1}$ in the anal. This and the four following are described by Cope from the collection of natural history brought from Holland into France during the grand revolutionary war.

17. *Holocentrus tripetalus*, the tripetalous holocenter: operculum in three pieces, one spine to the third piece; upper lip double, lower jaw longest; scales oval, dented. Sixteen rays in the pectoral fins, $\frac{1}{6}$ in the ventrals, 18 in the caudal, $\frac{15}{3}$ in the dorsal, $\frac{1}{6}$ in the anal. Several rows of small teeth, one large one at each extremity of the lower jaw opposite the snout.

18. *Holocentrus tetracanthus*, the four-spined holocenter: four spines in the anal fin; a toothed scale above each pectoral fin, and several under each eye; a large spine and two small ones at the last piece of the operculum; spots on the dorsal and tail fins. Twelve rays in each pectoral fin, 17 in the tail, $\frac{15}{3}$ in the dorsal, $\frac{1}{2}$ in the anal. The lower jaw is the longest; teeth minute. Under the eyes are scaly laminae with radiating striæ; a great part of the dorsal fin, sustained by the spiny rays, is very distinct from the rest.

19. *Holocentrus acanthops*, the prickly-eyed holocenter: a fringed plate armed with spines along the lower half of the eye; one or two spines in the second piece of the operculum; one spine turned obliquely upwards over the base of the pectoral fins; small spots on the dorsal and caudal fins. Fourteen rays in each pectoral fin, $\frac{1}{6}$ in the ventrals, 19 in the tail, $\frac{15}{3}$ in the dorsal, $\frac{1}{6}$ in the anal. The eyes are large; the lateral line very strong.

20. *Holocentrus radjabau*, the radjabau: the front of the head almost perpendicular with the longest diameter of the body; dorsal fin extremely long; upper jaw longest; two or three spines in the second piece of each operculum; spots on the dorsal and tail fins. Sixteen rays in the pectoral fins, $\frac{1}{6}$ in the ventrals, 16 in the tail, $\frac{15}{3}$ in the dorsal, $\frac{1}{6}$ in the anal. The jaws are armed with several rows of small teeth, close together, and pretty equal in size. The eyes are very large; there is a scaly toothed plate under the last piece of each operculum. The lateral line is nearly straight. Inhabits the East Indies, where it is called *ikan radjabau*.

21. *Holocentrus diadema*, the crowned holocenter: the anterior part of the dorsal fin rounded, and lower than the posterior part; the spines rise higher than the membrane, and are black with a white stripe underneath them, which gives that part of the fin the appearance of an ancient diadem; that fin has $\frac{11}{1}$ rays, the anal $\frac{2}{6}$. The lower jaw is the longest; opercula scaly, with a spine on each piece. There are six or seven narrow stripes along each side of this fish. This and the following are from Commerçon's MSS.

22. *Holocentrus gymnosus*, the naked holocenter: body apparently naked, the scales being hardly visible; one spine to each operculum; lower jaw the longest; teeth small and sharp, some larger ones in front of the upper jaw. Fifteen rays in each pectoral fin, 6 in each ventral, 18 in the caudal, $\frac{15}{3}$ in the dorsal, and $\frac{1}{1}$ in the anal.

2. Tail entire; i. e. straight, rounded, or lanceolated.

23. *Holocentrus striatus*, the striped holocenter: the jaws of equal length, 3 spines in the anal fin, and the fin of the tail truncated. There are 4 rays in the membrane of the gills, 15 in the pectoral fins, $\frac{1}{6}$ in the ventrals, $\frac{15}{3}$ in the anal, 15 in the tail, and $\frac{15}{3}$ in the dorsal. The head is laterally compressed, with a declining rostrum, and the eye is furnished with a nictating membrane; the pupil is black, the iris white and brown; the nostrils are double, and very near the eyes. The jaws and palate full of very small

small sharp teeth; the tongue is smooth. The front operculum is serrated behind at the lower part; and the hinder one ends in a membranous point, and a flat spine. The gills have a very large aperture; the membrane is hardly visible. The scales are small and serrated, and extend over part of the tail-fin. The body is of a dirty white, with five transverse stripes of brown. The ventral fins are of a darker colour than the rest; there is a large black spot on the dorsal fin. Its country is unknown. This and the sixteen following were first described by Bloch.

24. *Holocentrus argentinus*, the silvery holocenter: a silvery stripe along each side, and the tail truncated. There are 5 rays in the membrane of the gills, 14 in the pectoral fins, $\frac{1}{6}$ in the ventrals, $\frac{3}{1}$ in the anal, 15 in the tail, and $\frac{2}{5}$ in the dorsal. The head and body are compressed, and furnished with rough scales, which however do not entirely cover the head, but only the opercula. The lower jaw advances a little beyond the upper; and both are armed with small sharp teeth; the palate is rough, the tongue smooth, and at liberty. The front operculum is serrated at both rims; the posterior one consists of two laminae, three spines, and an adhesive membrane. The aperture of the gills is wide, and the membrane at liberty; the internal part of the front operculum exhibits the single gill. The vent is nearly in the middle of the body. The pectoral fins are rounded; the ventrals end in a point, and the rays, except the first, are ramified; the tail-fin is straight, with dichotomous rays; the rays of the dorsal and anal fins extend beyond the membrane that unites them; they are composed of stiff and flexible rays like the rest. The ground colour of this fish is a faint yellow, the upper part of the head is violet, and the sides silvery. The fins are sky-blue; the pectorals and ventrals edged with yellow. Its size and country are unknown.

25. *Holocentrus oncus*, the ongo: $\frac{1}{2}$ rays in the dorsal fin, and the tail-fin rounded. There are five rays in the membrane of the gills, 12 in each pectoral fin, 6 in each ventral, $\frac{3}{1}$ in the anal, 18 in the tail. The head is long; the jaws are armed with short pointed teeth; the palate smooth, the lip-bones are broad in the upper jaw. The nostrils are double, the eyes have a black pupil with an orange iris. The anterior operculum is serrated on one side, the posterior one is furnished with two spines; the aperture of the gills is very wide, and the membrane is loose. The lateral line runs near the back, and is free from spines; the vent is nearer to the tail than to the head. The scales are small, and not serrated, as in the preceding species. The prevailing colour of this fish is brown, which rather inclines to green towards the belly; and there are spots or bars of faint yellow on the anal, tail, and dorsal fins. The pectoral fin is broad, and the ventral has one very strong spine; both these fins are yellow. This species is from Japan, where it is called *ikan ongo*.

26. *Holocentrus auratus*, the golden holocenter; general colour golden, with little spots all over the body, and nine spines in the dorsal fin. The branchial membrane has 6 rays, the pectoral fins 16, the ventrals 6, the anal $\frac{3}{1}$, the tail 20, the dorsal $\frac{9}{2}$. The body is broad, but laterally compressed; it is covered with a thick skin and very small scales. The teeth in the jaws and palate are small and sharp; the lower jaw is somewhat the longest, but the upper is furnished with two long teeth and large lip-bones. The nostrils are double, and near the eyes; the front pair cylindrical, the hinder oval. The tongue is slippery, loose, and long, like a bird's. The eyes are prominent, and near the top of the head; the pupil is black, the iris violet and yellow, with yellow spots. The front operculum is minutely serrated at the back part, the hinder one ends in a membranous point and three flat spines. The aperture of the gills is very large, the membrane half concealed, and a single gill under the front operculum. The body is of a beautiful gold colour, paler on the belly; and the brown dots have a fine effect on this ground-colour. The fins are in ge-

neral rounded, with ramified rays. The dorsal, anal, and tail, fins, are yellow edged with scarlet; the pectorals are pale violet, the ventrals reddish brown; the stiff rays of the dorsal fins are branched in a peculiar manner, and the membrane has a dark-brown edging, which has a very pretty effect. This is from the East Indies.

27. *Holocentrus quadrilineatus*, the four-striped holocenter: the body four-striped, and the tail-fin rounded. The membrane of the gills is supported by 6 rays; there are 13 in the pectoral fins, $\frac{1}{6}$ in the ventrals, $\frac{3}{1}$ in the anal, 16 in the tail, and $\frac{2}{2}$ in the dorsal. The head is compressed, and somewhat sloping; the jaws are of equal length, with small teeth broad at bottom, pointed at top; the aperture of the mouth is small; the nostrils are double, and near the eyes. The first of the four longitudinal stripes runs near the back, the second begins on the forehead, the third from the tip of the mouth, the fourth from the corner of the mouth, and runs straight along the body and tail, but does not extend over the fin as in the preceding species. The pupil of the eye is black, the iris white bordered with red. The front operculum is serrated; the posterior one rounded, and furnished with one spine; both, as well as the body, are covered with very tender scales. There is a furrow on the back to receive the dorsal fin. The lateral line arises from the hinder operculum, and runs irregularly to the middle of the tail-fin. The cinereous ground of this fish is agreeably shaded with the blackish stripes. The belly is of a yellowish red, the back brownish, the fins lead-colour, only the pectorals and ventrals are bordered with yellow; before the dorsal fin there is a round black spot, and a large oblong spot or stripe on that fin, on each side. This species is also from the East.

28. *Holocentrus fasciatus*, the banded holocenter: body banded, and the lower jaw protruded; tail rounded. There are 6 rays in the membrane of the gills, 13 in the pectoral fins, $\frac{1}{6}$ in the ventrals, $\frac{3}{1}$ in the anal, 16 in the tail, and $\frac{2}{2}$ in the dorsal. The mouth in this species opens very wide; the upper jaw is armed with several rows of small teeth, and two long teeth in front; in the lower jaw there is but one row, but they are larger, and bent back; the palate is rough also, but the tongue is smooth. The nostrils are double; the eyes large; pupil black, iris yellowish green. The front operculum is serrated, and the scales on this are much smaller than on the posterior one, which is double, and furnished with two spines and a loose membrane. The aperture of the gills is very large, and the membrane only in part concealed; the inside of the front operculum exhibits the single gill. The body is thin; the scales hard and serrated. This fish is of a greenish yellow, which becomes lighter towards the belly; the transverse stripes or bands are ash-colour; the fins are mostly of the same colour with the body, and rounded. Its country is not known.

29. *Holocentrus punctatus*, the punctulated holocenter: the body punctated, and eleven spines in the dorsal fin. There are 12 rays in the pectoral fins, $\frac{1}{6}$ in the ventrals, $\frac{3}{1}$ in the anal, 17 in the tail, and $\frac{1}{2}$ in the dorsal. The mouth has a wide aperture; jaws of equal length, armed with short teeth. The nostrils are double, but small. The pupil of the eye is blue, with a yellowish iris. The body is compressed, and covered with serrated scales, the roughness of which is easily perceived in passing the hand from the tail towards the head. Every part of the body is full of little round spots of black and red. The front operculum is rounded and serrated; the posterior one terminates in a point, and is furnished with one flat spine. There are no scales on the front part of the head. The fins are all rounded; the pectorals are entirely red, the others red mingled with yellow. This species is found at Brasil, among the shelves and breakers in the sea; hence the Dutch call it *gatirisch*, and the Portuguese *peixe-gatto*, or rock-fish. The flesh is white, firm, well-tasted, and very wholesome. It is tenacious of life; for Piso relates, that he found one alive after it had been

three hours out of the water, and two hours after that, when he opened it, the heart was yet beating. This species is represented on the Plate at fig. 3.

30. *Holocentrus lanceolatus*, the lanceolated holocenter: tail-fin rounded, the rest pointed like a lancet. The membrane of the gills has 6 rays, the pectoral fins 16, the ventrals $\frac{1}{6}$, the anal $\frac{3}{17}$, the tail 13, the dorsal $\frac{1}{2}\frac{1}{4}$. The head is large, with a mouth in proportion; the bones of the lips are broad; the jaws are of equal length, and armed with several rows of little sharp teeth, as is the palate; but the tongue is smooth and movable. The nostrils are double, the hinder pair near the eyes. Hereabout begin the scales, which are small, tender, and smooth. The pupil of the eye is black, iris blue. The front operculum is made of two small rounded plates, of which the hinder one is strongly serrated. The gills have a wide aperture, and one half of the membrane is concealed. The body is broad, the belly prominent, and the vent in the middle of the body. The colour of this fish is silvery, with transverse stripes and spots of brown. The soft rays of the fins are mostly divided into four branches. This species is produced in the East-Indies, and takes its name from the shape of the fins. See the Plate, fig. 4.

31. *Holocentrus cæruleo-punctatus*, the blue-spotted holocenter: blue spots on the fins only, and eleven spines in the dorsal fin. The pectoral fins have 12 rays, the ventrals 6, the anal $\frac{3}{17}$, the tail 13, and the dorsal $\frac{1}{2}\frac{1}{6}$. The head slopes off to the mouth, which is pretty large; the under jaw is the longest, and both are armed with small teeth; the palate the same, but the tongue is smooth and at liberty. The nostrils are so small as to be hardly perceptible. The eyes are near the top of the head, and furnished with a membrane; the pupil is black, the iris white. The scales are extremely minute. The front operculum is rounded, and serrated at both edges; the hinder one ends pointed, and has one spine and an adhesive membrane. The colour of this fish is pale blue, with large yellow spots on the body and tail; small blue ones on the fins. The lateral line runs near and parallel to the back; the anus is nearer the tail than the head. The fins are of a brown colour; the pectoral and tail are rounded, the others end sharp.

32. *Holocentrus maculatus*, the spotted holocenter: body brown, with white spots; tail rounded, and eleven spines in the dorsal fin. There are 6 rays in the membrane of the gills, 13 in the pectoral fins, 6 in the ventrals, $\frac{3}{17}$ in the anal, 15 in the tail, and $\frac{1}{2}\frac{1}{6}$ in the dorsal. The head and body are both compressed; the back is carinated, the belly round. The jaws are of equal length, and furnished with sharp teeth; the palate is rough, the tongue smooth; the lip-bones are broad; the nostrils are hardly perceptible. The pupil of the eye is black, the iris white. The scales are very small. The front operculum is serrated one way; the hinder one is armed with two small spines. The vent is nearer to the head than to the tail. This fish is of a brownish-colour, and the spots are white. The dorsal, pectoral, and tail, fins, are rounded; the anal ends in a blunt point, the ventral sharp. This species is from the East Indies, and in other respects resembles the preceding. See the Plate, fig. 5.

33. *Holocentrus Surinamensis*, the Surinam holocenter: $\frac{3}{17}$ rays in the anal fin; tail rounded. The membrane of the gills is supported by 6 strong curved bones; there are 14 rays in the pectoral fins, 6 in the ventrals, 17 in the tail, $\frac{1}{2}\frac{1}{8}$ in the dorsal. The head is small, somewhat broad at top, but compressed on the sides. The mouth is small; the lower jaw is the longest, with a row of short, conical, divergent teeth, bent inwards; but the upper jaw has, besides a similar row, a great number of very small teeth placed behind this row; the palate and tongue are smooth; the lip-bones narrow. The nostrils are single, round, and near the eyes, which have a black pupil standing in the midst of an iris half red and half white. The front operculum is serrated, and stretches into a long spine at the corner; the hinder one is rounded, and

armed with a long round spine; the scales on these are smaller than on the rest of the body. The scales in general are much serrated, and adhere strongly to the skin. The gills have a wide aperture, and the membrane is uncovered. The head is the colour of blood; the body is variegated brown, violet, and yellow; the fins are mostly yellow at their origin, deep violet towards the extremities; the fins of the anus, back, and tail, are partly covered with scales; all the fins are rounded; there is a furrow in the back, to receive occasionally the dorsal fin. This species attains the size of our ordinary perch; and is esteemed, as food, one of the best fish in Surinam.

34. *Holocentrus calcarifer*, the spur-fish: only 8 spines in the dorsal fin; tail-fin rounded. There are 6 rays in the membrane of the gills, 15 in the pectoral fins, $\frac{1}{6}$ in the ventrals, $\frac{3}{17}$ in the anal, 17 in the tail, $\frac{1}{2}\frac{1}{8}$ in the dorsal. The head is somewhat flattened at top, and compressed at the sides; the lower jaw is longest; both, as well as the palate, are armed with several small teeth scarcely visible, but much more numerous in the upper jaw. The nostrils are double; the upper ones very near the eyes, which are large, stand high, and have a black pupil in a silvery iris. The front operculum is serrated, and armed with four spines like the pricks of a spur, whence the name; the posterior operculum has one spine, and the shoulder-blade is serrated. The aperture of the gills is wide, and the membrane is mostly concealed. The trunk is compressed, and covered with large silvery scales, with yellow rims, which extend over part of the head; a line runs longitudinally over each row of scales. The back is brown, inclining to violet; the fins yellow and brown. The pectoral and ventral fins end in a point; the anal and tail are rounded, and have some brown stripes upon them; the dorsal sinks in the middle. It is found at Japan; and grows about a foot long.

35. *Holocentrus Afer*, the African holocenter: the scales on the posterior operculum larger than those on the body; a membrane over the eye. The membrane of the gills has 5 rays, the pectoral fins 19, the ventrals $\frac{1}{6}$, the anal $\frac{3}{17}$, the tail 17, and the dorsal $\frac{1}{2}\frac{1}{8}$. The head is small, and covered with scales; the jaws are of equal length, and furnished with very small teeth, of which those in the upper jaw are rather the longest; there is an arched row of teeth extending on the sides and back of the palate. The lip-bones are broad; the nostrils double, oval, and very near the eyes, which are even with the top of the head, furnished with a nictating membrane, bluish pupil, and dark-brown iris. The anterior operculum is serrated, and exhibits the single gill in its interior part; the posterior operculum has one spine, but terminates in a blunt point. The gills have a wide aperture, and the membrane is concealed. The body is nearly of the same breadth to the end of the tail; the lateral line is very thin, and nearly in the same direction with the back; the anus is placed at some distance from its fin, but still nearer to the fin of the tail than to the head. The back and belly are round, which arises from the thickness of the body in general. The scales are small, hard, and serrated, forming a furrow on the back, and extending over part of all the fins except the ventrals. The soft rays are ramified. The fins are all rounded, and short in proportion to the size of the fish. The colour is brown, very dark on the back, light on the sides and belly; the pectoral fin is brimstone-colour, the ventral orange. This species is from Acara, on the Guinea coast; it lies in the shallows of the sea, not far from the shore. The flesh is white and wholesome; it feeds on shell-fish, and grows to a considerable size. This and the four following are included by Bloch in his new genus *Epinephelus*, or wall-eye, from the transparent membrane over the eye. Cæpede has brought them into this genus, in which, to avoid multiplying genera, we have followed him.

36. *Holocentrus marginatus*, the bordered wall-eye: fins red, tail rounded, anterior part of the dorsal bordered with black. The membrane of the gills has 5 rays, the

pectoral

pectoral fins 17, the ventrals 6, the anal $\frac{3}{11}$, the tail 18, the dorsal $\frac{1}{5}$. The head is large, declining, and covered with small scales. The lower jaw is longer than the upper; and both are armed with small teeth at the sides, and four large ones in front. The nostrils are single; the eyes large, with a black pupil, yellow iris, and transparent membrane. The anterior operculum is serrated; the posterior has three spines, but not at the extremity. The aperture of the gills is wide, and the membrane loose. The scales are small and hard. The fish is broad in front, and tapers off towards the tail. The back and head are light brown, the sides silvery with a shade of blue.

37. *Holocentrus fuscus*, the brown wall-eye: the fins black; a membrane over each eye. The membrane of the gills has 5 rays, the pectoral fins 14, the ventrals 6, anal $\frac{3}{2}$, tail 18, dorsal $\frac{1}{2}$. The body is long, and tapers towards the tail; the scales are small, and serrated; the rostrum declines; the lower jaw is somewhat longest; the nostrils are single, and near the eyes; the pupil is black, the iris yellow and violet-colour. The opercula are striped with blue; the hinder one is furnished with three spines. The ground-colour of this fish is yellow, marked with stripes and spots of brown. The fins are light yellow at the base, black at the extremities; the dorsal and tail are partly covered with scales. This species is from Norway.

38. *Holocentrus ruber*, the red wall-eye: body red; eleven spines in the dorsal fin. The membrane of the gills has 5 rays, the pectoral fins 12, the ventrals $\frac{1}{6}$, anal $\frac{3}{2}$, tail 20, dorsal $\frac{1}{2}$. The head is narrow with a declining rostrum, and covered, as well as the body, with small scales, hard and serrated; the lower jaw is the longest. The pupil of the eye is bluish; the irides double, a yellow and a blue one. The front operculum is slightly serrated, the hinder one has two spines. The head, back, and sides, are red; the belly paler, the base of the fins yellow. There is a furrow to receive the spines of the dorsal fin; the hinder part of that fin has scales, as also has the base of the anal and tail. This species is from Japan.

39. *Holocentrus rubro-fuscus*, the red-and-brown holocenter: 7 rays in each ventral fin, tail rounded, upper jaw movable. There are seven rays in the membrane of the gills, 16 in each pectoral fin, 18 in the caudal, $\frac{3}{2}$ in the dorsal, $\frac{3}{2}$ in the anal. This and the following eight were first described by Cope. The present species is from Commerçon's MSS. that celebrated voyager met with it near the Isle of France in 1769. It is a rare species; flesh well-tasted, and easy of digestion; length eight inches. There is a blackish spot near each eye. The dorsal and anal fins are striped, spotted, and edged, with red, and a black spot just beyond the dorsal; the ventrals are of the colour of minium, or red-lead; pectorals yellowish with small red spots on their base. The back is brown; sides spotted with red, and two red or reddish spots on the tail-fin. Three spines from the back of the operculum, which is pointed. Small bent teeth, crowded together, in both jaws; some still smaller in the palate and throat; tongue whitish, and almost smooth. The lateral line is made up of little interrupted strokes. Scales small and rough.

40. *Holocentrus soldado*, the soldado: $\frac{2}{10}$ rays in the anal fin, the second spine very long, strong, and flat; two spines in each operculum. Five rays in the membrane of the gills, 16 in each pectoral fin, $\frac{1}{6}$ in each ventral, 17 in the tail, $\frac{1}{2}$ in the dorsal. This was described from two specimens, one in a dried collection from Holland, the other was sent to Cope from Cayenne. The lower jaw is longer than the upper; the teeth are of various sizes, strong and sharp, larger in front, distributed in several rows in the upper jaw, the inner rows much crowded. There are beautifully-shining silver scales on the lower jaw, the opercula, the lateral line, and that part of the branchial membrane not covered by the opercula.

41. *Holocentrus gibbosus*, the gibbous holocenter: one spine in the second piece of each operculum, and a serrated plate rising over that second piece; the lateral line reaches from the tip of the snout to the origin of the dorsal fin, making an angle of more than 45° with the axis of the body and tail; the posterior part of the anal and dorsal fins rounded, and the ventrals also. In the pectoral fins 16 rays, $\frac{1}{6}$ in the ventrals, 17 in the tail, $\frac{1}{6}$ in the dorsal, $\frac{3}{10}$ in the anal. Teeth small, crowded, equal. This and the two following are from the Dutch collection so often mentioned.

42. *Holocentrus Sonnerat*, Sonnerat's holocenter; the first piece of each operculum notched; two spines of very unequal length over each eye; the dorsal fin very long, and rounded towards the tail; anal the same; three transverse bars with a very dark edging. Six rays in the membrane of the gills, 17 in each pectoral fin, $\frac{1}{6}$ in the ventrals, 20 in the tail, $\frac{1}{2}$ in the dorsal, and $\frac{2}{3}$ in the anal. Body long and compressed; general colour yellowish, the bands shining white or silvery. Sent from the Isle of France, where it is called *tanda-tanda*, and *kakatovea itam*; but Cope has named it after a very ingenious Frenchman.

43. *Holocentrus heptadactylus*, the seven-fingered holocenter: 7 rays in the ventral fins; lower jaw the longest, and upper lip double; three spines turned towards the snout and one towards the tail in the first piece of the operculum, one spine in the second piece; a plate deeply toothed over this second piece, another above each pectoral fin. Fifteen rays in the pectoral fins, 17 in the caudal, $\frac{1}{2}$ in the dorsal, and $\frac{3}{4}$ in the anal. Several rows of small even teeth in each jaw and the palate. The dorsal fin is divided very distinctly into two. From an examination of several of this species, Cope discovered, that the notches or points, in the toothed plate upon the operculum, increase with age. For instance, in a young one not 8 inches long, he reckoned six on the lamina nearest to the pectoral fin, and three in the second; but on an older one, more than 12 inches long, one of the plates had ten notches and teeth, the other five.

44. *Holocentrus pantherinus*, the panther holocenter: head, body, and tail, spotted like a panther; tail rounded. Fourteen rays in the pectoral fins, $\frac{1}{10}$ in the dorsal, $\frac{2}{4}$ in the anal. The lower jaw is the longest; one row of teeth only, standing apart, nearly equal in size, in each jaw. Three spines in the second piece of each operculum. Commerçon has left a drawing of this species, and the three following; the scales are hardly visible.

45. *Holocentrus rosmarus*, the sea-cow holocenter: two long strong conical teeth in the upper jaw, like the tusks of the *Trichechus rosmarus*, or sea-cow; scales small. Ten rays in the pectoral fin, $\frac{1}{2}$ in the dorsal, $\frac{1}{2}$ in the anal. The lower jaw is the longest; there are two spines in the hinder part of the operculum. The tail-fin is rounded; the dorsal bordered with brown or black, and the anterior part lower than the rest.

46. *Holocentrus oceanus*, the ocean holocenter; tail rounded; lower jaw the longest, one row of even teeth in each, upper lip double; three spines in the hinder part of each operculum; five transverse short blackish bars. In each pectoral fin 14 rays, 16 in the tail, $\frac{1}{2}$ in the dorsal, and $\frac{3}{4}$ in the anal. Inhabits the great ocean near the line or the tropics; dorsal fin like the preceding.

47. *Holocentrus salmoides*, the salmon holocenter: head like a salmon, snout flattened and compressed, upper jaw longest, teeth in several rows; 3 spines in the last piece of the operculum. Eleven spinous rays in the dorsal fin; a vast number of very small round equal spots on the head, body, tail, and fins. Has the same haunts as the preceding.

48. *Holocentrus Norvegicus*, the Norwegian holocenter: the lower jaw the longest, teeth numerous in both; spines over and under the eyes; dorsal fin very long; colour red. Seven rays in the membrane of the gills, 19 in each

each pectoral fin, $\frac{1}{6}$ in each ventral, 16 in the tail, $\frac{15}{2}$ in the dorsal, $\frac{3}{2}$ in the anal. Found between Greenland and Norway. The operculum terminates in a long spine. Nostrils double, some say treble. Scales round, large, and strongly adherent. The dorsal fin reaches from the top of the head to the tail.

PERCAPTURA, *f.* in old records, a wear or dam in a river for catching fish.

PERCA'ISE, *adv.* Perchance; perhaps. *Not used.*—A virtuous man will be virtuous in solitude, and not only in theatro, though *percase* it will be more strong by glory and fame, as an heat which is doubled by reflexion. *Bacon.*

PERCE', *adj.* In heraldry, perforated, represented as having a hole bored through.

PER'CEANT, *adj.* [*perçant*, Fr.] Piercing; penetrating. *Obsolete.*

Wonderous quick and *perceant* was his spright,
As eagle's eyes that can behold the sun. *Spenser.*

PERCE'E (Isle), a small but remarkable island on the west side of the Gulf of St. Laurence; being a perpendicular rock, pierced with two natural arches, through which the sea flows. One of these arches is large enough to admit a large boat to pass through it: fifteen miles south of Cape Gaspee.

PERCEIA'NA, in ancient geography, a town of Spain, in the route from the mouth of the river Anas to Emerita, according to the Itinerary of Antonine.

PERCEIVABLE, *adj.* [from *perceive*.] Perceptible; such as falls under perception.—The body, though it really moves, yet, not changing *perceivable* distance with some other bodies as fast as the ideas of our own minds will follow one another, seems to stand still; as the hands of clocks. *Locke.*—That which we perceive when we see figure, as *perceivable* by sight, is nothing but the termination of colour. *Locke.*

PERCEIVABLY, *adv.* In such a manner as may be observed or known.

PERCEIVANCE, *f.* Power of perceiving.—The senses, and common *perceivance*, might carry this message to the soul within, that it is neither careful, profitable, nor praiseworthy, in this life, to do evil. *Milton's Reas. of Ch. Gov.*—Hast thou any *perceivance* of these things, and do they make any impression upon thy mind? *Transl. of Boethius*, 1674.

To PERCEIVE, *v. a.* [*percipio*, Lat.] To discover by some sensible effects:

When you above *perceive* me like a crow,
That it is place which lessens and sets off. *Shakespeare.*

To know; to observe.—Jesus *perceived* in his spirit that they so reasoned within themselves. *Mark*, ii. 8.—His sons come to honour, and he knoweth it not; and they are brought low, but he *perceiveth* it not. *Job*, xiv. 21.—Till we ourselves see it with our own eyes, and *perceive* it by our own understandings, we are still in the dark. *Locke.*—How do they come to know that themselves think, when they themselves do not *perceive* it? *Locke.*—To be affected by.—The upper regions of the air *perceive* the collection of the matter of tempests before the air here below. *Bacon.*

PERCEIVER, *f.* One who perceives or observes.—Which estimation they have gained among weak *perceivers*. *Milton's Tetrachordon.*

PERCEL'LES (John), a Dutch engraver, the pupil of H. Cornelius de Vrooms, was born at Leyden in the year 1597. His son Julius was a native of the same city, and both excelled in painting and engraving shipwrecks, and other marine subjects. From the circumstance of the works of the father and son being marked with the same initial letters, some confusion has arisen; nor is it known whether to attribute the twelve small sea-views which bear these initials, to John or Julius. Another set of twelve in folio, of which the subjects are the Dutch navy,

are etched in a somewhat broader style, and are most likely the performance of the elder Percelles, being inscribed "Notatæ a famosissimo Navium Pictore Johannes Percelles," without any separate mention of the engraver's name.

PER'CEPIER, *f.* in botany. See APHANES.

PERCEPTIBILITY, *f.* The state of being an object of the senses or mind; the state of being perceptible. Perception; the power of perceiving. *Not proper.*—The illumination is not so bright and fulgent, as to obscure or extinguish all *perceptibility* of the reason. *More.*

PERCEP'TIBLE, *adj.* [Fr. from *perceptus*, Lat.] Such as may be known or observed.—No found is produced but with a *perceptible* blast of the air, and with some resistance of the air strucken. *Bacon.*—When I think, remember, or abstract; these intrinick operations of my mind are not *perceptible* by my sight, hearing, taste, smell, or feeling. *Hale's Orig. of Mankind.*—In the anatomy of the mind, as of the body, more good will accrue to mankind by attending to the large, open, and *perceptible*, parts, than by studying too much finer nerves. *Pope.*—Capable of perception.—The soul, when separated from the body, becomes more *perceptible* of happiness or misery. *Greene's Four Last Things.*

PERCEP'TIBLY, *adv.* In such a manner as may be perceived.—The woman decays *perceptibly* every week. *Pope.*

PERCEPTION, *f.* [Fr. *perceptio*, Lat.] The power perceiving; knowledge; consciousness.—*Perception* is that act of the mind, or rather a passion or impression, whereby the mind becomes conscious of any thing; as when I feel hunger, thirst, cold, or heat. *Watts.*—Matter hath no life nor *perception*, and is not conscious of its own existence. *Bentley.*—The act of perceiving; observation. Notion; idea.—By the inventors, and their followers that would seem not to come too short of the *perceptions* of the leaders, they are magnified. *Hale's Origin of Mankind.*—The state of being affected by something.—Great mountains have a *perception* of the disposition of the air to tempests sooner than the vallies below; and therefore they say in Wales, when certain hills have their night-caps on, they mean mischief. *Bacon.*—This experiment discovereth *perception* in plants to move towards that which should comfort them, though at a distance. *Bacon.*

PERCEPTIVE, *adj.* [*perceptus*, Lat.] Having the power of perceiving.—There is a difficulty that pincheth: the soul is awake and sollicit by external motions, for some of them reach the *perceptive* region in the most silent repose and obscurity of night: what is it then that prevents our sensations? *Glanville.*—Whatever the least real point of the essence of the *perceptive* part of the soul does perceive, every real point of the *perceptive* must perceive at once. *More's Dialogues.*

PERCEPTIVITY, *f.* The power of perception or thinking.—When the body is quite wearied out, consciousness and *perceptivity* do not leave the soul. *A. Baxter on the Soul.*—Although there be the difference of life and *perceptivity* between the animal and the plant, it is a difference which enters not into the account. *Paley's Nat. Theol.*

PER'CEVAL (Spencer), born Nov. 1, 1762, was son of John, the late earl of Egmont, by Catharine Compton, sister to Spencer earl of Northampton, from whom he took the Christian name of *Spencer*. His mother was, in 1770, created a peeress of Ireland, in her own right, with the title of Baroness Arden; and, dying in 1784, she was succeeded by her eldest son, Charles-George, who, in July 1808, was raised to the peerage of England. See the article HERALDRY, vol. ix. p. 591, 2. Mr. Perceval's infancy was spent at Charlton in Kent, the seat of his family, where he received the elements of his education. After this he went to Harrow school, where he was distinguished for the gentleness of his manners, the benevolence of his disposition, and the goodness of his heart: here he was contemporary with sir William Jones; and,

and, after having passed the usual time at this school, he was sent to Trinity-college, Cambridge, where he formed some of the most valuable connexions of his future life. As soon as he had completed his collegiate studies, he entered himself a member of Lincoln's Inn, and pursued the study of the law as a profession. He was remarkable for close and regular application; and, while employed as a barrister, was particularly noticed for his mild and gentlemanly behaviour, which he displayed in a high degree when he became prime minister.

At an early period he was appointed counsel to the admiralty: in the year 1799 he was honoured with a silk gown, and about this time he was elected counsel for the university of Cambridge. In consequence of his uncle's death, a vacancy was created in the borough of Northampton, which introduced Mr. Perceval into parliamentary life. He immediately gave his support to Mr. Pitt, and pursued the same line of politics regularly and consistently through the remainder of his life. Mr. Perceval had not been long in parliament before he attracted the marked attention of that minister, who it is said, being asked by his *secund*, Mr. Ryder, now lord Harrowby, when about to engage in a duel with Mr. Tierney, who was the fittest person to succeed him if he should fall in the contest, replied "Mr. Perceval is that man."

At this period, Mr. P. endeavoured to become thoroughly master of every branch of policy, dedicating his time and talents to the study of finance. In 1801, at the formation of the Addington administration, Mr. Perceval, then in his 39th year, was appointed solicitor-general, and in 1802 he was promoted to the situation of attorney-general, become vacant by the elevation of sir Edward Law, afterwards lord Ellenborough, to the chief-justiceship of the court of King's Bench. The only prosecution instituted by Mr. Perceval, in his character of attorney-general, worthy of notice, was that against Peltier, the editor of a French journal printed in London, for a libel on Bonaparte. Mr. Perceval retained his situation when Mr. Pitt resumed the reins of government, and continued to distinguish himself as a ready and staunch supporter of his measures. On the death of Mr. Pitt, Mr. Perceval, for the first time, appeared in the ranks of opposition; and it has been assumed, by those who were the witnesses of his parliamentary career at that period, that his talents were most conspicuous and marked when he rose as an opposition-speaker: in this character he was animated without asperity, earnest without ostentation, attached to his own party, without an indiscriminate contention with his adversaries.

When the Fox administration quitted office, towards the beginning of the year 1807, Mr. Perceval was appointed chancellor of the exchequer; but as the duke of Portland, who was first lord of the treasury, was very old and infirm, and seldom took an active or decided part in the administration of public affairs, Mr. Perceval was unquestionably, even then, the prime minister of Great Britain, and upon the death of that nobleman he became so nominally as well as virtually. The situation of the country and of Europe at this period was very difficult: it required great talents, exercised with uncommon delicacy, as well as decision and vigour. The talents of Mr. Perceval can hardly be said to have been of the first order; and it cannot be denied that the decision and vigour which he undoubtedly possessed, were not unfrequently mixed with something like precipitation and obstinacy. He seemed to have imbibed and acted upon a most dangerous idea, which a prime minister should never admit into his thoughts; viz. that a measure once openly avowed, ought on no account, and under no circumstances, to be abandoned.

As a public speaker, Mr. Perceval rose much in reputation and excellence, after he became minister: as the leading man in the house of commons, it was necessary that he should be able to explain and defend all his measures; and this duty, arduous under all circumstances,

was particularly so in his case, as there was scarcely any other member of administration, in that house, competent to the task of relieving or supporting him. He, in a short time, proved that he stood in no need of assistance; he made himself so completely acquainted with every topic that was likely to be regularly discussed, that he was never taken unawares or at a loss. In the statement of his measures, he was remarkably methodical and perspicuous. By many persons he was deemed particularly to excel in his replies; in rebutting any severe remark that came unexpectedly upon him, and in turning the fact adduced, or the argument used, against his opponent. "His speeches," says one of his biographers, "if carefully examined, will let us completely into the nature and extent of his talents: they display no large and comprehensive views; the arguments and illustrations that they contain do not proceed on any philosophical and luminous principles; but they are distinguished by their detail, by taking up a detached argument, and grounding it on the particular circumstances of the case, rather than upon any general maxim. This species of public speaking, however, was well adapted to his audience; for in a mixed and numerous assembly, such as the house of commons, there will always be found many more persons who can comprehend particular arguments than general reasoning, and who will deem the special pleader a man of much greater abilities than a comprehensive and philosophical statesman." In domestic life, few men were more amiable and more respected than Mr. Perceval; and few men, even in the private walks of society, can pass a greater portion of time with their family than did this prime minister of England.

The events of his administration do not properly belong to an article merely biographical. Some of them have been noticed in other places. His death was occasioned by the hand of an assassin, who was unquestionably mad. On Monday the 11th of May, 1812, about five o'clock in the evening, Mr. Perceval having walked from his house in Downing-street, was entering the lobby of the house of commons, where a number of people were standing; he was shot by a person named Bellingham, formerly a merchant, but whose distresses had probably deranged his mind. No serious attempt was, however, made on his trial to prove insanity; indeed time was not allowed for his friends, who resided at Liverpool, to appear in his behalf. The deed was committed on Monday evening; he was tried and convicted on the following Friday, which was as soon as it could be known in Liverpool that his trial would come on at the sessions then in its course. Ample provision was made for Mr. Perceval's family by parliament. See the article LONDON, vol. xiii. p. 288, 9.

PERCH, *f.* [from *perca*, Lat.] A fish. See the article PERCA.

PERCH, *f.* [from *perche*, Fr.] Something on which birds roost or sit.—For the narrow *perch* I cannot ride. *Dryden*.—The pole of a wheel-carriage, which is fastened to the middle of the hind axle-tree, and passes between the fore axle-tree and its bolster, being secured by the pole-pin, so as to move about it, and connecting the fore and hind carriages together. There have been various recent improvements in the perches of coaches and chariots, and the manner of hanging them, which we shall advert to under the article WHEEL CARRIAGES.

PERCH, *f.* [*pertica*, Lat.] A measure of length, otherwise called a *rod*, or *pole*; and much used in surveying and measuring of land.

Among the old Romans, and still among geometricians, the *pertica*, perch, is ten feet; and they otherwise call it the *catena*, *funis*, and *decempeda*. In England, the statute perch contains five yards and a half, or sixteen feet and a half; and for coppice-woods, &c. eighteen feet. A square perch is thirty square yards and a quarter. Forty square perches make a rood, and 160 an acre.

The customary perch is various in various counties:

in

in Staffordshire it is 24 feet; in the forest of Sherwood 21, the foot there being eighteen inches, the measure of which is marked in the chancel-wall of Edwyndstow, and in the church of St. Mary in Nottingham. In Herefordshire, a perch of walling is sixteen feet and a half; a perch of ditching twenty-one feet.

In France, according to the old system, the perch is from eighteen to twenty-three, and even twenty-seven, of their feet. The *arpent*, or acre of land, contains, in general, 100 square perches, but the perch varies in different parts of the country. The arpent of wood-land, however, is the same all over France, the perch being 22 feet long; this arpent, therefore, contains 48,400 French square feet = 6108 English square yards, or 1 acre, 1 rood, 1 perch. The arpent for cultivated land, in the neighbourhood of Paris, contains 900 square toises, or 4088 English yards; hence, 45 such arpents equal 38 English acres nearly.

To PERCH, *v. n.* To sit or roost as a bird.—Let owls keep close within the tree, and not perch upon the upper boughs. *South.*

The world is grown so bad,
That wrens make prey where eagles dare not perch.

Shakespeare.

To PERCH, *v. a.* To place on a perch.—It would be notoriously perceptible, if you could perch yourself as a bird upon the top of some high steeple. *More.*

As evening dragon came,
Affailant on the perched roofs,
And nests in order rang'd of tame villatic fowl. *Milton.*

PERCHAN'CE, *adv.* Perhaps; peradventure.—Finding him by nature little studious, he chose rather to endure him with ornaments of youth; as dancing and fencing, not without aim then perchance at a courtier's life. *Wotton.*

How long within this wood intend you stay?—
Perchance till after Theseus' wedding day. *Shakespeare.*

PER'CHANT, *f.* A decoy-bird, which the fowler has fattened by the foot, and which flutters about the place where it is tied, to draw other birds to it, and give the fowler an occasion of catching them.

PER'CHE, before the revolution, a country of France, which had formerly counts of its own; it enjoyed its own laws, subject to the parliament of Paris. It at present forms the department of the Orne.

PER'CHERS, *f.* Paris candles used in England in ancient times; also the larger sort of wax candles, which were usually set upon the altar. *Bailey.*

PERCIP'ANY, a town of New Jersey, on a branch of the Passaic: six miles north of Morristown.

PERCIP'IENT, *adj.* [*percipiens*, Lat.] Perceiving; having the power of perception.—No article of religion hath credibility enough for them; yet these cautious and quicksighted gentlemen can wink and swallow this sottish opinion about *percipient* atoms. *Bentley.*—Sensation and perception are not inherent in matter as such; for, if it were so, every stock or stone would be a *percipient* and rational creature. *Bentley.*

PERCIP'IENT, *f.* One that has the power of perceiving.—The soul is the sole *percipient*, which hath animadversion and sense properly so called; and the body is only the receiver of corporeal impressions. *Glanville's Scep sis.*

PER'CIVAL (Thomas, M.D.), an eminent physician, was born at Warrington, in September 1740. Having lost both his parents in one day, he was placed at the age of four years under the protection of his uncle, Dr. Thomas Percival, a learned and respectable physician, resident at the same place; but of his parental guidance he was also deprived at the age of ten, after which his education was directed with the most kind and judicious attention by his eldest sister, who conducted it with true parental attention. He received his classical instruction chiefly at the free-school of his native place, and was

afterwards (1757) the first enrolled student at the newly-founded Dissenting Academy of Warrington. At that seminary he particularly attended to ethical studies, and imbibed those theological tenets which fixed him as a conscientious separatist from the established church.

Having made choice of the profession of physic, he commenced his medical studies at the university of Edinburgh in his twenty-first year, and pursued them with that serious diligence which had marked his earliest introduction to learning and science. It was his characteristic, from the dawn of manhood, to seek the society of his superiors in age and attainments, and especially of persons of literary eminence; whence he reckoned many distinguished names among his friends and correspondents. One of these, lord Willoughby of Parham, vice-president of the Royal Society, was his particular patron; and shortly before his death proposed him for admission to that learned body, of which he was elected a fellow in his 25th year. In that year, 1765, he took the degree of M. D. at Leyden, and visited Paris and other parts of France on his return. He then married; and, after residing two years upon his property at Warrington, he removed, in 1767, to Manchester, where he almost immediately fell into extensive practice, and where he continued to reside till his death. Having during his former leisure engaged in various philosophical and experimental researches, chiefly relative to medical science, and drawn up papers on the results, he published them collectively in that year in one volume, under the title of "Essays Medical and Experimental." The favourable reception of this work induced him to follow it in 1773, which was as soon as his increasing avocations would admit, by a second volume; to which some papers of the philosophical and miscellaneous classes were added. In this many subjects of utility were touched upon; and though Dr. Percival's professional engagements, and the delicate state of his health, frequently suffering from severe headaches, did not allow him to pursue his enquiries to their farthest extent, he deserves the praise of having brought before the public several important topics which engaged the attention of others who enjoyed more leisure. A third volume of these Essays appeared in 1776.

Being the father of a rising young family, he employed some of his hours in a country retreat, during the summer of 1775, in composing for their benefit a small collection of "Moral Tales, Fables, and Reflections," which he published, and thus became distinguished in that class of highly meritorious writers, who have exercised, for the instruction of youth, powers of composition, practised in efforts of a superior, but perhaps not a more useful, kind. This little volume was very favourably received, both at home and abroad, where it was translated into the French and German languages; and it was followed by two other parts, successively adapted to readers of more advanced years. A "Socratic Discourse on Truth and Faithfulness," was a farther contribution to the plan of moral instruction by which it was his purpose to teach his elder children the most important branches of ethics by examples. The elegance of his language, the purity of his moral precepts, and the agreeable manner in which they were conveyed, justly caused him to be regarded as a great benefactor to parents in the discharge of one of their most essential duties.

Dr. Percival was a zealous promoter of all designs for mental improvement and the advancement of knowledge; and it was from weekly meetings for conversation held at his house that the Literary and Philosophical Society of Manchester took its origin. He was one of the first joint presidents, and afterwards for many years sole president, of that institution; and he contributed several valuable papers to its memoirs. The abolition of slave-trade, the repeal of the test-laws, and in general every attempt in favour of just and liberal policy, were assisted by his co-operation; whilst at the same time his mildness and moderation, his gentlemanlike demeanour, and the strict propriety

propriety of his conduct, preserved him from all angry contention. Steadily adhering to the religious sentiments which he had from conviction adopted, he however felt no alienation from those who followed different systems; and he manifested a great respect for the establishment, with many distinguished members of which he was upon terms of intimacy. Of his remaining literary productions the principal were a volume of "Moral and Literary Dissertations," 8vo. 1788, and "Medical Jurisprudence," first privately circulated in 1794, and afterwards published in an improved form, under the title of "Medical Ethics," 1803. This was the latest of his publications; and worthily terminated, by a tribute of valuable counsel to the members of a profession which he adorned, a course of authorship uniformly devoted to the best interests of his fellow-creatures. It should be added, that, although it is in the character of a writer he is chiefly entitled to biographical commemoration, that which he sustained as a physician of large experience, great sagacity, and manners singularly adapted to inspire confidence, was at least as conducive to the high reputation he enjoyed. This truly estimable person was carried off by an acute disease in August 1804, in the 64th year of his age, universally respected and regretted, and deeply lamented by a family with which he always lived in the most affectionate and confidential intercourse. His works were edited collectively by one of his sons in 1807, with a Memoir of his Life prefixed, from which, and from the Monthly Magazine of Sept. 1804, the preceding narrative is extracted.

PER'CKAM, a town of Austria: eighteen miles south-west of Freystadt.

PERCLOSE, *f.* Conclusion; last part. *Obsolete.*—By the *percolose* of the same verse, vagabond is understood for such an one as travelleth in fear of revengement. *Raleigh.*

To PER'COLATE, *v. a.* [*percolo*, Lat.] To strain through.—The evidences of fact are *percolated* through a vast period of ages. *Hale's Orig. of Mankind.*

PERCOLA'TION, *f.* The act of straining; purification or separation by straining.—Experiments touching the straining and passing of bodies one through another, they call *percolation*. *Bacon.*—Many have attempted the condensing of wines by *percolation*, or separating from them that superfluous moisture or water, which dilutes them below the true standard of vinous liquors, in order to make them richer, and fitter for keeping; but it does not appear that such attempts have as yet succeeded. *Chambers.*

PERCONTA'TION, *f.* A diligent enquiry. *Cole.*

PERCO'TE, in ancient geography, a town which belonged to Dardania, at a small distance south-west of Lampacus.

To PERCRU'CIATE, *v. n.* [from the Lat. *per*, through, and *crucio*, to torment.] To torment greatly. *Cole.*

PERCUNCTA'TION, *f.* A diligent enquiry. *Cole.*

To PERCUSS', *v. a.* [*percussus*, Lat.] To strike.—Flame *percussed* by air giveth a noise; as in blowing of the fire by bellows; and so likewise flame *percussing* the air strongly. *Bacon's Nat. Hist.*

We do love to cherish lofty spirits,
Such as *percu's* the earth, and bound
With an erected countenance to the clouds.

Beaum. and Fl. Laws of Candy.

PERCUSS'ION, *f.* The act of striking; stroke.—The *percussion* of the greater quantity of air is produced by the greatness of the body percussing. *Bacon.*—The vibrations or tremors excited in the air by *percussion*, continue a little time to move from the place of *percussion* in concentric spheres to great distances. *Newton's Opt.*—Marbles taught him *percussion* and the laws of motion, and tops the centrifugal motion. *Arbutnot and Pope.*

With thy grim looks, and
The thunder-like *percussion* of thy sounds,
Thou mad'st thine enemies shake. *Shakespeare.*

Effect of sound in the ear.—In double rhymes the *percussion* is stronger. *Rymer.*

PERCUSSIVE, *adj.* Striking; striking against.

PERCU'TIENT, *f.* [*percutiens*, Lat.] Striking; having the power to strike.—Inequality of sounds is accidental, either from the roughness or obliquity of the passage, or from the doubling of the *percipient*. *Bacon.*

PER'CY, an extensive township of America, in Grafton county, New Hampshire, watered by the several branches of Upper Ammonoosuck-river, bounded west by Northumberland, on Connecticut-river; incorporated in 1774, and containing 148 inhabitants.

PER'CY, or PERSY, a town of France, in the department of the Channel: twelve miles south of St. Lo, and fifteen north of Avranches.

PER'CY (Thomas, D. D.), a very learned prelate of Ireland, was a native of Bridgenorth in Shropshire, and educated at Christ Church, Oxford. In July 1753 he took the degree of M. A. and in 1756 he was presented by that college to the vicarage of Easton Mauduit, in Northamptonshire, which he held with the rectory of Wilbye, in the same county, given him by the earl of Suffex. In 1769 he was nominated chaplain in ordinary to the king; and in 1770 he took his doctor's degree at Emanuel-college, Cambridge. In 1778 he was promoted to the deanery of Carlisle; and in 1782 to the bishopric of Dromore in Ireland, where he constantly resided till his death, promoting the instruction and comfort of the poor with unremitting attention, and superintending the sacred and civil interests of the diocese, with vigilance and assiduity; revered and beloved for his piety, liberality, benevolence, and hospitality, by persons of every-rank and religious denomination. Under the loss of sight, of which he was gradually deprived some years before his death, he steadily maintained his habitual cheerfulness; and in his last painful illness he displayed such fortitude and strength of mind, such patience and resignation to the divine will, and expressed such heart-felt thankfulness for the goodness and mercy shown to him in the course of a long and happy life, as were truly impressive, and worthy of that pure Christian spirit in him so eminently conspicuous.

Dr. Percy was related to the family of the duke of Northumberland, and was many years domestic chaplain to the late duke. By his virtues and talents, more than by his connexions, he was raised to the prelacy, which he possessed for a long period, and the duties of which he discharged with exemplary zeal and true Christian charity. It is hardly necessary to say how much English literature has been indebted to the researches of this elegant scholar, who recovered from obscurity, and has preserved from oblivion, many beautiful remains of genius, which he gave to the world under the title of "Reliques of Ancient Poetry." In some that were mere fragments and detached stanzas, Dr. Percy supplied the deficiencies, and formed into a whole, by congenial taste, feeling, and imagination. The beautiful old ballad of "A Friar of Orders Grey," upon which Goldsmith founded his interesting Poem of "The Hermit," was among the remains of antiquity, which Dr. Percy completed in this manner; and he is the avowed author of the affecting song of "O Nannie, wilt thou gang with me." He was the last of the scholars of a famous school, the contemporary of Johnson, Gray, Shenstone, Goldsmith, Reynolds, &c. and the last of the illustrious association of men of letters who flourished at the commencement of the late long reign. In fact, he began his literary career in 1761, when he published *Han K'iou Chouan*, a translation from the Chinese; which was followed, in 1762, by a collection of "Chinese Miscellanies," and in 1763 by "Five Pieces of Runie Poetry," translated from the Icelandic language. In 1764 he published a new version of the "Song of Solomon," with a commentary and annotations. The year following he published the "Reliques of Ancient English Poetry," a work which constitutes an era to the history of English literature in the eighteenth century.

Perhaps

Perhaps the perusal of a folio volume of ancient manuscripts, given the bishop by a friend in early life, (from which he afterwards made large extracts in the Reliques,) led his mind to those studies in which he so eminently distinguished himself. The same year he published "A Key to the New Testament," a concise manual for students of sacred literature, which has been adopted in the universities, and often reprinted. After the publication of the Reliques, he was invited by the late duke and duchess of Northumberland to reside with them as their domestic chaplain. In 1769 he published "A Sermon preached before the Sons of the Clergy at St. Paul's." In 1770 he conducted "The Northumberland Household Book" through the press; the same year he published "The Hermit of Warkworth," and a translation of Mallet's "Northern Antiquities," with notes. A second edition of the Reliques of Ancient Poetry was published in 1775, a third in 1794; and a fourth was in the press at the time of his death, which took place at the sea-house near Dromore, where he had constantly resided for thirty years, on the 30th of September, 1811, in the 83d year of his age.

By his marriage he had one son, who however died before him. Two daughters survived him; the eldest married to Samuel Isted, esq. of Ecton, in Northamptonshire; and the youngest to the archdeacon of Dromore. In 1777 the Rev. John Bowle addressed a printed letter to Dr. Percy, announcing a new and classical edition of Don Quixote. In 1780 Mr. Nichols was indebted to him for many useful communications for the Select Collection of Miscellaneous Poems. When elevated to the mitre, Mr. Nichols was also under further obligations in the History of Hinckley, 1782. In 1786 the edition of the Tatler, in six volumes small 8vo. was benefited by the hints suggested by Bp. Percy to the Rev. Dr. Calder, the learned and industrious annotator and editor of those volumes. The subsequent editions of the Spectator and Guardian were also improved by some of his lordship's notes. Between the years 1760 and 1764, Dr. Percy had proceeded very far at the press with an admirable edition of "Surrey's Poems," and also with a good edition of the works of Villiers duke of Buckingham; both which, from a variety of causes, remained many years unfinished in the warehouse of Mr. Tonson, in the Savoy; but were resumed in 1795, and nearly brought to a conclusion; when the whole impression of both works was unfortunately consumed by the fire at Mr. Nichols's office, in Red Lion Passage, in 1808.

It is very remarkable, that the bishop's successor, Dr. Hall, survived his elevation only ten days; he died the very day on which his promotion to the see of Dromore was announced in the London Gazette. *Gent. Mag.* Nov. 1811.

PERDI', or PERDY, *adv.* [a corruption or softening of the French oath *Par Dieu*, by God.] A term of asseveration frequent in our ancient poetry; and, as Mr. Mason observes, it is used sometimes for *verily*, but often without any apparent meaning at all.—That redcrosse knight, *perdie*, I never slew. *Spenser*.—*Perdy* your doors were lock'd, and you shut out. *Shakespeare's Com. of Errors*.

She wist not, silly mayd, what she did aile,
Yet wist she was not well at ease, *perdy*;
Yet thought it was not love, but some melancholy. *Sp.*

So she, not having yet forgot, *perdy*,
Her wonted shifts and sleights in Cupid's toys,
A sequence first of sighs and sobs forth cast,
To breed compassion dear, then spake at last. *Fairfax*.

The knave turns fool, that runs away,
The fool no knave, *perdy*.

K. Lear.

It has become obsolete with us; but is still used in France, most commonly, instead of the awful oath *Par Dieu*, in order, if possible, to cheat the devil. We have similar softenings and shifts in the English language, used

with the same intentions, and producing the same effect; that is, none at all.

PERDIC'CAS, the name of several kings of MACEDON. See that article, vol. xiv. and GREECE, vol. viii. p. 949, 50.

PERDI'CIUM, *f.* [appears to have been so called by Linnæus, on account of a considerable resemblance between his original species, *semiflosculare*, and his Leontodon (now Hieracium) bulbosum. The latter was thought by some to be the *περδικιον* of Theophrastus, which received that appellation, as the Greek writer expressly mentions, because partridges frequented the plant and scratched its roots out of the ground. Now the roots of the Linnæan *Perdicium semiflosculare* are copious, long, and fleshy, and we cannot doubt that hence arose the scarcely-warrantable assumption of an old Greek name for a Cape and American genus, though that name had hitherto not been, with any certainty, appropriated.] In botany, a genus of the class syngenesia, order polygamia superflua, natural order of compositæ discoideæ, (corymbifera, *Juss.*) Generic characters.—Calyx: common oblong, imbricate; leaflets lanceolate, the inner ones scarcely longer than the corolla. Corolla: compound, imbricate, rayed: corollets hermaphrodite in the disk; female in the ray. Proper of the hermaphrodite tubular, semibifid: inner lip two-parted, acuminate, equal; outer semitrid, linear, equal: of the female linear, ligulate, three-toothed, two-toothed within at the base. Stamina: in the hermaphrodites; filaments five, short; anthers cylindrical, tubular, five-toothed. Pistillum: in the hermaphrodites; germen small; style simple; stigma bifid, blunt. In the females; germen small; style semibifid; stigmas blunt. Pericarpium none; calyx unchanged. Seeds solitary, obovate; down capillary, sessile, very copious, the length of the calyx, fastigate. Receptacle naked. The flower resembles a semifloscular corolla, though it is really rayed. The character is taken from *P. semiflosculare*, which is very distinct in the genus. *P. radiale* agrees with the genus in its bilabiate capsules, but differs in the whole habit. *P. brasiliense* has subradiate flowers, and hermaphrodite bilabiate florets in the disk and ray.—*Essential Character*. Corollets bilabiate; down simple; receptacle naked. There are fourteen species.

1. *Perdicium semiflosculare*: flower semifloscular; scape one-flowered, naked. Root fibrous. Stature of Leontodon. Root-leaves of Taraxacum, naked. Scape the length of the leaves. Flower the size of Leontodon; calyx of Scorzonera. Corolla rayed; corollets between those of semifloscular and radial flowers, semibifid, with the inner lip two-parted, the outer three-parted. Down simple. Receptacle naked. Native of the Cape of Good Hope.

2. *Perdicium radiale*; (*Inula Trixis*, *Linn. Amoen. v. 406*. *Trixis frutescens*, *Brown's Jam. 312. t. 33. f. 1.*) Flowers subradiate, outer calyx four-leaved, stem shrubby. Habit of the flowers as in *Inula* or *Conyza*. These two species differ in their whole appearance, and are scarcely allied; but the singular division of the corollets, in the outer segments smoother, almost as in *Elephantopus*, made Linnæus unite them, till they were examined more carefully in a living state. Browne says, that this little shrub is very common in the savannas about Kingston in Jamaica, and seldom rises above four or five feet in height. The common receptacles are disposed at the extremities of the branches, and the outer divisions of the flowers grow gradually smaller, and curl more downwards as they approach the centre; which gives the whole something the appearance of a radiated flower, at the first appearance.

3. *Perdicium Brasiliense*: flowers subradiate, calyxes simple, stem herbaceous. Root-leaves lanceolate-ovate, repand-toothed, subpubescent, viscid; stem-leaves alternate, sessile, lanceolate, narrow, somewhat toothed. Flowers at the top of the stem, naked, several: they have the appearance of *Arnica montana*, with the corolla yellow.

yellow. Florets both in the disk and ray bilabiate hermaphrodite. Native of Brazil.

4. *Perdicium Magellanicum*: leaves runcinate; stem two-leaved, simple, one-flowered. This is a pretty little plant. Leaves small, radical, several. Stem quite simple, tomentose, with two alternate ferrate leaves. Flower white, rayed. Native of Terra del Fuego.

5. *Perdicium tomentosum*: leaves lyrate, tomentose underneath. This is a small, stemless, herbaceous, plant. Leaves radical, several, petioled, erect, a finger's length; lobes toothed, the end-tooth rounded. Scape tomentose, erect, one-flowered, a little longer than the leaves. Calyx many-leaved, imbricate, smooth. Flowers with a purple ray; corollets of the disk yellow, four-cleft; one segment longer, linear, more deeply divided from the rest; the two lateral ones similar and equal; the middle one wider, rounded, scarcely longer than the lateral ones. Native of Japan; flowering there in April and May.

6. *Perdicium lævigatum*: flowers subradiate, stem suffruticose; leaves lanceolate acute, quite entire. Calyx cylindrical, consisting of eight equal leaves in one row; besides which, it has often at the base two or four similar leaflets, a little longer than the others. All the florets androgynous, bilabiate, fertile; in the disk four or five, tubular, bifid at top, with the lips equal, concave, quite entire, villose on the outside; in the ray eight, unequally bilabiate; the outer lip ovate-oblong, with two or three teeth, and rayed; inner lip linear, quite entire, rolled back at the tip. Receptacle narrow, flat, densely and very-shortly villose; seeds uniform, oblong, obsolete angular, with very minute bristles scattered over them, bay-coloured. Down bristle-shaped, with very many toothlets, twice as long as the seed. This differs from the others in the shape of the florets.

7. *Perdicium anandria*, or Siberian *perdicium*; (*Tussilago anandria*, *Lin.*) Stalk radical, single-flowered, with several awl-shaped bractes; leaves lyrate, acute, denudated on both sides; calyx closed, longer than the florets. Native of Siberia and the northern parts of China, in mountainous fields. Cultivated by Miller in 1759. It flowers in March, and is perennial; but has nothing to recommend it as a garden-plant, except botanical singularity. The root, according to Gmelin, consists of many fleshy spreading fibres, like that of *aphodel*. Leaves radical, stalked, minutely toothed; when young, cottony beneath, but becoming naked and smooth on both sides when fully grown. Flower-stalk a foot high, much taller than the leaves; flower nearly globose; its calyx downy, closed, rising much above the florets, which appear to have the proper characters of *Perdicium*, as was first pointed out by Mr. Brown. The whole habit of the plant, compared with the preceding species, confirms his determination of the genus.

8. *Perdicium populifolium*; (*Tussilago scapo imbricato*, *Gmel. Sib. ii. 141. t. 67. f. 1.*) Stalk radical, single-flowered, with several sheathing bractes. Leaves ovate, wavy, toothed; densely woolly beneath. Root creeping. Native of Siberia, in stony places. The root creeps among stones, and is not thicker than a crow's quill. Leaves simple, (not lyrate,) wavy or coarsely toothed; cottony beneath at all times; clothed with deciduous down on the upper side when young, but afterwards smooth and shining, of a dark purplish hue. Flower-stalk invested with three or four broad, sheathing, finally smooth, bractes. Flowers white; calyx chiefly downy at the base, scarcely more than half the length of the spreading radius, which is white.

9. *Perdicium purpureum*: stems mostly simple, nearly leafless, ascending; flowers solitary; leaves pinnatifid, cut, loosely woolly; radius revolute. Gathered by Commerçon in the Straits of Magellan. The root is perennial, with long slender fibres. Stems several, ascending three or four inches high, simple or rarely divided, loosely woolly, bearing usually one pinnatifid leaf near the base, and several alternate linear undivided ones higher up.

Leaves mostly radical, stalked, clothed with fine long lax deciduous wool, deeply pinnatifid; their segments ovate, or wedge-shaped, deeply and irregularly cut; their margins generally entire and smooth, but now and then minutely spinous. Flowers terminal, solitary, about an inch wide; radiant florets ovate, entire, revolute, purple. Down more feathery than in the rest. Given by Thouin to the younger Linnæus.

10. *Perdicium nervosum*: leaves simple; downy and ribbed beneath. Native of the Cape of Good Hope. *Willdenow.*

11. *Perdicium Chilense*: stem leafy, single-flowered; leaves linear-lanceolate, stalked, ferrated at the extremity. Native of Chili. Root perennial. Stems several, a span long, ascending, smooth, leafy, single-flowered. Leaves half an inch long, linear-lanceolate, tapering at each end, very narrow, sharply ferrated at the apex. Footstalks longer than the leaves. Bractes numerous, somewhat stalked, of the shape of the leaves, surrounding the flower, which is radiated. *Willdenow.*

12. *Perdicium laëticoides*; (After magellanicus, *Lamarck.*) Stem leafy, single-flowered. Radical leaves elliptic-lanceolate, on long stalks; the rest sessile, clasping the stem. Gathered at the Straits of Magellan, by Commerçon, who having marked his specimens as an *Alter*, the plant was described as such by Lamarck. The whole herb is destitute of pubescence. Stem from one to nearly two feet high, slender, quite simple, round, leafy. Radical leaves several, an inch or two long, entire, on slender almost-capillary footstalks, three or four times their own length. Flower solitary, rather drooping, not unlike that of *P. Magellanicum*, but scarcely half so large.

13. *Perdicium squarrosum*: stem many-flowered; leaves pinnatifid, with toothed bristly segments. Gathered by Commerçon at Monte Video. A very handsome species. The stem is above a foot high, leafy, corymbose, hispid in the manner of the fourth species. Leaves sessile, two or three inches long, linear, shining, rough with minute points; the radical leaves most numerous, somewhat stalked, their segments rather folded or imbricated. Flowers solitary at the top of each branch, from four to eight in all, an inch broad; calyx rough, pointed, its outer leaves fringed; radius purple, revolute.

14. *Perdicium recurvatum*: stem somewhat shrubby; leaves linear-lanceolate, recurved, revolute, bordered with minute spines; flowers terminal, solitary. Gathered by Commerçon at the Straits of Magellan. This seems to be a low tufted much-branched shrub, with crowded shining leaves an inch long. Flowering branches erect, roughish upwards, each bearing a few alternate, fringed, clasping leaves, and one erect purple flower, about an inch wide, whose outer calyx-leaves are fringed with small spines. A very pretty and singular species, which, though different in its first aspect, displays, when examined, abundant marks of affinity to the rest. This genus is the *TRIXIS* of Brown; and is nearly allied to *TUSSILAGO* and *ANANDRIA*.

PERDI'DO, or *PERDIGO*, a river and bay on the coast of West Florida. The mouth of the river is about ten leagues east of Mobile Point, and four west of the line of Pensacola. It has a narrow entrance, with a bar of six feet, but afterwards widens considerably. This was formerly the boundary between Florida and Louisiana, separating the (then) French and Spanish dominions, and is now considered as the eastern boundary of Louisiana, though both countries now belong to the United States. The river stretches in one place north-east, where it passes within a mile of the great lagoon west of the entrance of Pensacola Harbour; and runs into the Gulf of Mexico, forming a large bay at its mouth, in lat. 30. 20. N. lon. 87. 26. W.

PER'DIFOL, *f.* [from the Lat. *perdo*, to destroy, and *folium*, a leaf.] A plant that drops its leaves in winter.

PERDIT'ION, *f.* [*perditio*, Lat.] Destruction; ruin; death.—Upon tidings now arrived, importing the meer

perdition of the Turkish fleet, every man puts himself in triumph. *Shakespeare*.

Quick let us part! *Perdition's* in thy presence,
And horror dwells about thee! *Addison's Cato*.

Loss:

There's no foul loft,
Nay not so much *perdition* as an hair
Betid to any creature in the vessel
Which thou saw'st sink. *Shakespeare's Tempest*.

Eternal death.—Men once fallen away from undoubted truth, do after wander for evermore in vices unknown, and daily travel towards their eternal *perdition*. *Raleigh's Hist.*

PER'DIX, a young Athenian, son of the sister of Dædalus. He invented the saw, and seemed to promise to become a greater artist than had ever been known. His uncle was jealous of his rising fame, so he threw him down from the top of a tower, and killed him. Perdix was changed into a bird, (the partridge,) which bears his name. *Hygin. fab. 39. & 274.—Ovid. Met. viii. 220, &c.*

PERDO'LI, a town of Istria: four miles north-north-west of Pola.

PERDU', *adv.* [Fr. *loft*, or appearing to be lost; as, *enfans perdus*, advanced sentinel, or forlorn hope.] Close; in ambush.—If a man is always upon his guard, and (as it were) stands *perdu* at his heart. *South*.—If God keep not the house and the city, in vain the builder builds, and the watchman wakes, and the sentinel stands *perdu*. *Abp. Sancroft*.

Few minutes he had laid *perdue*,
To gnard his desp'rate avenue.

Hudibras.

PER'DU, *f.* [Fr. *loft*. It was often accented on the last syllable in poetry.] One that keeps watch by night.—Call in our *perdués*. *Suchling's Goblins*.

As for *perdués*,

Some choice fous'd fish brought couchant in a dish,
Among some fennel or some other grass,
Shews how they lie i' th' field. *Cartwright's Ordinary*.

One of ruined fortunes:

I know him for a wild corrupted youth,
Whom profane ruffians, squires to bawds, and strumpets,
Drunkards spew'd out of taverns into th' sinks
Of tap-houses and stews, revolts from manhood,
Debauch'd *perdués*, have by their companies
Turn'd devil-like themselves. *Chapman's Widow's Tears*.

PER'DU, *adj.* Employed on desperate purposes; accustomed to desperate purposes:

A *perdue* captain,
Full of my father's danger. *Beaum. and Fl. Loy. Subject*.

PERDU' (Mont), the loftiest mountain of the Pyrenées, and the most elevated in which any marine remains have been found in Europe. M. Ramond observed that this mountain was calcareous, and contained shells and other organized bodies, in a fossil state, at an elevation of about 3000 metres. As he ascended this mountain, in August 1802, by passing the Col de Fanlo, or Nisele, he constantly found strata of compact carbonated lime in a position nearly vertical. They include strata of calcareous sandstone, and these strata sometimes cover the salient angles of the vertical strata, nearly in a horizontal direction. This calcareous stone falls off spontaneously in little irregular fragments; and on the slightest friction, or dissolved in acids, it emits a nauseous fœtid smell, probably owing to the animal matter it contains. Some of the strata of this stone contain nodules of flint; others such considerable masses of "Camerines," that the stone appears entirely composed of them. The summit is formed of a fœtid limestone, contaminated with quartz, and containing a little iron, and $\frac{1}{50}$ th of carbon, without alumine. The elevation of this summit is the same as that of the Col du Géant in the Alps, or 3426 metres = 3727 yards.

VOL. XIX. No. 1328.

M. Ramond has ascertained the limits of permanent snow, and of vegetation, for this lofty part of the Pyrenean chain. The snow terminates at 2440 metres. The last trees are Scotch firs, which reach 2150 metres. Next come the shrubs, of which the juniper is the highest. At 2760 metres were found the *Ranunculus parnassia foliis*, the *Saxifraga Groenlandica*, &c. then the *Artemisia rupestris* of Lamarck; and lastly, round the very peak of Mont Perdu, on rocks too sloping to retain the snow, grow the *Cerastium*, perhaps the alpinum of Linnæus, and the rose-flowering *Aretia alpina*.

PERDUC'TION, *f.* [from the Lat. *per*, through, and *duco*, to lead.] The act of leading through. *Cole*.

PER'DUE BA'Y, a bay on the south-west coast of the island of St. Vincent: one mile north-west of Kingston Bay.

PERDUEL'ION, *f.* [*perduellio*, Lat.] An open act of hostility. *Cole*.

PERDUEL'LISM, *f.* An open act of hostility.

PER'DULOUS, *adj.* [from *perdo*, Lat.] Lost; thrown away.—There may be some wandering *perdulous* wishes of known impossibilities; as a man who hath committed an offence, may wish he had not committed it: but to chuse efficaciously and impossibly, is as impossible as an impossibility. *Bramhall against Hobbes*.

PER'DURABLE, *adj.* [Fr. from *perduro*, Lat.] Lasting; long continued. A word not in use, nor accented according to analogy.—O *perdurable* shame! let's stab ourselves. *Shakespeare*.

The vigorous sweat
Doth lend the lively springs their *perdurable* heat. *Drayton*.

PER'DURABLY, *adv.* Lastingly:

Why would he for the momentary trick
Be *perdurably* fin'd? *Shakespeare's Meas. for Meas.*

PERDURA'TION, *f.* Long continuance.

PERDY'. See PERDI'.

PERE-EN-RET'Z (St.), a town of France, in the department of the Lower Loire, and chief place of a canton, in the district of Paimbœuf. The place contains 1973, and the canton 5988, inhabitants.

PERE'A, a small island near the coast of Brasil. Lat. 2. 22. S. lon. 45. 2. W.

PEREAS'LAU, a strong populous town of Poland, in the palatinate of Kiovia, situated on the river Tribeccz. Lat. 49. 46. N. lon. 32. 44. E.

PEREBE'A, *f.* in botany, (Aubl. Guian. 952. t. 361. *Juss. 402.*) a Guiana plant, whose botanical characters are not fully known. Aublet describes it as a middling-sized tree, throwing up from the root many straight flexible trunks, about four or five inches in diameter, which bear striated leafy branches. Leaves alternate, nearly sessile, elliptic-oblong, pointed, wavy and somewhat toothed, a foot or more in length, and about five inches wide, green, smooth and shining, with one principal rib and many transverse ones. When held against the light, these leaves appear full of transparent dots. Stipules solitary, large, membranous deciduous. Flowers axillary, on short stalks, solitary, each consisting of a flat fleshy receptacle, toothed at the edge, two inches or more in diameter, its upper surface covered with about thirty crowded florets, and at length becoming convex. Each floret consists of a tubular calyx, with four teeth, embracing a roundish germen, a fleshy columnar style, and cloven stigma. Aublet saw nothing of the stamens, which he supposes are in separate flowers, on a distinct tree. The calyx becomes a fleshy fruit, of a coral red, containing a single seed, as in the mulberry; but each fruit falls off separate, leaving the receptacle bare. Every part of the tree yields a milky juice. The bark serves for cordage. This genus is justly ranged by Jussieu in his natural order of Urticæ, being evidently allied to *Ficus*, *Morus*, *Broussonetia*, &c.

PER'EFIXE (Hardouin de Beaumont de), a prelate and historian, descended from an ancient family in Poitou, was the son of cardinal Richelieu's maitre-d'hotel. That

minister took care of his education; and, being brought up to the church, he was made a doctor of the Sorbonne, and preached with applause. He was chosen to be preceptor to Louis XIV. and some time after was nominated to the see of Rhodéz; but, as he could not fulfil the duties of both these functions, he resigned his bishopric. In 1654. he was admitted into the French Academy. By the king's command, he composed an abridgment of French history, from which he detached the Life of Henry IV. and it was published at Amsterdam in 1661, and with augmentations at Paris the year after. The last Paris edition is of 1749. Though written in a negligent style, it is accounted an excellent work, and one which gives a better picture of that amiable monarch than the fuller history of Father Daniel. Perefice likewise published a small piece, entitled "Institutio Principis," 1647, being a plan of royal education during the period of childhood. In 1664. he was created archbishop of Paris, and had the fortune to be deeply involved in the quarrels of Jansenism. He was governed by the Jesuits; and it was by the advice of Father Annat that he published his *mandement* for the pure and simple signature of the Formulary of Alexander VII. He imagined the distinction between divine faith and human faith, which pleased the fanatics of neither party. He gave particular offence by requiring a subscription of the Formulary from the nuns of Portroyal, and thence has been painted in unfavourable colours by the writers of that party. His private character, however, was mild and amiable. He died at an advanced age in 1676.

PERE'GAL, *adj.* [French.] Equal. *Obsolete.*

Whilom thou wast *peregal* to the best,
And wont to make the jolly shepherds glad;
With piping and dancing didst pass the rest. *Spenser.*

PEREGRINARY, *f.* [*peregrinarius*, Lat.] In the ancient monasteries, a monk to whom was committed the care of receiving and entertaining strangers, or visitors.

To PER'EGRINATE, *v. n.* [*peregrinor*, Lat.] To travel; to live in foreign countries.

PEREGRINA'TION, *f.* [French.] Travel in foreign countries.—That we do not contend to have the earth pass for a paradise, we reckon it only as the land of our *peregrination*, and aspire after a better country. *Bentley.*

PEREGRINA'TOR, *f.* [Latin.] A traveller.—He makes himself a great *peregrinator*, to satisfy his curiosity, or improve his knowledge in natural things. *Casaubon on Credulity.*

Mr. Todd derives this word from the verb to peregrinate; but it is pure Latin. Cicero says, "*Non tam sum peregrinator jam quam solebam. Edificia mea me delectant. I am not so much of a peregrinator as I used to be. Raising new buildings keeps me at home, and delights me.*" *Cic. fam. i. 18.*—Here we note the real feelings of a man getting old. He gives up visiting distant places; he lives quietly upon his estate; looks about his own grounds; improves his premises with new edifices, and suitable additions to his family-mansion; and endeavours to find at home the diversions which, when young, he sought for abroad. Such a man was this highly-esteemed consular personage, M. T. Cicero. *Etymological Gleanings, MS.*

PER'EGRINE, *adj.* [*peregrin*, old Fr. now *pelerin*; *peregrinus*, Lat.] Foreign; not native; not domestic.—The received opinion, that putrefaction is caused by cold or *peregrine* and preternatural heat, is but nugation. *Bacon's Nat. Hist.*—A term applied, among astrologers, to a planet, when found in a sign where it has none of its five essential dignities.

PEREGRINITY, *f.* [*peregrinité*, old Fr.] Strangeness.—Mr. Boswell says, that Dr. Johnson coined this word; and, upon being asked if it was an English one, he replied No. See his Journal of a Tour to the Hebrides. It is, however, an old English word; and, being inserted in the vocabulary of Cockeram, early in the seventeenth century, may be presumed to have been in use; but it is

not worthy to be revived. *Todd.*—These people, sir, that Gerrard talks of, may have somewhat of a *peregrinity* in their dialect, which relation has augmented to a different language. *Boswell's Tour*, 2d edit.

PEREGRINUS, surnamed PROTEUS, a cynic philosopher in the second century, was a native of Parium in Pontus. If we are to credit the account which Lucian has given of him, his conduct in early life was profligate and flagitious; having been guilty of adultery when he had scarcely reached the age of manhood, and even suspected of strangling his own father, in order to get possession of his estate. Being obliged to fly from his country, he went to Palestine, where he made a profession of Christianity, and gained a temporary credit with the Christians, by his firmness in submitting to imprisonment under Trajan's persecution, sooner than renounce his avowed principles. During his confinement, he was visited by deputies from the churches of Asia, who liberally administered to his relief; and, in the character of a persecuted believer, he contrived to amass a considerable sum of money. At length he was set at liberty by the governor of Syria, who was a lover of philosophy, and admired the contempt of death which Peregrinus displayed. Upon this he returned to Parium, where he secured exemption from the punishment due to his crimes, by surrendering his property to the use of the city, and acquired reputation in the character of a disinterested philosopher. By the charity of the Christians, whom he still continued to deceive, he was furnished with all necessary supplies, till, having been detected in the commission of some crime, he was dismissed from their society, and fell into indigence. He now endeavoured to recover the possession of his estates from the city, by the intervention of the imperial authority; but failed in that design, and went into Egypt. Here, in the character of a mendicant cynic, he practised the most extravagant exploits of fanaticism, in order to show his contempt for the opinion of the world. From Egypt he went to Italy and Rome, where he poured forth the most indecent invectives against men of rank, and even the emperor himself, whose bounty he experienced; till at length the prefect was provoked to drive him from the city. Passing over into Greece, he attracted the admiration of the crowd at Athens, by the severity of his cynical manners, and the lectures which he delivered.

Finding, by degrees, their enthusiasm in his favour becoming less ardent, he determined to procure an immortal name, by burning himself at the olympic games, in imitation of Hercules. This design he announced throughout the whole of Greece; and, at the appointed time, went to Olympia, where, in the presence of a vast concourse of spectators, he raised a funeral-pile, and devoted himself to voluntary death. By the weaker part of the assembled multitude this action was highly applauded, and Peregrinus was spoken of as worthy of divine honours; but it was properly condemned by the wise, and finely exposed by Lucian, who observes, that, of all who have been plagued with that passion, the love of fame, there can scarcely have been one who had fewer pretensions to her favour than our cynic.

In the foregoing particulars we have chiefly followed the Grecian satirist; but it may be questioned whether he has given a strictly impartial account of the character of Peregrinus: for Aulus Gellius speaks of him as a philosopher of reputation at Athens, who was admired for his constancy, and whose moral lectures were much frequented. The story of his last mad adventure is probably true. According to Eusebius, he committed himself to the flames in the year 168. *Lucian de Morte Peregrini. Aul. Gel. lib. xii. xiii. Enfield's Hist. Phil. vol. ii.*

PERE'IRA (Bartholomé), a Portuguese Jesuit, and one of the many epic poets whom that extraordinary society has produced. The work which he published bears this title, "*Pacificados, libri 12.*" Coimbre, 1640. It is rarely met with. Any person acquainted with Portuguese history would suppose that Pacheco to be the hero whose

whose exploits against the Zamorin approach more nearly to the achievements of Amadis or Palmerin than any other parallel which history can supply: the poem, however, is in honour of a Jesuit who suffered martyrdom in Japan, and to whom the poet was related.

PERCIRA has written without any appropriate learning. Except the names of the idols and the bonzes, there is no allusion to any rite or custom of the country. There are, however, some curious passages in the poem, particularly a personification of Amor Vitæ, and some of real merit. Were a collection of the modern Latin poets to made, the *Pacicis* ought undoubtedly to be included. R. S. in *Gen. Biog.*

PERE'IRA DE SU'SA, a town of Portugal, in the province of Beira: twenty-three miles north-east of Bragança Nova, and eighteen south-east of Oporto.

PEREK, a town of Persia, in the province of Faristan: fourteen miles north of Darabgherd.

PER'EKOP, a fortress of Russia, in the province of Tauris, on the isthmus which joins the peninsula to the continent, and which has always been reckoned the key to the whole country. Its name is Sclavonian, and signifies "a cut made through" a place; being derived from a ditch dug here, in very remote ages, across the neck of land at the entrance of the Crimea, for the security of the peninsula; and which has been from time to time repaired, and at length fortified. On this account the Greeks called it *Taphros*, or *Taphra*, and the Turks and Tartars *Or*; which have pretty much the same signification with Perekop. The houses here are but mean. In the years 1638 and 1736, the Russians took it; at the last of which times, the whole Turkish garrison, consisting of 2554 men, were made prisoners of war. Though the Russians demolished the place, the Tartars took the pains to rebuild it. In 1771, it was again taken by the Russians, when the garrison surrendered prisoners of war. In 1783 it was finally ceded to Russia, with the rest of the Crimea; by the abdication of the khan. It is 132 miles south-south-west of Ekaterinoslav, and 220 west-south-west of Azof. Lat. 46. 4. N. lon. 33. 20. E.

PEREKOPSKA'IA, a town of Russia, in the country of the Cossacks, on the Don: forty-eight miles south of Archadinkaia.

PEREL'LI (Thomas), a very able Italian mathematician, was born in 1704 at Florence, where his father was an advocate. He received the early part of his education at his native place, under the Jesuits; and, being destined by his father for the law, was sent to Pisa, where he attended the celebrated Averani, but without neglecting other branches of study, for which he seemed to be better fitted, and particularly the mathematics. In this department he made so great progress, without any assistance, that he attracted the notice of the celebrated Guido Grandi, who received him into his monastery of St. Michael, and communicated to him his writings on algebra. Having abandoned the law, he applied to philosophy and medicine; and, at length, succeeded Zambeccari in the chair of anatomy. The death of his father having obliged him to return to Florence, he had an opportunity not only of prosecuting his mathematical researches, but of applying to botany, Greek and Roman literature, ancient and modern history, and the examination of the monuments of antiquity in the Medicean collection. He frequently travelled with the celebrated Micheli, then considered as the Tournefort of Italy, and participated with him in the discovery of many new plants. He then removed to Bologna, where he formed an acquaintance with Manfredi, Beccari, Zanotti, and other eminent men. After various literary tours, he offered his services to the president of the University of Pisa, and in 1739 was made lecturer on astronomy. At this time astronomy was in a very neglected state in that institution; and, though a new observatory had been erected by the munificence of the duke of Tuscany, little progress had been made in the study of that science. Perelli, therefore, in

his inaugural discourse, written in elegant Latin, showed with great force and energy the necessity of restoring astronomy to its former dignity. He also endeavoured to procure for the observatory the best instruments, made by the most eminent English artists; and his zeal was well seconded by the liberality of Francis II. who refused no expense which could contribute to the benefit of his states. But Perelli had too fervid an imagination to be a laborious and patient observer. A few observations of eclipses, a part of Ptolemy's *Almagest* translated by him into elegant Latin, and a second preface to observations made by his assistant, containing a History of the Observatory of Pisa, were his only writings of the astronomical class.

His fame, however, was soon spread beyond the boundaries of Italy. The solution of an optical problem, "To find a curve of such a nature, that the rays of light which fall upon it shall always proceed, after two reflections, to one point in the middle," transmitted to the Academy of Sciences at Paris by the French minister at Florence, convinced Clairault, Bouguer, and Landelle, that he was fit to be associated with mathematicians of the first class. The approbation of these eminent judges incited him to apply with greater diligence to geometry; and besides other discoveries, he gave a solution of that curious problem, "To find the point of greatest illumination in a plane, supposing that there are placed at any distance from it a certain number of lights." How well Perelli was acquainted with synthesis, may be seen by the solution of that problem in which it is required "To find the radius of a circle that shall touch externally three other circles, the centres and radii of which are known;" a problem which Newton thought worthy of a place in his *Universal Arithmetic*, and which, after many solutions, both ancient and modern, was solved by our author with masterly and elegant simplicity.

One of the great services rendered by Perelli to his country, was the happy application which he made of his mathematical knowledge to hydrostatics, hydraulics, and hydraulic architecture. Unfortunately for Italy, it has often need of some superior genius to regulate the abundance of its waters, and provide for the security of its inhabitants, particularly where the natural courses of the rivers have been so changed, either by the different interests of the princes who rule in it, or the operations undertaken according to their caprice, that, without the application of artificial means, they cannot be prevented from inundating whole provinces. This necessity has produced a science which the Italians exclusively claim as their own; and in which, from the opportunities they have of acquiring practical knowledge, they are undoubtedly superior to the mathematicians of other countries. Perelli, formed in the school of Grandi and Manfredi, to whom this science was so much indebted, is entitled to the honour of having greatly contributed to improve it; and it may be said, that after the death of these two eminent men, there was no affair of consequence relating to it, in which he was not either employed or consulted. His great merit, in this respect, is fully proved by the various treatises which he wrote on that subject; such as, *Il Ragionamento sopra la Campagna Pisana*; *La Relatione sopra il modo de liberare la Campagna del Valdarno inferiore dall' inondazioni dall' Ufciana*; and *Relazione della maniera di dare scolo alle acque stagnante del pian del Lago*; which form a part of the ninth volume of the *Raccolta* of the author in regard to the motion of running water, published at Florence in 1774. It would be tedious to mention all the advantages which were the happy consequence of carrying Perelli's ideas into execution; and which he explains in the works above mentioned, and in others never published.

In the course of his different tours he collected remains of antiquity, and productions of the best artists; but particularly painters, sculptors, and architects, of which he was an excellent judge; also rare manuscripts and books.

He

He exercised his ingenuity in restoring ancient inscriptions, for which he possessed a wonderful talent; and amused himself sometimes in composing Greek and Latin verses, in which he endeavoured, and not without success, to imitate the ease and elegant simplicity of the ancients. Perelli was well versed, likewise, in theology, and had read the works of many of the ancient fathers, but particularly those written in Greek; and was thoroughly acquainted with the various theological disputes which have taken place in the Christian church. In the course of his reading he seldom made extracts of remarkable passages, trusting entirely to his memory, which was exceedingly retentive; but, during the last three years of his life, his faculties became greatly impaired. In the year 1779, finding himself unfit to discharge the duties of his office in the university of Pisa, he requested leave to resign; and died of apoplexy in October 1783. *Elogi d'illustri Italiani*.

PERELOMO'V, a town of Russia, in the government of Irkutk, on the Amur: fifty-six miles north-east of Stretenk.

To PEREM'PT, *v. a.* [*peremptus*, Lat.] To kill; to crush. A law-term.—Nor is it any objection that the cause of appeal is *perempted* by the desertion of an appeal; because the office of the judge continues after such instance is *perempted*. *Ayliffe*.

PEREM'PTION, *f.* Crush; extinction.—This *peremption* of instance was introduced in favour of the public, lest suits should be rendered perpetual. *Ayliffe*.

PEREM'PTORILY, *adv.* Absolutely; positively; so as to cut off all farther debate.—God's laws *peremptorily* injoin us, and the things therein implied do itraightly oblige us, to partake of the holy sacrament. *Kettlewell*.—Some talk of letters before the deluge; but that is a matter of mere conjecture, and nothing can be *peremptorily* determined either the one way or the other. *Woodward*.—Never judge *peremptorily* on first appearances. *Richardson's Clarissa*.

PEREM'PTORINESS, *f.* Positiveness; absolute decision; dogmatism.—*Peremptoriness* is of two sorts; the one a magisterialness in matters of opinion; the other a positiveness in relating matters of fact. *Gov. of the Tongue*.—Self-conceit and *peremptoriness* in a man's own opinion are not commonly reputed vices. *Tillotson*.

PEREM'PTORY, *adj.* [*peremptoire*, Fr. *peremptorius*, low Lat. from *peremptus*, killed.] Dogmatical; absolute; such as destroys all further expostulation.—He may have fifty-six exceptions *peremptory* against the jurors, of which he shall shew no cause. *Spenser*.—Though the text and the doctrine run *peremptory* and absolute, whosoever denies Christ shall assuredly be denied by him; yet still there is a tacit condition, unless repentance intervene. *South*.—The more modest confers, that learning was to give us a fuller discovery of our ignorance, and to keep us from being *peremptory* and dogmatical in our determinations. *Collier*.

To-morrow be in readiness to go:
Excuse it not, for I am *peremptory*.

Shakespeare.

PEREM'SCHAL, a town of Russia, in the government of Kaluga, on the Oka: sixteen miles south-south-west of Kaluga. Lat. 54. 15. N. lon. 35. 44. E.

PERENDO'RE, or PERENTORA'Y, a town of Hindoostan, in the Mysore, taken by Lieut.-Col. Oldham in 1790: ten miles south-west of Erroad.

PERENE, a river of Peru, which rises about forty miles north of Tarma, and after a south-easterly course of above 100 miles, joins the Xauxa, to form the Ene.

PEREN'NIAL, *adj.* [*perennel*, old Fr. *perennis*, Lat.] Lasting through the year.—If the quantity were precisely the same in these *perennial* fountains, the difficulty would be greater. *Cheyne*.—Perpetual; unceasing.—The matter wherewith these *perennial* clouds are raised, is the sea that surrounds them. *Harvey*.

PEREN'NIAL, *f.* A plant of which the roots will en-

sure many years, whether they retain their leaves in winter or not. Those which retain their leaves are called *evergreens*; but such as cast their leaves are named *deciduous* plants, or *perdifols*.

PEREN'NITY, *f.* [*perennité*, old Fr. from *perennitas*, Lat.] Quality of lasting through all seasons; perpetuity.—That springs have their origin from the sea, and not from rains and vapours, I conclude from the *perennity* of divers springs. *Derham's Phys. Theol.*

PEREN'TICIDE, *f.* [from the Lat. *pera*, a purse, and *caedo*, to cut.] A cut-purse. *Cole*.

PERERRATION, *f.* [*pererratus*, Lat.] Travel; act of rambling through various places.—These may be said to have been carried up and down through many countries; and, after a long *pererration* to and fro, to return as wise as they went. *Honell's Instruct. for Trav.*

PE'RES, or CONSTANTINE PERES, an island on the coast of Chili, near the harbour of Valdivia.

PERES'KIA, *f.* in botany. See CACTUS.

PERESLAVELZAL'SKOL, a town of Russia, in the government of Vladimir: sixty miles north-west of Vladimir. Lat. 56. 35. N. lon. 38. 54. E.

PEREU'IL, a town of France, in the department of the Charente: twelve miles from Angoulême.

PEREVOLOTZKA'IA, a fort of Russia, in the government of Upha, on the Samara: thirty-two miles west-north-west of Orenburg.

PEREVOZ', a town of Russia, in the government of Niznei Novgorod: forty-eight miles south-south-east of Niznei Novgorod. Lat. 55. 36. N. lon. 44. 34. E.

PEREVOZ'NOI (Nos), a cape of Russia, in the Straits of Vaigatkol. Lat. 69. 15. N. lon. 58. 22. E.

PEREY'RA (Luys), a Portuguese who in 1558 published an heroic poem upon the fate of Sebastian, which he dedicated to the Cardinal Archduke Albert of Austria. It was reprinted in 1785 by Bento Joze de Souza Farinha, Regius Professor of Philosophy at Lisbon, a man to whom the literature of his country is indebted for the republication of many rare works. The "Elegiada" of Luys Pereyra has however been deprived, by this new edition, of the only value which it possessed, its rarity. In the first canto, Sebastian loses himself in a wood, and meets a hermit there, who tells him the history of Portugal. In the sixth, another person relates the shipwreck of Sepulveda. The tenth is upon the actions of the Portuguese in Monomotapa. The twelfth contains a description of Africa, less amusing than what is to be found in the old geographical grammar. The thirteenth is the history of the siege of Goa. The fifteenth the siege of Chaul; and, at the conclusion of one of these pertinent episodes, the poet says, Now that he has finished his story, it is well that I should go on with mine. Nor are the remaining cantos of the eighteen all employed in the action of the poem. The siege of Mazagam, the accession of Sebastian, a plague, and a famine, Proteus, and the Devil, are called in to eke it out. The execution is as bad as the plan: it is bare, bald, beggarly narrative, hobbling upon crutches; yet Luys Pereyra was praised by his contemporaries. R. S. in *Gen. Biog.*

PE'REZ (Antonio). No history is so abundant in examples of the inconstancy of prince's favours as the history of Spain; and of all the fallen favourites in that country none ever excited such general sympathy as Antonio Perez. The father of this famous and unhappy man had been for forty years sole secretary of state to Charles V. and Philip II. in which post he was succeeded by his son. He was made also secretary of war, and demeaned himself so well as to enjoy at the same time the favour of the king and of the people. Never were any man's misfortunes so little to be imputed to himself. Don John of Austria, intoxicated with the renown he had acquired by quelling the Moriscoes, and still more by the glorious victory of Lepanto, could not rest satisfied with any thing short of royal dignity; and had therefore intrigued with the pope to give him the kingdom of Tunis first, and afterwards

afterwards of *England!* and influence his brother Philip to put him in possession of them. These designs were encouraged by his secretary Juan de Escovedo, though Escovedo had been appointed to that office by Philip expressly for the purpose of counteracting them. They had even assumed a treasonable form. The king, who behaved with more tenderness, or at least more decency, to Don John than he had to his own son, believed or fancied it necessary to put Escovedo out of the way. For his master's sake, he would not do this by common forms of law; and he therefore kindly ordered Antonio Perez to have him assassinated. It was supposed that this would be considered as a common accident; and accordingly Don Escovedo was killed in the streets of Madrid.

This action undoubtedly was murder. Antonio Perez was a politician; and, though he did not carry the doctrine of expediency quite so far as the king, seems never to have suspected that he had committed a crime in this instance. Escovedo's death he represents as necessary, and the forms of justice, he thought, might be dispensed with in extraordinary cases: he had too soon sufficient proof that under such a king as Philip they were nothing more than forms. Suspicion fell upon both him and the princes of Eboli. It has been surmised that Philip was an unsuccessful suitor to this lady, and jealous of Perez's intimacy with her. Be this, however, as it may, he took the opportunity, occasioned by the suspicion, to throw them both into prison, and suffered the accusation to hang over the secretary's head for many years, still continuing to employ him, and promising him his protection and favour. At length he got possession of the only papers which he thought could have established his own share in the murder, and then suffered Antonio to be put to the rack. It was the intention of this unfortunate man to bear the tortures inflicted on him without confessing; but the violence of the pain overcame his resolution, and he declared that he had procured Escovedo's assassination, but that it was by Philip's own orders. Happily for his own character, he had concealed papers sufficient to prove this; and with these he escaped to Arragon. "That kingdom," said Mr. Southey, in writing the life of Perez only a year or two since, "was still by its constitution a free country; but constitutions are nothing in the way of power, and no country has any other security for its freedom than the spirit and strength of the people." He appealed to the tribunal del justiza of Arragon, a free tribunal, to whose decision Philip did not choose to attend, and therefore removed the cause to the enquesta, a sort of star-chamber of his own, in which any wickedness that it pleased him to direct would receive the form of legality. "But," says the writer already alluded to, "the Arragonese had now espoused the cause of their injured countryman; and it was thought that the most effectual method of destroying him would be to deliver him over to the inquisition. That accursed tribunal, which had lately been established in Saragossa, laid hands on him, on a charge of witchcraft. Blinded and befottered with superstition as the Arragonese were, in common with all the Spaniards, their love of liberty was not at this time to be thus betrayed. They rescued him from the holy office. In consequence of this and other tumults, an army was marched into Arragon. The justiza, as he was bound to do, called upon his countrymen to resist this invasion of their rights; but he, and the nobles with him, aware of their inability to oppose veteran troops, set the example of flight. He and the other chiefs were secured and beheaded. Perez made his escape into France; and the forms of liberty in Arragon were extinguished. Antonio found the protection that he implored: he published a narrative of his sufferings; and it is certain, by the great names which appear in his correspondence, that he was highly esteemed and respected both in France and England. Several unsuccessful attempts were made to murder him. He died miserably poor in

VOL. XIX. No. 1329.

the year 1611, and endured to the last the heavy affliction of being separated from his wife and children. No interest could avail to procure their liberation; and he imputes the death of his eldest daughter to grief on his account. R. S. in *Gen. Biog.*

PE'REZ (David), the son of Juan Perez, a Spaniard, settled at Naples, was born in 1711, and brought up in the conservatorio of Santa Maria di Loretto, in that city, under Antonio Gallo and Francesco Mancini. His progress in composition was rapid, and discovered an uncommon genius. When he quitted the conservatorio, his first preferment was at Palermo in Sicily, where he was appointed maestro di capella of the cathedral in that city, at a considerable salary, the half of which he was permitted to enjoy, not only after he quitted Sicily, but even Italy, to the time of his death. He composed his first operas for the theatre at Palermo, from 1741 to 1748, and then returned to Naples, where his *Clemenza di Tito* was performed with such great applause at the theatre of San Carlo, as to extend his fame to Rome, whither he was invited the next year to compose for the Theatre delle Dame. Here he produced *Semiramide* and *Farnace*; and, for other cities in Italy, *La Didone Abbandonata*, *Zenobia*, and *Alessandro nell' Indie*.

In 1752, he went to Portugal, where he was engaged in the service of king Joseph. His first opera at Lisbon, *Demofonte*, was received with very great applause. Gizziello was the principal soprano, and the celebrated Raaf the tenor. It was besides rendered magnificent in the performance by a powerful orchestra, and decorations that were extremely splendid. But the new theatre of his Portuguese majesty, which was opened on the queen's birth-day, March 31, 1755, surpassed, in magnitude and decorations, all that modern times can boast. On this occasion Perez new-set the opera of *Alessandro nell' Indie*, in which opera a troop of horse appeared on the stage, with a Macedonian phalanx. One of the king's riding-masters rode Bucephalus, to a march which Perez composed in the manège, to the grand pas of a beautiful horse; the whole far exceeding all that Farinelli had attempted to introduce in a grand theatre under his direction at Madrid, for the fitting-out of which he had unlimited powers. Besides these splendid decorations, his Portuguese majesty had assembled together the greatest singers then existing; so that the lyric productions of Perez had every advantage which a most captivating and perfect execution could give them. But the operas by which he acquired the greatest fame in Portugal were *Demetrio* and *Solimano*, which, as they were to be alternately performed with the operas of *Vologeso* and *Enea in Latio* that Jomelli had been requested by his most faithful majesty to compose for his theatre, were produced with a degree of exertion and emulation which rendered him superior to himself. Jomelli on this occasion was chiefly admired for the ingenious and learned texture of the instrumental parts; and Perez for the elegance and grace of his melodies, and expression of the words.

His music for the church, of which a specimen has been printed in England, *Matutino dei Morti*, published by Bremner, in score, is grave, ingenious, and expressive. But, though Perez has composed a *Te Deum* which is greatly esteemed at Lisbon, and his *Lezione prima per il Giovedì Santo*, has considerable merit, yet it appears, on examining his scores, that this master had not, like Jomelli, much exercised his pen in the composition of fugues or learned counterpoint for the church, to the perfection of which, genius alone can contribute but little, without the assistance of great study and experience. There is, however, an original spirit and elegance in all his productions; in which, if any defect appears, it is the want of symmetry in the phraseology of his melodies, in which there may sometimes be found what the French call *phrases manquées*, and *contre-tems*, to which critical ears, in modern times, are much less accustomed than formerly. "An ear for measure, (says Dr. Burney,) and

an ear for harmony and the accuracy of tones, seem to be totally different gifts of nature; and it frequently happens that a person who dances perfectly well in time, knows not one tune or tone from another.

Perez, like Handel, was corpulent and gourmand, a propensity which has been supposed to have somewhat shortened his days. After living much admired, beloved, and respected, twenty-seven years in Portugal, where he was maestro di capella to his most faithful majesty, and master to the royal family, at a salary exceeding 2000*l.* per annum, he died extremely regretted at the age of sixty-seven. Like Handel, he was likewise blind during the latter years of his life; but after this calamity, when confined to his bed, he frequently dictated, without an instrument, compositions, in parts, to an amanuensis. His remains were deposited in the church of the Italian Barbadindros; and a solemn dirge of his own composition was performed at his funeral, by a concourse of the best musicians in Lisbon. *Burney's Hist. Music.*

PER'FECTION, *adj.* [*parfait*, Fr. *perfectus*, Lat.] Complete; consummate; finished; neither defective nor redundant; as, *Perfect numbers*, for which see vol. xvii. p. 316, 17.—We count those things *perfect*, which want nothing requisite for the end whereto they were instituted. *Hooker.*

Whoever thinks a *perfect* work to see,
Thinks what ne'er was, nor is, nor e'er shall be. *Pope.*

Fully informed; fully skilful.—I do not take myself to be so *perfect* in the privileges of Bohemia, as to handle that part; and will not offer at that I cannot master. *Bacon.*

Our men more *perfect* in the use of arms,
Our armour all as strong, our cause the best;
Then reason wills our hearts should be as good. *Shakespeare.*
Pure; blameless; clear; immaculate. A sense chiefly theological.—Thou shalt be *perfect* with the Lord thy God. *Deut. xviii.*

My parts, my title, and my *perfect* soul,
Shall manifest me rightly. *Shakespeare's Othello.*

Confident; certain.—Thou art *perfect*, then, our ship hath touched upon the deserts of Bohemia. *Shakespeare's Wint. Tale.*

To PER'FECTION, *v. a.* To finish; to complete; to consummate; to bring to its due state.—If we love one another, God dwelleth in us, and his love is *perfected* in us. *1 John, iv. 12.*—Endeavour not to settle too many habits at once, lest by variety you confound them, and so *perfect* none. *Locke.*

What toil did honest Curio take
To get one medal wanting yet,
And *perfect* all his Roman set? *Prior.*

To make skilful; to instruct fully:
Her cause and your's
I'll *perfect* him withal, and he shall bring you
Before the duke. *Shakespeare's Meas. for Meas.*

PER'FECTION, *f.* One that makes perfect.—Looking up unto Jesus, the Captain and *Perfectioner* of our faith. *Barrow.*—The person, whose condition marked her out as the defender and *perfectioner* of our reformation. *Burnet's Hist. of his own Times.*—This practice was altered; they offered not to Mercury, but to Jupiter the *perfectioner*. *Broome on the Odyssey.*

PERFECTION, *f.* The state of being perfect.—Man doth seek a triple *perfection*: first a sensual, consisting in those things which very life itself requireth, either as necessary supplements or as ornaments thereof; then an intellectual, consisting in those things which none underneath man is capable of; lastly, a spiritual and divine, consisting in those things whereunto we tend by supernatural means here, but cannot here attain. *Hooker.*—True virtue being united to the heavenly grace of faith

makes up the highest *perfection*. *Milton on Education.*—No human understanding being absolutely secured from mistake by the *perfection* of its own nature, it follows that no man can be infallible but by supernatural assistance. *Tillotson.*—The question is not, whether gospel *perfection* can be fully attained; but whether you come as near it as a sincere intention and careful diligence can carry you. *Law.*

Many things impossible to thought,
Have been by need to full *perfection* brought. *Dryden.*

Something that concurs to produce supreme excellence. In this sense it has a plural.—An heroic poem requires, as its last *perfection*, the accomplishment of some extraordinary undertaking, which requires more of the active virtue than the suffering. *Dryden.*

What tongue can her *perfections* tell,
In whose each part all pens may dwell? *Sidney.*

Attribute of God.—If God be infinitely holy, just, and good, he must take delight in those creatures that resemble him most in these *perfections*. *Atterbury.*—Exact resemblance.

PERFECTIONAL, *adj.* Made complete.—Now this life eternal may be looked upon under three considerations; as initial, as partial, and as *perfectional*. I call that *perfectional*, which shall be conferred upon the elect immediately after the blessing pronounced by Christ; "Come, ye blessed children of my Father, receive the kingdom prepared for you from the foundation of the world." *Pearson on the Creed.*

To PERFECTIONATE, *v. a.* To make perfect; to advance to perfection. A word proposed by Dryden, but not received nor worthy of reception. *Dr. Johnson.*—Dryden most probably adopted it from Butler, who uses it in his Remains; and I think I have seen this unworthy word in employment long before the time of Butler. *Todd.*—Painters and sculptors, chasing the most elegant natural beauties, *perfectionate* the idea, and advance their art above nature itself in her individual productions; the utmost mastery of human performance. *Dryden.*—He has founded an academy for the progress and *perfectionating* of painting. *Dryden.*

PERFECTIONIST, *f.* One pretending to extreme perfection; a puritan.—Amongst the most seraphical illuminati, and the highest puritan *perfectionists*, you shall find people of fifty, threescore, and fourscore, years old, not able to give that account of their faith, which you might have had heretofore from a boy of nine or ten. *South's Sermon.*—One who thinks perfection attainable by man.—The *perfectionists* may be refuted in their pretensions from their own avowed principles. *Conybeare.*

PERFECTISSIMATE, *f.* A quality or dignity, mentioned in the Justinian Code. *Perfectissimi* were those to whom the emperors trusted the presidentship of any province. Alciat imagined the name had been only given to the governors of Hispania Tarraconensis and Noricum; but Calvin has shown the contrary in his Lexicon Juridicum. The *perfectissimi* were inferior to the *clarissimi*, though the former word implies "most perfect."

PERFECTIVE, *adj.* Conducing to bring to perfection: with *of*.—Praise and adoration are actions *perfective* of our souls. *Mortimer.*—Eternal life shall not consist in endless love; the other faculties shall be employed in actions suitable to, and *perfective of*, their natures. *Ray on the Creation.*

PERFECTIVELY, *adv.* In such a manner as brings to perfection.—As virtue is seated fundamentally in the intellect, so *perfectively* in the fancy; so that virtue is the force of reason in the conduct of our actions and passions to a good end. *Grew.*

PERFECTLY, *adv.* In the highest degree of excellence. Totally; completely.—Chewing little sponges dipt in oil, when *perfectly* under water, he could longer support the want of respiration. *Boyle.*—Exactly; accurately.

rately.—We know bodies and their properties most *perfectly*. *Locke*.

PERFECTNESS, *f.* Completeness; consummate excellence; perfection.—Use makes *perfectness*. *Beaum.* and *Fletcher's Kn. Burn. Pestic.*

How then can mortal tongue hope to express
The image of such endless *perfectness*! *Spenser.*

Goodness; virtue; a scriptural word.—Put on charity, which is the bond of *perfectness*. *Col.* iii. 14.—Skill.—Is this your *perfectness*? *Shakespeare.*

PERFICIENT, *adj.* [*perficiens*, Lat.] Effectual.—The king being the sole founder of all civil corporations, and the endower the *perficient* founder of all eleemosynary ones, the right of visitation of the former results to the king, and of the latter to the patron or endower. *Blackstone.*

PERFIDIOUS, *adj.* [*perfidus*, Lat. *perfidie*, Fr.] Treacherous; false to truit; guilty of violated faith.—To be *perfidious* is nothing, so he may be secret: his Master knows him [Judas] for a traitor. *Bp. Hall.*

A most *perfidious* slave,
With all the spots o' the world tax'd and debosh'd.
Shakespeare's All's Well.

Expressing treachery; proceeding from treachery:

Forfaken of all good, I see thy fall
Determin'd, and thy hapless crew involv'd
In this *perfidious* fraud. *Milton's P. L.*

PERFIDIOUSLY, *adv.* Treacherously; by breach of faith.—Can he not deliver us possession of such places as would put him in a worse condition whenever he should *perfidiously* renew the war? *Swift's Miscell.*

They eat *perfidiously* their words,
And swear their ears through two-inch boards. *Hudibras.*

PERFIDIOUSNESS, *f.* The quality of being *perfidious*.—Some things have a natural deformity in them; as perjury, *perfidiousness*, and ingratitude. *Tillotson.*

PERFIDY, *f.* [*perfidia*, Lat. *perfidie*, Fr.] Treachery; want of faith; breach of faith.—Whatever poets may write of rural innocence and truth, and of the *perfidy* of courts, this is undoubtedly true; that shepherds and ministers are both men; their nature and passions the same, the modes of them only different. *Ld. Chesterfield.*

PERFLABLE, *adj.* [from the Lat. *per*, through, and *fla*, to blow.] Liable to be blown through, or of being *perflated*.

To PERFLATE, *v. a.* To blow through.—If eastern winds did *perflate* our climates more frequently, they would clarify and refresh our air. *Harvey.*—The first consideration in building of cities, is to make them open, airy, and well *perflated*. *Arbuthnot on Air.*

PERFLATILE, *adj.* Blowing strongly; blowing through. *Bailey.*

PERFLATION, *f.* The act of blowing through.—Miners, by *perflations* with large bellows, give motion to the air, which ventilates and cools the mines. *Woodward.*

PERFOLIATA, *f.* in botany. See BRASSICA, BUPLEURUM, and OPHRYS.

PERFOLIATE, *adj.* in botany, a leaf surrounding the stalk on every side, as if the stalk passed through its centre; as in *Bupleurum perfoliatum*, thence termed *through-wax*, from the old word *wax*, to grow.

To PERFORATE, *v. a.* [*perforo*, Lat.] To pierce with a tool; to bore.—Draw the bough of a low fruit-tree newly budded, without twisting, into an earthen pot *perforate* at the bottom, and then cover the pot with earth, it will yield a very large fruit. *Bacon's Nat. Hist.*—The *Hypericum*, or St. John's wort, is sometimes called "*perforata*," or *perforated*, from the small holes seen all over its leaves, if held up to the light. *Chambers.*

The labour'd chyle pervades the pores
In all the arterial *perforated* shores. *Blackmore.*

PERFORATION, *f.* The act of piercing or boring.—The likeliest way is the *perforation* of the body of the tree in several places one above another, and the filling of the holes. *Bacon.*—Hole; place bored.—That the nipples should be made spongy, and with such *perforations* as to admit passage to the milk, are arguments of providence. *Ray on the Creation.*

PERFORATIVE, *adj.* Having power to pierce: applied to the surgical instrument called a *trepan*. *Todd's Johnson.*

PERFORATOR, *f.* The instrument of boring.—The patient placed in a convenient chair, dipping the trocar in oil, stab it suddenly through the teguments, and, withdrawing the *perforator*, leave the waters to empty by the canula. *Sharp's Surgery.*

PERFORCE, *adv.* [*par force*, Fr.] By violence; violently.—She *perforce* withholds the loved boy. *Shakespeare's M. N. Dream.*

All trembling, and arising full of spots,
And pale with death at hand, *perforce* the breaks
Into the inmost rooms. *Peacham on Poetry.*

Of necessity.—Patience *perforce* is a medicine for a mad dog. *Ray's Proverbs.*

So forth he far'd, as now befell, on foot,
Sith his good steed is lately from him gone;
Patience *perforce*! *Spenser's F. Q.*

To PERFOR'M, *v. a.* [*per* and *formare*, Lat.] To execute; to do; to discharge; to achieve an undertaking; to accomplish.—All three set among the foremost ranks of fame for great minds to attempt, and great force to *perform* what they did attempt. *Sidney.*

Hast thou, spirit,
Perform'd to point the tempest that I bad thee? *Shakesp.*

To PERFOR'M, *v. n.* To succeed in an attempt.—When a poet has *performed* admirably in several illustrious places, we sometimes also admire his very errors. *Watts.*

PERFOR'MABLE, *adj.* Practicable; such as may be done.—Men forget the relations of history, affirming that elephants have no joints, whereas their actions are not *performable* without them. *Brown's Vulg. Err.*

PERFOR'MANCE, *f.* Completion of something designed; execution of something promised.—Promising is the very air o' th' time; it opens the eyes of expectation: *performance* is ever the duller for his act, and, but in the plainer kind of people, the deed is quite out of use. *Shakespeare's Timon.*—Men may, and must, differ in their employments; but yet they must all act for the same ends, as dutiful servants of God, in the right and pious *performance* of their several callings. *Law.*

His promises were, as he then was, mighty;
But his *performance*, as he now is, nothing. *Shakespeare.*

Composition; work.—Few of our comic *performances* give good examples. *Richardson's Clarissa.*—Action; something done.—In this slumbry agitation, besides her walking and other actual *performances*, what have you heard her say? *Shakespeare.*

PERFOR'MER, *f.* One that performs any thing.—The merit of service is seldom attributed to the true and exact *performer*. *Shakespeare.*—It is generally applied to one that makes a public exhibition of his skill; as an actor or musician.

To PERFRICATE, *v. a.* [from the Lat. *per*, through, and *frico*, to rub.] To rub over. *Johnson.*

PERFRICATION, *f.* The act of rubbing thoroughly. *Scott.*

PERFRICATION, *f.* The act of rubbing thoroughly; a shivering for cold. *Cole.*

PERFUMATORY, *adj.* That perfumes.—A *perfumatory* or incense altar. *Leigh's Crit. Sacra*, 1650.

PERFUME, *f.* [*parfum*, Fr. sometimes accented on the first syllable in poetry.] Strong odour of sweetness used to give scents to other things.—Pomanders and knots

of powders for drying rheums are not so strong as *perfumes*; you may have them continually in your hand, whereas *perfumes* you can take but at times. *Bacon*.—*Perfumes*, though gross bodies that may be sensibly wasted, yet fill the air, so that we can put our nose in no part of a room where a *perfume* is burned, but we smell it. *Digby*.—Sweet odour; fragrance.—And in some *perfumes* is there more delight. *Shakespeare's Sonnets*.

Even the rough rocks with tender myrtle bloom,
And trodden weeds send out a rich *perfume*. *Addison*.

PERFUMES are generally made up of musk, ambergris, civet, rose and cedar woods, orange-flowers, jessamines, jonquils, tuberoses, and other odoriferous flowers. Those drugs commonly called *aromatics*, such as storax, frankincense, benzoin, cloves, mace, &c. enter the composition of a perfume; some are also composed of aromatic herbs or leaves, as lavender, marjoram, sage, thyme, hyssop, &c.

The use of perfumes was frequent among the Hebrews, and among the orientals in general, before it was known to the Greeks and Romans. In the time of Moses, perfumes must have been known in Egypt, since he speaks of the art of the perfumer, and gives the composition of two kinds of perfumes, (Exod. xxx. 25.) of which one was to be offered to the Lord upon the golden altar which was in the holy place; and the other was appointed for the anointing of the high priest and his sons, (ver. 34, &c.) as also of the tabernacle, and all the vessels that were used in divine service.

The Hebrews had also perfumes which they made use of in embalming their dead. The composition is not known; but it is certain that they generally made use of myrrh, aloes, and other strong and astringent drugs, proper to prevent putrefaction. (John xix. 49.) Besides the perfumes for these purposes, the Scripture mentions other occasions whereon the Hebrews used perfumes. The spouse in the Canticles (i. 3.) commends the scent of the perfumes of her lover; and her lover in return says, that the scent of the perfumes of his spouse surpasses the most excellent odours; (iv. 10—14.) He names particularly the spikenard, the calamus, the cinnamon, the myrrh, and the aloes, as making a part of these perfumes. The voluptuous woman described by Solomon (Prov. vii. 17.) says, that she had perfumed her bed with myrrh, aloes, and cinnamon. The epicures in the book of Wisdom (ii. 7.) encourage one another to the luxuriant use of odours and costly perfumes. Isaiah (lvii. 9.) reproaches Judea, whom he describes as a spouse faithless to God, with being painted and perfumed to please strangers: "Thou wentest to the king with ointment, and didst increase thy perfumes." Ezekiel (xxiii. 41.) seems to accuse the Jews with having profaned the odours and perfumes, the use of which was reserved to sacred things, by applying them to their own use.

Perfumes came afterwards to be very common among the Greeks and Romans, especially those composed of musk, ambergris, and civet. The *nardus* and *malobathrum* were held in much estimation, and were imported from Syria. The *unguentum nardinum* was variously prepared, and contained many ingredients. *Malobathrum* was an Indian plant. Perfumes were also used at sacrifices to regale the gods; at feasts, to increase the pleasures of sensation; at funerals, to overpower cadaverous smells, and please the manes of the dead; and in the theatres, to prevent the offensive effluvia, proceeding from a crowd, from being perceived.

Since people are become sensible of the harm they do to the head, perfumes are generally diffused among us; however, they are still common in Spain and Italy.

To **PERFUME**, *v. a.* To scent; to impregnate with sweet scent.—The distilled water of wild poppy, mingled at half with rose-water, take with some mixture of a few cloves in a *perfuming* pan. *Bacon's Nat. Hist.*—Smells ad-

here to hard bodies; as in *perfuming* of gloves, which showeth them corporeal. *Bacon's Nat. Hist.*

Why rather, sleep, liest thou in smoky cribs,
And hush'd with buzzing night-flies to thy slumber,
Than in the *perfum'd* chambers of the great,
Under the canopies of costly state,
And lull'd with sounds of sweetest melody? *Shakespeare*.

Then will I raise aloft the milk-white rose,
With whose sweet smell the air shall be *perfum'd*. *Shakespeare*.

See spicy clouds from lowly Sharon rise,
And Carmel's flowery top *perfumes* the skies! *Pope*.

PERFUMER, *f.* One whose trade is to sell things made to gratify the scent.—A moiety the *perfumers* have out of apple-trees, that hath an excellent scent. *Bacon's Nat. Hist.*

First issued from *perfumers'* shops
A croud of fashionable fops.

Swift.

PERFUMING, *f.* The act of communicating a perfume.

PERFUNCTION, *f.* [from the Lat. *per*, through, and *fungor*, to discharge.] The accomplishment of a design; the discharge of an office. *Cole*.

PERFUNCTORILY, *adv.* Carelessly; negligently; in such a manner as to satisfy external form.—His majesty, casting his eye *perfunctorily* upon it, and believing it had been drawn by mature advice, no sooner received it, than he delivered it to the lord keeper. *Clarendon*.—Lay seriously to heart the clearness and evidence of these proofs, and not *perfunctorily* pass over all the passages of the gospel, which are written on purpose that we may believe, without weighing them. *Lucas*.—Whereas all logic is reducible to the four principal operations of the mind, the two first of these have been handled by Aristotle very *perfunctorily*; of the fourth he has said nothing at all. *Baker on Learning*.

PERFUNCTORINESS, *f.* Negligence; carelessness.—Nothing more frequent than comparative openings of one another; their deserts, with the nimble *perfunctoriness* of some commentators that skip over hard places; but their faults, infirmities, or miscarriages, with descendants no less tedious than malicious. *Whitlock's Mann. of the English*.

PERFUNCTORY, *adj.* [*perfunctore*, Lat. from *perfunctus*, "having done his task;" because, after a man has done his work, he performs any other duty slightly, or carelessly.] Slight; careless; negligent.—A transient and *perfunctory* examination of things leads men into considerable mistakes, which a more correct and rigorous scrutiny would have detected. *Woodward*.

To **PERFUSE**, *v. a.* [from the Lat. *per*, through, and *fundo*, to pour.] To tincture; to overspread.—These dregs immediately *perfuse* the blood with melancholy, and cause obstructions. *Harvey on Consumptions*.

PERFUSION, *f.* The act of pouring out upon any thing.

PERG, a town of Austria: six miles south-south-east of Aigen.—A town of Austria: twelve miles east of Steyregg.

PERGA, in ancient geography, an inland city of Pamphylia, on the river Caystrus, near to which, on an eminence, stood a temple of Diana. It was famed for the birth of Apollonius, the renowned geometrician. Here Paul and Barnabas preached oftener than once; (Acts xiii. 14, xiv. 25.) and to the end of the eighth century we find a Christian church here, sometimes not a little eminent. It is now called *Karahissar*; but is at present of little or no importance.—There was another Perga in Epirus, or Albania; as to which, see **PARGA**.

PERGAMAR, a town of European Turkey, in Romania; the see of a bishop: sixty miles south-west of Adrianople, and sixty five north-west of Galipoli.

PERGA.

PERGAM'ENA, *f.* [from *Pergamus.*] Parchment. *Phillips.*

PERGAM'ENOUS, *adj.* Belonging to Pergamus; consisting of parchment. *Cole.*

PERGA'MO, a town of Asiatic Turkey, in Natolia, situated at the foot of a mountain; on a river which was formerly called *Caicus*, with a harbour, about fifteen miles from the sea. The inhabitants are chiefly Turks; the Christians have a church, but are poor. See PERGAMUS. It is 144 miles south-south-west of Constantinople. Lat. 39. 11. N. lon. 27. 0. E.

PERGAMUS, an ancient kingdom of Asia, formed out of the ruins of the empire of Alexander the Great. It commenced about the year 283 B. C. But the *City* of Pergamus is much more ancient; for the inhabitants pretended to be descendants of the Arcadians, who arrived in this part of Asia with Telephus, son of Hercules; and they say, that Esculapius came to Pergamus with a learned colony of Greeks, and practised medicine in this place. The Pergamenians paid him great honours, calling him by the titles of god the saviour, and the sovereign god. They constructed for him a magnificent temple, in which they offered sacrifices, and they celebrated in honour of him public games. The temple was visited by all the people of Asia Minor, and thus Pergamus became famous; the worship of this god continued in it till the establishment of Christianity. Pergamus was at first governed by its own magistrates, who were independent of any other power. It was afterwards under the dominion of the kings of Lydia, from whom it was transferred to the kings of Persia. After the death of Alexander it was subject to Antigonus; and at his death it was transferred to Lyfimachus, one of the successors of Alexander, according to Strabo. This prince deposited his treasures in the castle, and entrusted the custody of them to one Philetærus, an eunuch, by birth a Paphlagonian, of a mean descent, and in his youth a menial servant to Antigonus one of Alexander's captains. While he held this employment of treasure-keeper, having fallen under the displeasure of Arsinoë, wife to Lyfimachus, she found means to make a quarrel between him and his master; upon which Philetærus seized on the castle of Pergamus, together with the treasures entrusted to his care, amounting to 90,000 talents. At first he offered his service, together with his treasure, to Seleucus king of Syria: but, both Seleucus and Lyfimachus dying soon after, he kept possession of the town and treasure, fortified the castle, and thus laid the foundation of the *Kingdom* of Pergamus, which lasted 153 years.

Philetærus, though he did not assume the title of king, reigned however in quiet till his death, which happened twenty years after his revolt from Lyfimachus, and B. C. 264. He left the city of Pergamus to his brother, or, according to some, to his brother's son, Eumenes I. and he, laying hold of the opportunity offered by the dissensions among the Seleucidæ, possessed himself of many strong holds in the province of Asia; and, having hired a body of Galatians, defeated Antiochus as he was returning from a victory gained over his brother Seleucus Callinicus. By this victory he obtained possession of the greater part of Asia: however, he did not long enjoy his acquisitions; for he died next year of immoderate drinking, a vice to which he was greatly addicted.

Eumenes was succeeded by Attalus I. nephew of Philetærus, and the first who took upon him the title of King of Pergamus. He defeated the Gauls, who were desirous of settling in his territory; and according to Livy, was the first of the Asiatic princes who refused to pay a contribution to these barbarians. When Seleucus Ceraunus was engaged in other wars, he invaded his territories, and conquered all the provinces on this side of Mount Taurus; but was soon driven out of his new acquisitions by Seleucus and his grandfather Achæus, who, entering into an alliance against him, deprived him of all his newly-acquired territories, and even besieged him in his capital. Upon this Attalus invited to his assistance the Gauls who

had settled in Thrace: and with their help not only obliged the enemy to raise the siege of Pergamus, but quickly recovered all the provinces he had lost. After this he invaded Ionia and the neighbouring provinces, where several cities voluntarily submitted to him. The Teians, Colophonians, with the inhabitants of Egea and Lemnos, sent deputies, declaring themselves ready to acknowledge him for their sovereign; the Carænes, on the other side of the river Lycus, opened their gates to him, having first expelled the governor set over them by Achæus. From thence he advanced to Apia; and, encamping on the banks of the river Methigus, received homage from the neighbouring nations. But here the Gauls, being frightened by an eclipse of the moon, refused to proceed farther; which obliged Attalus to return to the Hellespont, where he allowed his allies to settle, giving them a large and fruitful territory, and promising that he would always assist and protect them to the utmost of his power.

Attalus, having thus settled his affairs with equal honour and advantage to himself, entered into an alliance with Rome, and afterwards joined them in their war against Philip IV. king of Macedon. Here he had the command of the Rhodian fleet; with which he not only drove the Macedonians quite out of the seas, but, having landed his men, he, in conjunction with the Athenians, invaded Macedon, and obliged Philip to raise the siege of Athens, which he had greatly distressed; for which services the Athenians not only heaped on him all the favours they could, but called one of their tribes by his name; an honour they had never bestowed on any foreigner before.

Attalus, not contented with all he had yet done against Philip, attempted to form a general confederacy of the Greeks against him. But, while he was haranguing the Bœotians to this purpose, and exhorting them with great vehemence to enter into an alliance with the Romans against their common enemy, he fell down speechless. However, he came to himself again, and desired to be carried by sea from Thêbes to Pergamus, where he died soon after his arrival, in the 72d year of his age and 43d of his reign, B. C. 197.

Attalus was succeeded by his eldest son Eumenes II. He was exceedingly attached to the Romans, in so much that he refused the daughter of Antiochus the Great in marriage, lest he should thus have been led into a difference with that people. He also gave notice to the Roman senate of the transactions of Ariarathes king of Cappadocia, who was making great preparations both by sea and land. Nor did Eumenes stop here; for, when he saw the war about to break out between Antiochus and the Romans, he sent his brother Attalus to Rome to give information of the proceedings of Antiochus. The senate heaped honours both on Eumenes and his brother; and, in the war which followed, gave the command of their fleet to the king of Pergamus in conjunction with C. Livius Salinator. The victory gained on this occasion was in a great measure owing to Eumenes, who boarded some of the enemy's ships in person, and during the whole action behaved with uncommon bravery. Some time afterwards Eumenes, entering the territories of Antiochus with a body of 5000 men, ravaged all the country about Thyatira, and returned with an immense booty. But in the mean time Antiochus, invading Pergamus in his turn, ravaged the whole country, and even laid siege to the capital. Attalus, the king's brother, held out with a handful of men, till the Achæans, who were in alliance with Eumenes, sent 1000 foot and 100 horse to his assistance. As this small body of auxiliaries were all chosen men, and commanded by an experienced officer, they behaved with such bravery that the Syrians were obliged to raise the siege. At the battle of Magnesia, too, Eumenes behaved with the greatest bravery; not only sustaining the first attack of the enemy's elephants, but driving them back again on their own troops, which put the ranks in disorder, and gave the Romans an opportunity of giving them a total defeat by attacking them opportunely with their

horse. In consequence of this defeat, Antiochus was obliged to conclude a peace with the Romans on such terms as they pleased to prescribe; one of which was, that he should pay Eumenes 400 talents, and a quantity of corn, in recompence for the damage he had done him.

Eumenes now thought of obtaining some reward from the Romans equivalent to the services he had done them. Having gone to Rome, he told the senate, that he was come to beg of them that the Greek cities which had belonged to Antiochus before the commencement of the late war might now be added to his dominions; but his demand was warmly opposed by the ambassadors from Rhodes, as well as by deputies from all the Greek cities in Asia. The senate, however, after hearing both parties, decided the matter in favour of Eumenes adding to his dominions all the countries on this side of Mount Taurus which belonged to Antiochus; the other provinces lying between that mountain and the river Mæander, excepting Lycia and Caria, were bestowed on the Rhodians. All the cities, which had paid tribute to Attalus, were ordered to pay the same to Eumenes; but such as had been tributary to Antiochus were declared free.

Soon after this, Eumenes was engaged in a war with Prusias king of Bithynia, who made war upon him by the advice of Hannibal the celebrated Carthaginian general. But Eumenes, being assisted by the Romans, defeated Prusias in an engagement by sea, and another by land; which so disheartened him, that he was ready to accept of peace on any terms. However, before the treaty was concluded, Hannibal found means to draw Philip of Macedon into the confederacy, who sent Philocles, an old and experienced officer, with a considerable body of troops, to join Prusias. Hereupon Eumenes sent his brother Attalus to Rome with a golden crown, worth 15,000 talents, to complain of Prusias for making war on the allies of the Roman people without any provocation. The senate accepted the present, and promised to adjust every thing to the satisfaction of their friend Eumenes, whom they looked upon to be the most steady ally they had in Asia. But in the mean time Prusias, having ventured another sea-fight, by a contrivance of Hannibal's, gained a complete victory. The Carthaginian commander advised him to fill a great many earthen vessels with various kinds of serpents and other poisonous reptiles, and in the heat of the fight to throw them into the enemy's ships, so as to break the pots and let the serpents loose. All the soldiers and seamen were commanded to attack the ship in which Eumenes was, and only to defend themselves as well as they could against the rest; and, that they might be in no danger of mistaking the ship, a herald was sent before the engagement with a letter to the king. As soon as the two fleets drew near, all the ships of Prusias, singling out that of Eumenes, discharged such a quantity of serpents into it, that neither soldiers nor sailors could do their duty, but were forced to fly to the shore, lest they should fall into the enemy's hands. The other ships, after a faint resistance, followed the king's example, and were all driven ashore with great slaughter, the soldiers being no less annoyed by the serpents than by the weapons of the enemy. The greater part of the ships of Eumenes were burnt, several taken, and the others so much shattered that they became quite unserviceable. The same year Prusias gained two remarkable victories over Eumenes by land, both of which were entirely owing to stratagems of Hannibal. But, while matters were thus going on to the disadvantage of Eumenes, the Romans interfered, and by their deputies not only put an end to the differences between the two kings, but prevailed on Prusias to betray Hannibal; upon which he poisoned himself, as hath been related under the article HANNIBAL.

Eumenes, being thus freed from such a dangerous enemy, engaged in a new war with the kings of Cappadocia and Pontus, in which also he proved victorious. His friendship for the Romans he carried to such a degree of enthusiasm, that he went in person to Rome to inform

them of the machinations of Perfes king of Macedon. He had before quarrelled with the Rhodians, who sent ambassadors to Rome to complain of him. But, as the ambassadors happened to arrive while the king himself was present in the city, the Rhodian ambassadors could not obtain a hearing, and Eumenes was dismissed with new marks of favour. This journey, however, had almost proved fatal to him; for, on his return, as he was going to perform a sacrifice at Delphi, two assassins, sent by Perfes, rolled down two great stones upon him as he entered the straits of the mountains. With one he was dangerously wounded on the head, and with the other on the shoulder. He fell with the blows from a steep place, and thus received many other bruises; so that he was carried on-board his ship when it could not well be known whether he was dead or alive. His people, however, soon finding that he was still alive, conveyed him to Corinth, and from Corinth to Ægina, having caused their vessels to be carried over the isthmus. He remained at Ægina till his wounds were cured, which was done with such secrecy, that a report of his death was spread all over Asia, and even believed at Rome; nay, his brother Attalus was so convinced of the truth of this report, that he not only assumed the government, but even married Stratonice the wife of Eumenes. But in a short time Eumenes convinced them both of his being alive, by returning to his kingdom. On the receipt of this news, Attalus resigned the sovereignty in great haste, and went to meet his brother; carrying a halberd, as one of his guards. Eumenes received both him and the queen with great tenderness, nor did he ever say any thing which might tend to make them uneasy; only he whispered in his brother's ear when he first saw him, "Be in no haste to marry my wife *again* till you are sure that I am dead."

Eumenes, being now more than ever exasperated against Perfes, joined the Romans in their war against him; but during the course of it he suddenly cooled in his affection towards those allies whom he had hitherto served with so much zeal, and that to such a degree, that he admitted ambassadors from Perfes, and offered to stand neuter if he would pay him 1000 talents, and, for 1500, to influence the Romans to grant him a safe and honourable peace. But these negotiations were broke off without effect, by reason of the distrust which the two kings had of one another. Eumenes could not trust Perfes unless he paid him the money beforehand; while, on the other hand, Perfes did not care to part with the money before Eumenes had performed what he promised. Neither could he be induced to pay the sum in question, though the king of Pergamus offered to give hostages for the performance of his promise. What the reason of such a sudden change in the disposition of Eumenes was, is no-where told; however, the fact is certain. The negotiations above mentioned were concealed from the Romans as long as possible; but they at length became known; after which the republic began to entertain no small jealousy of their old friend, and therefore heaped favours on his brother Attalus, without taking any notice of the king himself. Eumenes had sent him to Rome to congratulate the senate on the happy issue of the war with Perfes, not thinking that his practices had been discovered. However, the senate, without taking any notice of their disaffection to Eumenes at first, entertained Attalus with the greatest magnificence; and several of the senators who visited him proceeded to acquaint him with their suspicions of the king, and desired Attalus to treat with them in his own name, assuring him, that the kingdom of Pergamus would be granted him, if he demanded it, by the senate. These speeches had at first some effect; but Attalus, being of an honest disposition, and assisted by the advice of a physician called Stratius, a man of great probity, resolved not to comply with their desire. When he was admitted to the senate, therefore, he first congratulated them on the happy issue of the Macedonian

cedonian war; then modestly recounted his own services; and, lastly, acquainted them with the motive of his journey; intreated them to send ambassadors to the Gauls, who by their authority might secure his brother from any danger of their hostilities; and he requested them also, that the two cities of *Ænus* and *Maronea* might be bestowed on himself. The senate, imagining that *Attalus* designed to choose some other day to sue for his brother's kingdom, not only granted all his requests, but sent him richer and more magnificent presents than they had ever done before. Upon this *Attalus* immediately set out on his return to *Pergamus*; which so provoked the senators, that they declared the cities free which they had promised to *Attalus*, thus rendering ineffectual their promise which they were ashamed openly to revoke; and as for the Gauls, who were on all occasions ready to invade the kingdom of *Pergamus*, they sent ambassadors to them, with instructions to behave in such a manner as would rather tend to encourage them in their design than dissuade them from it.

Eumenes, being alarmed at these proceedings, resolved to go in person to *Rome* in order to justify himself. But the senate, having already condemned him in their own minds, resolved not to hear his vindication. For this reason, as soon as they were informed of his design, they made an act that "no king should be permitted to enter the gates of *Rome*." *Eumenes*, however, who knew nothing of this act, set forward on his journey, and landed at *Brundisium*; but no sooner did the Roman senate get intelligence of his arrival there, than they sent a quaestor, acquainting him with the decree of the senate; and telling him at the same time, that, if he had any business to transact with the senate, he was appointed to hear it, and transmit it to them; but, if not, that the king must leave *Italy* without delay. To this *Eumenes* replied, that he had no business of any consequence to transact, and that he did not stand in need of any of their assistance; and, without saying a word more, went on-board his ship, and returned to *Pergamus*.

On his return home, the Gauls, being encouraged by the cold reception which he had met with at *Rome*, invaded his territories, but were repulsed with great loss by the king, who afterwards invaded the dominions of *Prusias*, and possessed himself of several cities. This produced new complaints at *Rome*; and *Eumenes* was accused, not only by the ambassadors of *Prusias*, but also by those of the Gauls and many cities in *Asia*, of keeping a secret correspondence with *Perfes* king of *Macedon*. This last charge was confirmed by some letters which the Romans themselves had intercepted; so that *Eumenes* found it impossible to keep up his credit any longer at *Rome*, though he sent his brothers *Athenæus* and *Attalus* to intercede for him. The senators, in short, had conceived the most implacable hatred against him, and seemed absolutely bent on his destruction, when he died, in the 39th year of his reign, B. C. 159. leaving his kingdom and his wife to his brother *Attalus*. He left one son; but he was an infant, and incapable of governing the kingdom; for which reason *Eumenes* chose rather to give the present possession of the crown to his brother, reserving the succession to his son, than to endanger the whole by committing the management of affairs to his son's tutors.

Attalus II. in the beginning of his reign, found himself greatly distressed by *Prusias* king of *Bithynia*, who not only overthrew him in a pitched battle, but advanced to the very walls of *Pergamus*, ravaging the country as he marched along; and at last reduced the royal city itself. The king, however, saved himself by a timely flight, and dispatched ambassadors to *Rome*, complaining of the bad usage of *Prusias*. The latter endeavoured to defend himself, and to throw the blame on *Attalus*. But, after a proper enquiry was made into the matter, *Prusias* was found to be entirely in the wrong; in consequence of which, he was at last obliged to conclude a

peace with his adversary on the following terms. 1. That he should immediately deliver up to *Attalus* twenty ships with decks. 2. That he should pay five-hundred talents to *Attalus* within the space of twenty years. 3. That he should pay one-hundred talents to some of the other Asiatic nations, by way of reparation for the damages they had sustained from him. 4. Both parties should be content with what they had before the beginning of the war.

Some time after this, *Prusias* having made an unnatural attempt on the life of his son *Nicomedes*, the latter rebelled, and, with the assistance of *Attalus*, drove his father from the throne, and, as is said, even murdered him in the temple of *Jupiter*. The Romans took no notice of these transactions, but showed the same kindness to *Attalus* as formerly. The last enterprise in which we find *Attalus* engaged, was against *Andrifeus*, the pretended son of *Perfes* king of *Macedon*, where he assisted the Romans; after which he gave himself up to ease and luxury, committing state-affairs entirely to his ministers; and thus continued to his death, which happened in the 82d year of his age, about 138 B. C.

Attalus II. was succeeded by *Attalus* III. the son of *Eumenes*; for the late king, considering that he only held the crown as a trust for his nephew, passed by his own children in order to give it to him, though he appears to have been by no means worthy of it. He is said to have been deprived of his senses through the violence of his grief for his mother's death; and indeed, throughout his whole reign, he behaved more like a madman than any thing else. Many of his subjects of the highest quality were cut off, with their wives and children, upon the most groundless suspicions; and for these executions he made use of mercenaries hired out from among the most barbarous nations. Thus he proceeded till he had cut off all the best men in the kingdom; after which he fell into a deep melancholy, imagining that the ghosts of those whom he had murdered were perpetually haunting him. On this he shut himself up in his palace, put on mean apparel, let his hair and beard grow, and sequestered himself from all mankind. At last he withdrew from the palace, and retired into a garden, which he cultivated with his own hands, and filled with all sorts of poisonous herbs. These he used to mix with wholesome pulse, and send packets of them to such as he suspected. At last, being weary of this amusement, and living in solitude because nobody durst approach him, he took it in his head to follow the trade of a founder, and make a brazen monument. But, while he laboured at melting and casting the brass, the heat of the sun and furnace threw him into a fever, which in seven days put an end to his tyranny, after he had sat on the throne five years.

On the death of the king, a will was found, by which he left the Roman people heirs of all his goods; upon which they seized on the kingdom, and reduced it to a province of their empire by the name of *Proconsular Asia*. But *Aristonicus*, a son of *Eumenes* by an *Ephesian* courtesan, reckoning himself the lawful heir to the crown, could by no means be satisfied with this usurpation of the Romans, and therefore assembled a considerable army to maintain his pretensions. The people in general, having been accustomed to a monarchy, dreaded a republican form of government; in consequence of which they assisted *Aristonicus*, and put him in a condition to reduce the whole kingdom. The news, however, was soon carried to *Rome*; and *Licinius Crassus*, the pontifex maximus, was sent into the east, with orders to enforce obedience to the republic. Historians take no notice of any forces which were sent along with this commander; whence it is supposed, that he depended on assistance from the Asiatics, who were in alliance with *Rome*, or from the Egyptians. But, when he came thither, he found both the Syrians and Egyptians so reduced, that he could not expect any assistance from them. However, he was soon supplied with troops in plenty by the kings
of.

of Pontus, Bithynia, Cappadocia, and Paphlagonia; but managed matters so ill, that he was entirely defeated and taken prisoner. Those who took him, designed to carry him to Ariftonicus; but he, not able to endure the disgrace, would have laid violent hands on himself if he had not been disarmed. However, being allowed to keep a rod for managing the horse on which he sat, he struck a Thracian soldier who stood near him so violently with it that he beat out one of his eyes; upon which the other drew his sword, and ran him through on the spot. His head was brought to Ariftonicus, who exposed it to public view; but the body was honourably buried.

Ariftonicus had not much time to enjoy the fruits of his victory. Indeed he behaved very improperly after it; for, instead of preparing to oppose the next army, which he might have been assured the Romans would send against him, he spent his time in feasting and revelling. But he was soon roused out of his lethargy by Perpenna the new consul, who, having assembled with incredible expedition the troops of the allies, came unexpectedly upon him, obliged him to venture an engagement at a disadvantage, and entirely defeated him. Ariftonicus fled to a city called Stratonice; but was so closely pursued by the conqueror, that the garrison, having no method of supplying themselves with provisions, delivered up their leader, as well as a philosopher named Blossius, who had been the companion and counsellor of Ariftonicus. The philosopher behaved with great resolution after being taken, and openly defended his siding with Ariftonicus, because he thought his cause just. He exhorted the latter to prevent the disgrace and misery of captivity by a voluntary death; but Ariftonicus, looking upon death as a greater misery than any captivity, suffered himself to be treated as his conquerors pleased.

In the mean time, a new consul, named Manlius Aquilius, being arrived from Rome, sent a most haughty message to Perpenna, requiring him immediately to deliver up Ariftonicus, as a captive belonging to his triumph when the war should be ended. With this demand Perpenna refused to comply, and his refusal had almost produced a civil war. However, this was prevented by the death of Perpenna, which happened soon after the dispute commenced. The Pergamenians, notwithstanding the defeat and captivity of their leader, still held out with such obstinacy, that Aquilius was obliged to besiege, and take by force, almost every city in the kingdom. In doing this, he took a very effectual, though exceeding cruel, method. Most of the cities in the kingdom had no other water than what was brought from a considerable distance in aqueducts. These Aquilius did not demolish, but poisoned the water, which produced the greatest abhorrence of him throughout all the east. At last, however, the whole country being reduced, Aquilius triumphed, the unhappy Ariftonicus was led in chains before his chariot, and probably ended his miserable life in a dungeon. The country remained subject to the Romans while their empire lasted; but is now in the hands of the Turks.

The ancient City of Pergamus had been enlarged and embellished by Eumenes II. He enriched it with a library containing 200,000 choice volumes, for the transcribing of which parchment was here first invented, and thence called by the Latins *Charta Pergamena*. In Pergamus were likewise invented those costly hangings which we call *tapestry*, and which the Romans named *aulæa*, from *aula*, a hall, because the hall of Attalus II. who invented them, was the first room adorned with this furniture. Galen was born in this city. At Pergamus was one of the seven churches mentioned in the Revelation. Under the Romans the government of Pergamus was democratic, conducted by a council appointed by the people, under the direction and superintendance of a magistrate, who was president, and who was chosen annually. Pallas, Hercules, and Jupiter, were divinities held in great respect at Pergamus; but the most celebrated was Esculapius; and Apollo, who was regarded as his father, re-

ceived singular honours at Pergamus. Trajan had divine honours at Pergamus; and both the gods and the emperors had temples here, the most considerable of which was that of Esculapius. The temple of Augustus in this city was constructed at the expense of the province of Asia; the pagoda had eight columns, and is represented on many medals. This city celebrated, with a magnificence that was very expensive, the Olympic, Pythic, and Actian, games, and also others in honour of Esculapius and the emperors. These games were preceded by solemn sacrifices. The *Nicephorium*, or wood consecrated to Jupiter, was held in high veneration. This city accumulated great wealth by industry, by the commerce of parchment, and by the fabric of stuffs and tapestry. It is now an inconsiderable place, thinly inhabited; but preserves its names of Pergamus or Pergamo. In the neighbouring fields may still be found the ruins of the palace of the Attalic kings, an aqueduct, and a theatre.

A Christian church was very early planted at Pergamus; but they quickly degenerated from their purity, and tolerated the Nicolaitans, and such as taught to commit fornication, and eat things sacrificed to idols. For these things Jesus sharply reproves them in a letter by John. It is hoped this misse produced their reformation. (Rev. ii. 12-17.) For seven or eight hundred years the church here was of considerable note; but at present the Christians are reduced to about 15 miserable families; and the Turks are but about 2000 or 3000.

PERGASITE, *f.* The name given to a new mineral found at Ersby, near Abo, in Finland. The following imperfect account is the only one we have of its character: It has a green colour; its form is an octahedron, with a cleavage in three directions; it is harder than fluor spar. The specific gravity is 3.11. Before the blow-pipe, it melts into a mass with a pearly-white lustre. Its constituent parts are given as under:

Silex	-	-	-	42.10
Magnesia	-	-	-	18.27
Lime	-	-	-	14.28
Alumine	-	-	-	14.08
Oxyd of Iron	-	-	-	3.52
— of Manganese	-	-	-	1.02
— of an unknown metal	-	-	-	0.33
Fluoric acid and water	-	-	-	3.90
Loss	-	-	-	2.50
				100.00

To PERGE, *v. n.* [from *pergo*, Lat. A vicious and pedantic fabrication, too near in sound to *perge*, and not followed (to the best of the compiler's knowledge) by any other author. *Mason*.] To go on.—Thou art a good Frank, if thou *pergest* thus. *Wilkins's Miseries of Inforced Marriage*.

PERGKIRCHEN, a town of Austria: eleven miles east of Steyregg.

PERGOLA, a town of the duchy of Urbino: eight miles east of Cagli.

PERGOLA, *f.* [Ital. from *pergula*, Lat.] A balcony, or gallery.—On Whitfun Tuesday beare-baiting being appointed for the king's pastime at Whitehall, I the day before gave notice of it to the Venitian ambassador (Alonso Contareni) resident, and the next morning had his servant sent to me to signify his desire to be present at it. This imparted to my lord-chamberlain, and by him to his majesty, he was ordained his standing in the *pergola* of the banquetting-house, on the left hand of that appointed for his majesty and the queen, with carpets to lean and tread on, and a stool (no chaire) to sit on. *Finetti's Obs. on Ambassadors*, 1656.

PERGOLESI (Giovan Battista), a celebrated musician, born at Casoria, a little town about ten miles from Naples, in 1704. His friends discovering, very early in his infancy, that he had a disposition for music, placed him in the conservatorio at Naples, called Dei Poveri in Giesu Christo,

Christo, which has been since suppressed. Gaetano Greco, of whom the Italians still speak with reverence as a contrapuntist, presided then over that celebrated school. This judicious master, soon perceiving uncommon genius in his young pupil, took particular pleasure in facilitating his studies, and communicating to him all the mysteries of his art. The progress which the young musician made was proportioned to the uncommon advantages of nature and art with which he was favoured; and, at a time when others had scarcely learned the gammut, he produced specimens of his abilities which would have done honour to the first masters in Naples. At the age of fourteen, he began to perceive that taste and melody were sacrificed to the pedantry of learned counterpoint; and, after vanquishing the necessary difficulties in the study of harmony, fugue, and scientific texture of the parts, he intreated his friends to take him home, that he might indulge his own fancies, and write such music as was most agreeable to his natural perceptions and feelings. The instant he quitted the conservatorio, he totally changed his style, and adopted that of Vinci, of whom he received lessons in vocal composition, and of Haffe, who was then in high favour. And, though he so late entered the course which they were pursuing with such rapidity, he soon came up with them; and, taking the lead, attained the goal, to which their views were pointed, before them. With equal simplicity and clearness, he seems to have surpassed them both in graceful and interesting melody.

His countrymen, however, were the last to discover or allow his superiority; and his first opera, performed at the second theatre of Naples, called "Dei Fiorentini," met with but little success. The prince of Stigliano, first equerry to the king of Naples, discovering, however, great abilities in the young Pergolesi, took him under his protection; and from the year 1730 to 1734, by his influence, procured employment for him at the Teatro Nuovo. But during this period the chief of his productions were of the comic kind, and in the Neapolitan dialect, which is unintelligible to the rest of Italy, except the "Serva Padrona," set for the theatre of San Bartolomeo. It was not till the year 1735, that an account of his merit penetrated so far as Rome, and inclined the directors of the opera there to engage him to compose for the Tordinona theatre in that city. Pergolesi, ambitious of writing for a better theatre and for better performers than those for which he had hitherto been employed, and happy in having the exquisite poetry of Metastasio's Olimpiade to set, instead of the Neapolitan jargon, went to work with the zeal and enthusiasm of a man of genius, animated by hope, and glowing with an ardent passion for his art. The Romans, however, by some unaccountable fatality, received his opera with coldness; and, the composer being a young man but little known, they seemed to want to be told by others that his music was excellent, and would soon, by the admiration of all Europe, make them ashamed of their injustice and want of taste. To complete his mortification at the ill reception of this opera, "Nerone," composed by Duni, the next that was brought on the stage, and for which his was laid aside, had very great success. Duni, a good musician, and a man of candour, though greatly inferior in genius to Pergolesi, is said to have been ashamed of the treatment which he had received; and with an honest indignation declared, that he was out of all patience with the Roman public, "frenetico contro il pubblico Romano." He even tried, during the short life of this opera, to make a party in its favour among the professors and artists who were captivated with the beauty of the music; but all their efforts were vain; the time was not yet come when judgment and feeling were to unite in its favour.

Pergolesi returned to Naples with the small crop of laurels which had been bestowed on him by professors and persons of taste, who in every country compose but a

very inconsiderable part of an audience. He was indeed extremely mortified at the fate of his opera, and not much disposed to resume the pen, till the duke of Matalon, a Neapolitan nobleman, engaged him to compose a mas and vespers for the festival of a saint at Rome, which was to be celebrated with the utmost magnificence. Though Pergolesi had but too much cause to be dissatisfied with Roman decrees, he could not decline the duke's proposition; and it was on this occasion that he composed the "Mafs, Dixit, et Laudate," which have been since so often performed for the public, and transcribed for the curious. They were heard for the first time in the church of San Lorenzo in Lucina, with general rapture; and, if any thing could console a man of genius for such unworthy treatment as he had lately experienced at Rome, it must have been the hearty and unequivocal approbation he now received in the same city. His health, however, daily and visibly declined. His friends had perceived, by his frequent spitting of blood, for four or five years before this period, that he was likely to be cut off in his prime; and his malady was still increased by this last journey to Rome. His first patron, the prince of Stigliano, who had never ceased to love and protect him, advised him to take a small house at Torre del Greco, near Naples, on the sea-side, almost at the foot of Mount Vesuvius. It is imagined by the Neapolitans, that persons afflicted with consumptions are either speedily cured, or else killed, in this situation; and so it happened in the present case.

During his last sickness, Pergolesi composed his celebrated cantata of Orpheus and Euridice, and his "Stabat Mater," at Torre del Greco, whence he used to go to Naples from time to time to have them tried. The "Salve Regina," which is printed in England, was the last of his productions; and he died very soon after it was finished, in 1737, at the age of 33. The instant his death was known, all Italy manifested an eager desire to hear and possess his productions, not excepting his first and most trivial farces and *intermezzi*; and not only lovers of elegant music, and curious collectors elsewhere, but even the Neapolitans themselves, who had heard them with indifference during his lifetime, were now equally solicitous to do justice to the works and memory of their deceased countryman. Rome, sensible now of its former injustice, as an *amende honorable* had his opera of Olimpiade revived; an honour which had never been conferred on any composer of the 18th century. It was now brought on the stage with the utmost magnificence, and the indifference with which it had been heard but two years before, was converted into rapture.

Pergolesi is characterised by Dr. Burney as "the child of taste and elegance, and nursing of the graces." His works make an era in modern music. His fame is chiefly built on his vocal compositions; "in which (says Dr. Burney) the clearness, simplicity, truth, and sweetness, of expression, justly entitle him to a supremacy over all his predecessors and cotemporary rivals, and to a niche in the temple of Fame among the great improvers of the art." *Burney's Hist. of Music.*

PER'GUBA, a town of Russia, in the government of Olonetz: sixty-four miles north of Petrozavodfk.

PERGULA'RIA, *f.* [from *pergula*, Lat. a balcony, or trellis, in allusion to its twining habit and fragrant blossoms, which render this genus very desirable for bowers.] In botany, a genus of the class pentandria; order digynia, or rather gynandria, natural order of contortæ; (apocineæ, *Juss.*). Generic characters—Calyx: perianthium one-leaved, five-cleft, upright, acute, permanent. Corolla: one-petalled, salver-shaped: tube cylindrical, longer than the calyx; border five-parted, flat, with oblong segments. Nectaries five, semi-sagittate, erect, compressed, attenuated into a dagger-point, curved inwards, with a nodding tooth at the outer base. Stamina: filaments ———; antheræ two to each gland, curved upwards,

upwards, divaricating, obovate, pellucid, yellow, with scarcely any discernible pollen. *Smith*. Tubercles (glands) five, immersed in the stigma. Pistillum: germs two, ovate, acuminate; styles none; (two very short, united, villose; stigmas obsolete. *Smith*.) Pericarpium: follicles two. Seed ———. This genus is allied to *Periploca græca*; but the character wants correction.—*Essential Character*. Contorted; nectary surrounding the genitals with five fagittated cups; corolla salver-shaped. There are six species.

1. *Pergularia glabra*, smooth pergularia, or sweet bower-vine; (*Vallis pergularis*, *Burm. Ind.* 51. and *Brown in Wern. Transf.* i. 31.) Leaves ovate, acute, smooth; stem shrubby. This species is a native of Java and Amboyna, used for bowers and trellis-work, as it makes a very thick shade. The Malay women are fond of adorning their hair with its fragrant flowers. The stem is perennial, shrubby, and twining. Leaves opposite, stalked, ovate, acute, entire, thick and shining, five inches long, two and a half or three wide, with strong pale veins. When the leaves or twigs are wounded, they discharge a thick viscid yellow milk. Flower-stalks from between the footstalks, forked, corymbose. Flowers white, and highly fragrant, compared by Rumphius to those of jasmine, (probably *Jasminum Sambac*), but having a shorter tube, with five shining bodies in the middle. He speaks of the scent of these flowers as too strong for Europeans, though highly esteemed by the natives of the country where they grow.

2. *Pergularia edulis*, or eatable pergularia: leaves ovate acuminate, smooth; stem herbaceous. The stem of this is also twining, but herbaceous; whereas in the preceding it is shrubby. Native of the Cape of Good Hope.

3. *Pergularia odoratissima*, sweet-scented pergularia, or Chinese creeper: leaves heart-shaped, nearly smooth; nectary and genitals shorter than the tube of the corolla; stigma conical, obtuse. Root branched, much spreading, whitish. Stem shrubby, twining branched, round; its bark ash-coloured, spongy, full of longitudinal fissures; branches nearly opposite, very long, flaccid, mostly simple, round, brown, downy, leafy. Leaves opposite, spreading and bent downwards, pointed, entire, slightly concave, opaque, veiny, downy on the veins and margin, paler beneath: footstalks one fourth of the length of the leaves, round, downy, with a furrow along the upper side, furnished at the base on each side and at the top with two or three acute brown-tipped glands. Flowers the size of a primrose, yellowish green; calyx bell-shaped, deeply five-cleft; segments lanceolate, veined, slightly downy, minutely ciliated, tipped with brown; tube of the corolla a little longer than the calyx, slightly downy, striped; inflated, and with five swellings in the base; having a pervious orifice, set with numerous hairs pointing backwards. Sir Joseph Banks is said to have sent this to Kew about the year 1784. It is cultivated in China, as a favourite bower-plant, though of what precise country a native is not known. We have been told it is wild in Sumatra. Lady Amelia Hume received a fine plant of this species in 1789, which covered the stern of the ship with its fragrant green blossoms, during a great part of the voyage, and has since been widely propagated in this country. It thrives either in a stove or warm conservatory, flowering throughout the summer and autumn, and exhaling, in an evening, that peculiar, light, lemon-like, but luscious, fragrance, of which the Chinese are so fond, and which belongs to various greenish night-scented flowers, as the *Chloranthus inconspicuus*, and some *Orchidææ*.

β. P. tomentosa. This variety, with somewhat rounder leaves, and more tawny flowers, is cultivated for its agreeable fragrance in the gardens of the East Indies. It was brought to the Kew garden about the same time that Lady Hume had the Chinese plant. The specimen in the Linnæan herbarium is from China, whence it appears to have been brought to the Upsal garden: and to this be-

longs the description in the *Mantissa*, 53. where the leaves are, not much amiss, described as smooth: but the specific character and place of growth relate to a widely different plant, the *Aclepias cordata* of Forskall.

4. *Pergularia minor*, sweet yellow pergularia, or West-Coast creeper; (*Cynanchum odoratissimum*, *Louveir. Cochinch.* 166.) Leaves heart-shaped, obtuse with a point; panicles axillary; calyx nearly as long as the tube of the corolla. Native of the East Indies, where it is cultivated for the same reason as the foregoing. From dried specimens this plant had been considered as a variety also; but, when compared alive, they appear to be distinct species. Besides what is noted in the specific character, the present is rather smaller in all its parts, with fewer flowers in each panicle. The corolla has broader and blunter segments, of a tawny yellow on their upper surface. Introduced into England by Sir Joseph Banks in 1784, and blooms in a stove all summer long.

5. *Pergularia purpurea*, or purple pergularia: leaves heart-shaped, smooth; segments of the corolla linear-oblong, smooth; umbels proliferous. Branches twining, slender, ash-coloured, appearing villose when examined by a glass. Leaves opposite, nerved and veined, two inches long; the upper one less; petiole the length of the leaves. It is allied to *P. Japonica*, but the umbels are proliferous, not simple; the segments also of the border are linear, not ovate: still it may be doubted whether they are actually distinct. Native of the East Indies and of China.

6. *Pergularia Japonica*, or Japan pergularia: leaves heart-shaped, smooth; segments of the corolla ovate, villose within; umbels simple. Stem twining, round, smooth, simple. Leaves opposite, acute; quite entire, nerved, spreading, an inch long, on round smooth petioles. Flowers axillary, peduncled, erect; calyx parted almost to the base, shorter than the corolla; the parts lanceolate, rough-haired. Tube of the corolla bell-shaped, a little shorter than the calyx: segments of the border blunt, spreading and bent back; smooth on the outside, but villose within. Native of Japan, where it flowers in August.

Loureiro has two other species, both natives of China, which he names *divaricata* and *sinensis*. He remarks, that in all the species of *Pergularia* and *Apocynum* which he had seen, the flowers have one pistil only. See *ASCLEPIAS*.

PERGUN'NAH, *f.* In the language of Hindoostan, means the largest subdivision of a province, whereof the revenues are brought to one particular *head cutchery*, from whence the accounts and cash are transmitted to the *general cutchery* of the province.

PERHAPS, *adv.* Peradventure; it may be.—Somewhat excellent may be invented, *perhaps* more excellent than the first design, though Virgil must be still excepted when that *perhaps* takes place. *Dryden*.—It is not his intent to live in such ways as, for ought we know, God may *perhaps* pardon; but to be diligent in such ways as we know that God will infallibly reward. *Law*.

Perhaps the good old man that kiss'd his son,
And left a blessing on his head,

His arms about him spread,
Hopes yet to see him ere his glass be run. *Flatman*.

Perhaps new graces darted from her eyes,
Perhaps soft pity charm'd his yielding soul,
Perhaps her love, *perhaps* her kingdom, charm'd him. *Smith*.

PERHAY (Point de), a cape on the west coast of France: six miles south-east of Point St. Matthew. Lat. 15. 2. N. lon. 4. 45. W.

PERHO', a town of Sweden, in the government of Wafa: fifty-six miles east of Jacobstadt.

PERHYEMA'TION, *f.* [from the Lat. *per*, through, and

and *hyems*, the winter.] The act of spending the winter at any place. *Bailey*.

PERI (Jacopo), a native of Florence, the principal inventor of recitative, and the composer of *Euridice*, written by Rinuccini, the first opera that was composed in *stilo rappresentivo*. This drama, written and set to a new species of music for the royal nuptials of Mary of Medicis with Henry IV. of France in 1600, was publicly exhibited at Florence in the most splendid manner, and in which Peri, the composer, performed a vocal part. Peri is said by Battista Doni to have been not only a good composer in the new style, but a famous singer and performer on keyed instruments. *Burney*.

PERIA, a town of Persia, in the province of Irac: ninety miles west of Isfahan.

PERIAC', a town of France, in the department of the Aude, celebrated for its salt-works: six miles south-west of Narbonne.

PERIACUL'TUM, a town of Hindoostan: thirty miles south-south-west of Dindigul.

PERIADA, in ancient geography, a town of Greece, in the island of Eubœa. *Strabo*.

PERIAGOGE, *f.* [from the Gr. *περι*, upon, and *αγω*, to drive.] In rhetoric, a sentence or period in which several things are crowded together which might have been divided.

PERIAGRA'RUM, a town of Hindoostan, in Coimbatore: three miles west-north-west of Errood.

PERIAGUA, *f.* A kind of large canoe made use of in the Leeward islands, South America, and the gulf of Mexico. It is composed of the trunks of two trees hollowed and united together; and thus differs from the canoe, which is formed of one tree.

PERIAMMA, *f.* [from the Gr. *περι*, about, and *αμλω*, to tie.] An amulet, something tied about the neck or other part of the body, as supposing it to have virtue to cure some hurt or disease.

PERIAMOO'DY, a town of Hindoostan: thirty miles west-south-west of Dindigul.

PER'JAN, a town of Grand Bukharia: thirty-six miles east-south-east of Anderab.

PERIANDER, a tyrant of Corinth and Corcyra, was the son of Cypselus, who before him had obtained an unjust authority over his fellow-citizens. Periander succeeded him about the year B. C. 628. and, in order to secure his power, put to death the principal persons in Corinth. In almost every other respect he well merited the title of tyrant, which has ever been attached to his name; but he was very inimical to that luxury which involved the inhabitants of the city, and he kept the country in peace by means of his fleet, which gave him the control of the sea. He is also applauded for not having imposed taxes upon his people, excepting those which resulted from the export and import of merchandise. His private life was stained with enormous crimes, with a detail of which we will not fully our pages. He banished his son Lycophron to Corcyra, for showing an abhorrence of the cruelty inflicted on his mother; but in his old age he sent to recall him, in order to govern Corinth in his stead, while he himself intended to retire to Corcyra. The people of that island prevented the exchange by putting the prince to death. Periander took ample revenge on the perpetrators of the deed; but, not contented with this, he indulged the most cruel resentment on the innocent, by sending three hundred youths of the best families to be made eunuchs by king Alyattes of Sardis. These victims to royal madness, stopping by the way to Samos, were rescued by the people; and it has been asserted that the chagrin occasioned to Periander by the disappointment, caused his death, at the age of 80, in the year B. C. 584. He was a man of great talents; and an inscription on his tomb at Corinth, preserved by Laertius, proves that his country regarded him as a wise and able ruler. He was traditionally reckoned among the seven wise men of Greece; and some of his maxims, which are

rather prudential than moral, seem to justify the title. The maxim most known is, "There is nothing which prudence cannot accomplish."

PER'ANTH, *f.* [from the Gr. *περι*, about, and *ανθος*, a flower.] In botany, the flower-cup. It is the most usual sort of calyx, and is immediately contiguous to, or more properly makes a part of, the flower. Such are the five green leaves, with their urn-shaped base, in the rose; and the tubular cup of a pink, including the scales at its base. In this last instance the perianth may be called double; and is avowedly so in most of the mallow tribe, while in the scabious it is triple. When the term *calyx* is used without any particular explanation, it means a perianth. This part is either deciduous, as in the poppy; or permanent, as in the pink. In many instances it becomes enlarged, thickened, or hardened, crowning or enveloping the fruit. Its situation is either *inferior*, below the germen, or *superior*, above that part. Its forms are infinitely various, on which the characteristic distinctions of many genera depend. In some instances it is divided more or less deeply, in others undivided; in some it is of one leaf, in others of several. The hue of the perianth is usually green; but not unfrequently otherwise, in which last case only it is technically said to be *coloured*. Many flowers have no perianth, as the tulip; and the narcissus, which has another kind of calyx, the *spatha*, or sheath. See farther under the article BOTANY, vol. iii. p. 246, 7.

PERIAPAL', a town of Hindoostan: twenty-seven miles north-east of Coimbatore.

PERIAPATAM', a town of Hindoostan, in Myfore: twenty-four miles south-west of Seringapatam, and fifty-four north-east of Tellicherry. Lat. 12. 15. N. lon. 76. 31. E.

PERIAPOL'LAM, a town of Hindoostan, in the Carnatic: twenty miles north-west of Madras.

PERIAPT, *f.* [from the Gr. *περι*, about, and *απλω*, to bind around.] Amulet; charm worn as preservative against diseases or mischief. *Hammer*.

The regent conquers, and the Frenchmen fly:
Now help, ye charming spells and *periapts*. *Shakespeare*.

PERIBOACA, a river of Canada, which runs into the St. John's Lake in lat. 48. 32. N. lon. 72. 20. W.

PERIB'OLUS, *f.* [from the Gr. *περι*, about, and *εωλλω*, to throw.] The outward wall of a place; a park; a warren. *Phillips*.

PERICA, three small islands in the gulf of Panama, lying at a little distance from the shore, and defending the road of Panama so as to form a good harbour.

PERICAR'DIAC, *adj.* [from *pericardium*.] Beneficial to the pericardium.

PERICAR'DIAN, *adj.* Belonging to the pericardium.

PERICAR'DIARY, *adj.* Belonging to the worms or animalcules bred in the heart.

PERICAR'DIC, *adj.* Belonging to the pericardium. *Phillips*.

PERICAR'DIUM, *f.* [from the Gr. *περι*, about, and *καρδια* the heart.] A thin membrane of a conic figure that resembles a purse, and contains the heart in its cavity.—The use of the *pericardium* is to contain a small quantity of clear water, which is separated by small glands in it, that the surface of the heart may not dry by its continual motion. *Quincy*.—He desired us first of all to observe the *pericardium*, or outward case of the heart. *Addison's Spect.* N^o 281.—A man may come into the *pericardium*, but not the heart, of truth. *Brown's Chr. Morality*.

PERICAR'PIUM, *f.* [from the Gr. *περι*, about, and *καρπος*, the fruit.] In botany, a pellicle or thin membrane encompassing the fruit or grain of a plant, or that part of a fruit that envelops the seed.—Besides this use of the pulp or *pericarpium* for the guard of the seed, it serves also for the sustenance of animals. *Ray*.

The use of the pericarp is to protect the seeds till ripe, and

and then, in some way or other, to promote their dispersion. It is curious to observe how admirably the very same part is contrived to answer these opposite intentions. This is generally accomplished on hygrometrical principles. While moist or juicy, the valves remain closed; but, in drying, they fly or split asunder; thus moreover, by an elastic action, assisting in the dispersion of their contents; and that in a dry state of the atmosphere, which is most favourable to the sowing seeds in general. An exception to this rule has been observed in some annual species of *Mefembryanthemum*, natives of the sandy country of Africa, where the arid soil but rarely enjoys the benefit of rain. The capsules of these expand by means of wet alone, when the elastic valves of each separate cell project their seeds to a distance, to take advantage of a favourable moment for vegetation, that might not soon occur if they were sent abroad during the dry season. Juicy pericarps commonly serve for the food of animals, more especially birds, in whose dung their seeds are deposited, at a distance from the spot where they grew, and in a condition peculiarly favourable for vegetation. See *BOTANY*, vol. iii. p. 250.

PERICARPIUM, [from *περιπος*, Gr. the wrist.] A medicine applied to the wrist as a charm to cure the ague. Sometimes called *epicarpium*.

PERICHÆTIUM, *f.* [from the Gr. *περι*, about, and *χαιτη*, a hair or bristle.] A scaly sheath peculiar to mosses, which owes its name to its situation around the base of their bristle-like fruit-stalk. It belongs also to the male, or barren, flowers of these plants, and indeed constitutes their *calyx* in both sexes. The perichætiæ consist of several imbricated leaves, differing, in a more or less striking manner, from the genuine foliage of the plant, either in structure, dimensions, or colour. In *Hypnum* it is of great consequence, constituting, by its presence, a part of the generic character, and assisting powerfully, by its diversities of shape, proportion, or structure, in the discrimination of species. Its duration is remarkable in some instances, even to the extent of three or four years, long after the seed and its pericarp have disappeared; of which we scarcely know an example among the generality of other plants. More frequently it is deciduous, after having accomplished its original purpose of protection to the tender organs which it encloses. See *PERIGONIUM*.

PERICHAREIA, *f.* [Greek.] A word used by the ancients to express a sudden surprise of joy, such as has been frequently known to occasion death. *Chambers*.

PERICHONDRIUM, *f.* [from *περι*, and *χονδρος*, cartilage.] The investing membrane of cartilages.

PERICHORE'SIS, or **CIRCUMINCES'SION**, *f.* in theology, a term employed by the schoolmen to express the existence of three divine persons in one another, in the mystery of the Trinity.

PERICHRI'SIS, *f.* A word used by the ancients for a liniment principally of the oleaginous or spirituous kinds, and as thin and fluid as oil.

PERICLASIS, *f.* [from the Gr. *περι*, and *κλαω*, to break.] In surgery, a fracture attended with a considerable wound of the soft parts, and exposure of the bone. *Chambers*.

PERICLES. See the article *GREECE*, vol. viii.

To PERICLITATE, *v. n.* [*periclitator*, Lat. to be in danger.] To hazard. *Cockeram*.

PERICLITATION, *f.* The state of being in danger. *Cockeram*.—Trial; experiment.

PERICLOSIS, *f.* See *PERICLASIS*.

PERICLYM'ENI FLO'RE. See *SPIGELIA*.

PERICLYM'ENI SIM'ILIS. See *VOLKAMERIA*.

PERICLYM'ENO ACCE'DENS. See *CINCHONA* and *PSYCHOTRIA*.

PERICLYM'ENUM. See *CHIOCOCCA*, *COMMELINA*, *CORNUS*, *HAMELIA*, *LANTANA*, *LONICERA*, *LORANTHUS*, *MORINDA*, and *VARRONIA*.

PERICLYM'ENUS, in the mythology of the poets, the brother of Nestor, and one of the Argonauts, who was supposed to have power to transform himself into any form, and was at last shot by Hercules in the shape of an eagle.

PERICO, a town of South America, in the province of Tucuman: fifteen miles south of St. Salvador de Jugui.

PERICONIA, *f.* [so named by Tode, from *περι*, about, and *κονις*, powder; because the fungus is entirely surrounded, when ripe, with its own dusty seeds.] In botany a genus of the class cryptogamia, order fungi.—Essential generic character. Stalk rigid, simple, terminating in a dry farinaceous head. There are four species.

1. *Periconia lichenoides*, or lichen periconia. This proceeds from a black crust-like base, so as very nearly to approach the nature of some of the Lichenes; hence the name. It has hitherto been found, only in rainy weather, among the castings and sweepings of gardens, adhering to stalks of cucurbitaceous plants when old and decayed. It is a summer production; and makes its appearance at the end of June.

2. *Periconia byssoides*, or flaxy periconia. This varies in height between one and two twelfths of an inch. Magnifying glasses have enabled us, if we are not egregiously mistaken, to discover a kind of farinaceous dust filling up the head, interwoven with many nearly imperceptible fibrous threads, contrived for its internal support. This humble class of vegetation delights in the stubbles and the dead leaves of the greater *Carex*, or sheer-grass, (sedge,) and conglomerated rushes. It thrives mostly in fens and marshy grounds. The time of its appearance is April and May.

3. *Periconia flavo-virens*, or green-headed periconia. A new species, added by Albertini and Schweiniz. It has a stiff, persistent, and striated, stalk, of a dark-brown colour; the head loose, farinaceous, with a few filaments or fibres, yellowish-green, and soon vanishing. In habits, size, and general form, it is somewhat similar to the preceding species; from which, however, it differs materially by its head, resembling the *Isaria* (which genus it manifestly approaches,) full of farinaceous dust, clearly interspersed with fibres, and which, being thrown out, appears conspicuously scattered upon the stem, which, thickening at the bottom, seems to rest upon a small bulb. In some the head is oblong, and somewhat smooth; in others nearly spherical; of a yellowish-green tint, not unlike the calycian bran; and, having lost its farina, disappearing entirely. We find this gregarious small fungus upon the damp and half-putrid leaves of the *Sorbus aucuparia*. Its season is the middle of May. It is represented on the annexed Plate, of the natural size, and lying on a dead leaf, at fig. 1. and considerably magnified at fig. 2.

4. *Periconia stemonitis*. Of this there are two varieties: *a*, common; *β*, dwarfish. The first variety is easily met with upon the small twigs of the gooseberry-tree, &c. as well as on the wood of the poplar. It appears in autumn, and again in the spring. The second is a microscopic plant, about the 24th part of an inch in dimensions; with a black stalk; the head full of a bran-like dust, ash-coloured, intermixed with hairs, like the *Isaria*. It is gregarious, and often found in the small cavities of deal-wood, sawed out for use. January produces this species. *Conspectus Fungorum à Methodo Personiana*.

PERICRANIUM, *f.* [from the Gr. *περι*, about, and *κρανιον*, the skull.] The membrane that covers the skull: it is a very thin and nervous membrane of an exquisite sense. A similar membrane covers immediately not only the cranium, but all the bones of the body, except the teeth, for which reason it is also called the *periosteum*. *Quincy*.—Having divided the *pericranium*, I saw a fissure running the whole length of the wound. *Wiseman's Surgery*.

PERIC'



1. 2. Green-headed Periconia. 3. Climbing Dog-bane, or Virginian Silk.

Engraved for the Encyclopaedia Londinensis 1793.

PERIC'ULOUS, *adj.* [*periculosus*, Lat.] Dangerous; jeopardous; hazardous. —A word not in use.—As the moon every seventh day arriveth unto a contrary sign, so Saturn, which remaineth about as many years in one sign, and holdeth the same consideration in years as the moon in days, doth cause these *periculous* periods. *Brown*.

PERIDIUM, *f.* in botany, a term introduced by Persoon, for the round membranous dry case of the seeds, in some of his first section of Fungi, the Angiocarpi, which bear their seeds *internally*, and not throughout the surface of an expanded membrane called *hymenium*. The various kinds of *Lycopodon*, or puff-ball, and its allies, afford good examples of a *peridium*.

PERIDROME, *f.* [from the Gr. *περι*, about, and *δρομος*, a course.] In architecture, the gallery; the alley or space between the columns and the wall. The same word is used by the old Greek writers to express the extreme edge of the hairs of the head, when hanging down in their natural form.

PERIEGETES, *f.* [from the Gr. *περι*, about, and *ηγουμεναι*, to lead.] One who conducts another about any place in order to show it him. It is applied in antiquity to geographers; especially to those who described the sea-coasts: thus Dionysius is styled Periegetes, for publishing a geography in hexameter verses, which Eustathius has commented on.—The name *periegetes* was also given to those who conducted strangers about in cities, to show them the antiquities, monuments, curiosities, &c. thereof. *Chambers*.

PERIERGY, *f.* [from the Gr. *περι*, about, and *εργον*, a work.] Needless caution in an operation; unnecessary care and diligence.

PERIERS, a town of France, in the department of the Channel: eight miles north of Coutances.

PERIERS (Bonaventure des), a French writer, was born at Arnai-le-Duc, in Burgundy. In 1536 he became valet-de-chambre to Margaret of Valois, sister of Francis I. He published several translations, and other pieces, in verse and prose; but is chiefly noted for his work entitled "Cymbalum Mundi," written first in Latin, and translated by himself into French under a fictitious name; first printed at Paris, in 1537, by Morin, who was imprisoned on its account. This work, concerning which much has been written, consists of four dialogues in the Lucianic style, ridiculing the follies and false opinions of mankind. It has been charged with gross impiety, upon the supposition that, under the appearance of laughing at the heathen theology, it meant to mask an attack upon the Christian mysteries, and religion in general. Others, however, have found in it more folly and extravagance than impiety. It was censured by the theologians of Paris, and ever after passed as a prohibited or scandalous book; on which account it became very rare, and much sought after by the curious. New editions of it were published in the last century. It is affirmed that the author made an unhappy end, by falling on his sword in a fit of despair. *Bayle*.

PERIGEE, or PERIG'UM, *f.* [from the Gr. *περι*, about, and *γη*, the earth.] That point in the heavens, wherein a planet is said to be in its nearest distance possible from the earth.—The sun in his apogee is distant from the centre of the earth 1550 semidiameters of the earth, but in his *perigee* 1446; the difference about 1,404,000 miles. *Mure's Song of the Soul*.—By the proportion of its motion, it was at the creation at the beginning of Aries, and the *perigeeum* or nearest point in Libra. *Brown's Vulg. Err*.

PERIGNAC', a town of France, in the department of the Lower Charente: ten miles south-east of Saintes.

PERIGONIUM, *f.* in botany, a more recent term than *Perichatium*, invented by Linnæus for the same part in mosses, the scaly leaves investing the flowers. It is derived from the Gr. *περι*, about, and *γενν*, generation; and, being common to the flowers of those plants in general, whether male or female, united or separated, the author

judged it more proper than a word which literally applied only to the leaves that surround the fruit-stalk. There is however no end of thus changing terms, when once generally established; and the inconveniences of such a measure greatly counterbalance any possible advantages. This improved denomination conveys no new idea, nor additional information, but rather less; for it is, in its meaning, ambiguous, as applicable to both calyx and corolla; whereas these plants possess a distinct and peculiar corolla in their calyptra, which is equally a *perigonium*, as encompassing the flower during "impregnation," but not a *perichatium*, because it is removed upwards, as soon as the fruit-stalk, or "bristle," is formed. *Perichatium* therefore, as an appropriate appellation for the calyx, and for the calyx only, is preferable, in our opinion, to *Perigonium*.

PERIGO'RD, before the revolution, a province of France; now the department of the Dordogne.

PERIGORD STONE. See MAGNESIUM petracorius, vol. xiv. p. 109.

PERIGRAPHE, *f.* [from the Gr. *περι*, about, and *γραφω*, to write.] A word usually understood to express a careless or inaccurate delineation of any thing. In Vesalius it is used to express the white lines or impressions that appear on the musculus rectus of the abdomen.

PERIGUEU'X, a city of France, and capital of the department of the Dordogne, on the Ille; before the revolution, the capital of Perigord, the see of a bishop, and residence of a governor. Here are some remains of Roman antiquities, as an amphitheatre, a temple of Venus, &c. This town is famous for its partridge-pies, which are sent all over Europe. The number of inhabitants is about 6000. It is 15½ posts north-east of Bourdeaux, and 58¾ south-south-west of Paris. Lat. 45. 11. N. lon. o. 47. E.

PERIHEL'IUM, *f.* [from the Gr. *περι*, about, and *ηλιος*, the sun.] That point of a planet's orbit, wherein it is nearest the sun.—Sir Isaac Newton has made it probable, that the comet which appeared in 1680, by approaching to the sun in its *perihelium*, acquired such a degree of heat, as to be 50,000 years a-cooling. *Cheyne's Philos. Principles*.

PERI'JA, a town of South America, in the government of Caraccas: eighty miles south-west of Maracaybo.

PER'IL, *f.* [Fr. *perihel*, Dutch; *periculum*, Lat.] Danger; hazard; jeopardy.—Strong, healthy, and young, people are more in *peril* by pestilential fevers, than the weak and old. *Arbutnot*.

How many *perils* do in fold
The righteous man, to make him daily fall! *Spenser*.

Denunciation; danger denounced:

I told her,
On your displeasure's *peril*,
She should not visit you. *Shakespeare's Wint. Tale*.

To PER'IL, *v. n.* [*periller*, old Fr.] To be in danger.—From the mixture of any ungenerous and unbecoming motion, or any soil, wherewith it may *peril* to stain itself. *Milton of Ch. Gov*.

PERIL'LA, *f.* [derivation unknown.] In botany, a genus of the class didynamia, order gymnospermia, natural order of verticillatæ; (labiatæ, *Juss*.) Generic characters—Calyx: perianthium one-leaved, upright, half five-cleft: segments equal, the uppermost very short; permanent. Corolla: one-petalled, irregular, four-cleft: upper segment emarginate, lateral ones spreading, lowest longer, blunt. Stamina: filaments four, simple, distant, shorter than the corolla; antheræ bifid. Pistillum: germens four. Styles two, filiform, connected, the length of the stamens; stigmas simple. Pericarpium: calyx unchanged. Seeds four.—*Essential Character*. Calyx, uppermost segment very short; stamina distant; styles two, connected.

Perilla ocymoides, a solitary species. Stem simple, stiff, blunt, quadrangular, rough-haired; leaves ovate, almost naked, serrate; on petioles the length of the leaves; racemes lateral and terminating, rough-haired, upright. Flowers small, white, solitary or by threes, rough-haired in the calyx, with leafy bractes longer than the flower. It is an annual plant, originally obtained by Arduino from India. It was introduced at Kew in 1770, by M. Richard, where it flowers in July and August. The whole plant has a strong balmy fragrance, and may be substituted for the balm of the shops.

PERIL'LUS, an artist at Athens, who made a brazen bull for Phalaris, tyrant of Agrigentum. This machine was fabricated to put criminals to death by burning them alive, and it was such that their cries were like the roaring of a bull. But the tyrant made the first experiment upon the donor, and cruelly put him to death by lighting a slow fire under the belly of the bull.

PER'LOUS, *adj.* Dangerous; hazardous; full of danger.—Alterations in the service of God, for that they impair the credit of religion, are therefore *perilous* in common-weals, which have no continuance longer than religion hath all reverence done unto it. *Hooker.*

Dictate propitious to my duteous ear,
What arts can captivate the changeful fear:
For *perilous* the assay, unheard the toil,
To elude the prescience of a god by guile. *Pope.*

It is used by way of emphasis, or ludicrous exaggeration of any thing bad:

Thus was the accomplish'd squire endu'd
With gifts and knowledge *per'lous* shrewd. *Hudibras.*

Smart; witty. In this sense it is applied to children, and probably obtained its signification from the notion, that children eminent for wit do not live; a witty boy was therefore a *perilous* boy, or a boy in danger:

'Tis a *per'lous* boy,
Bold, quick, ingenious, forward, capable;
He's all the mother's from the top to toe. *Shakespeare.*

PER'LOUSLY, *adv.* Dangerously.—After a man is sanctified, he receiveth from God another special grace to raise him; even then, when he is most *perilously* fallen. *Professor Benefield's Sermon.* 1615.

PER'LOUSNESS, *f.* Dangerousness.

PER'IM, a small island in the Straits of Babelmandel, about four miles from the coast of Africa. It has a good port, but no fresh water. Lon. 12. 36. N. lat. 43. 50. E.

PER'IM KA'KU VAL'LI, in botany. See MIMOSA.

PER'IM TOD'DAL. See RHAMNUS.

PERIM'ETER, *f.* [from the Gr. *περι*, and *μετρον*, measure.] In geometry, the ambit or extent that bounds any figure or body whatever.—The *perimeters* of surfaces, or figures, are lines: those of bodies are surfaces. In circular figures, &c. instead of *perimeter*, we say *circumference*, or *periphery*. *Chambers.*

PER'IN KA'RA, *f.* in botany. See ELÆOCARPUS.

PERINAL'DO, a town of Italy, in the district of Monaco: eighteen miles east-north-east of Nice. The place contains 1283 inhabitants.

PERIN'DA, a town of Hindoostan, in the county of Dowlatabad: twenty-three miles south-east of Carmulla, and 188 north-west of Hydrabad. Lat. 18. 33. N. lon. 75. 50. E.

PER'INDARY, a town of Hindoostan, in Coimbetore: five miles south-west of Errood.

PERINE'UM, *f.* [*περινεαιος*, Gr.] That part of the body which extends from the organs of generation in either sex to the fundament. The space in question is much longer in the male than in the female; being about four or five inches in the former, one inch or one and a half in the latter. A roughish line, called the *raphe*, runs along the middle of it, and a few hairs are scattered over it.

PERINGIA'NO, a town of the island of Sardinia: twenty miles south of Villa d'Iglesias.

PERIN'GERSDORF, a town of Germany, in the territory of Nuremberg: three miles west-fourth-west of Lauf.

PERINGOO'DY, a town of Hindoostan, in Marawar: twenty miles north-west of Ramanadporum.

PERINGSKIO'LD (John), a learned Swede, was born in Sudermania, in 1654. He became secretary of antiquities and counsellor to the king of Sweden, and professor at Upsal. He died in 1720. His works are, 1. A History of the Kings of the North. 2. History of the Kings of Norway, two vols. folio. 3. Historical and Chronological Tables from Adam to Jesus Christ.

PERINRA'PAX, one of the Laccadive Islands in the Indian Sea. Lat. 11. 10. N. lon. 71. 18. E.

PERIN'THUS, a town of Thrace, in the Propontis, anciently surnamed *Mygdonica*. It was afterwards called *Heraclea*, in honour of Hercules; and now EREKLI.

PERIO'CHA, *f.* [from the Gr. *περιοχη*, an inclosure.] An argument indicating the nature and extent of a discourse. *Scott.*

PE'RIOD, *f.* [from the Gr. *περι*, through, and *οδος*, a way.] A circuit. Time in which any thing is performed, so as to begin again in the same manner.—Tell these, that the sun is fixed in the centre, that the earth with all the planets roll round the sun in their several *periods*; they cannot admit a syllable of this new doctrine. *Watts.*—A stated number of years; a round of time, at the end of which the things comprised within the calculation shall return to the state in which they were at the beginning.—A cycle or *period* is an account of years that has a beginning and end, and begins again as often as it ends. We style a lesser space a cycle, and a greater by the name of *period*; and you may not improperly call the beginning of a large *period* the epocha thereof. *Holder on Time.*—The end or conclusion.—There is nothing so secret that shall not be brought to light within the compass of our world; whatsoever concerns this sublunary world in the whole extent of its duration, from the chaos to the last *period*. *Burnet's Theory.*

What anxious moments pass between
The birth of plots and their last fatal *periods*!
Oh! 'tis a dreadful interval of time. *Addison.*

The state at which any thing terminates.—Light-confering stones must be set in the sun before they retain light, and the light will appear greater or lesser, until they come to their utmost *period*. *Digby.*

Beauty's empires, like to greater states,
Have certain *periods* set, and hidden fates. *Suckling.*

Length of duration.—Some experiment would be made how by art to make plants more lasting than their ordinary *period*; as to make a stalk of wheat last a whole year. *Bacon's Nat. Hist.*—A complete sentence from one full stop to another.—*Periods* are beautiful when they are not too long; for so they have their strength too, as in a pike or javelin. *B. Jonson.*

Is this the confidence
You gave me, brother?—Yes, and keep it still;
Lean on it safely, not a *period*
Shall be unpaid for me. *Milton's Comus.*

The point (.) that shows the end of a sentence.

To PERIOD, *v. a.* To bring to an end, or to a certain point.—The last letter *periods* the business until we met at Tergofa in Zealand. *Guardian*, N^o 133.

Your honourable letter he desires
To those have shut him up; which failing to him,
Periods his comfort. *Shakespeare's Timon.*

PERIODEU'TA, *f.* [*περιοδευτης*, Gr.] A church-officer among the Greeks, established by the council of Laodicea, in towns, &c. where there were no bishops. The *periodeutæ* were a kind of rural deans; so called, according

ding to Zonaras, because "always on the road," going from one quarter to another, to keep the people in their duty. Hence Gregory of Thessalonica calls them *ambulantes*, "walkers." Balsamon calls them *exarchæ*; by which name they are known among the Greeks at this day.

PERIOD'IC, or PERIOD'ICAL, adj. [*periodique*, Fr. from *period*.] Circular; making a circuit; making a revolution.—Was the earth's *periodic* motion always in the same plane with that of the diurnal, we should miss of those kindly increases of day and night. *Derham*.—Four moons perpetually roll round the planet Jupiter, and are carried along with him in his *periodical* circuit round the Sun. *Watts on the Mind*.—Happening by revolution at some stated time.—Astrological undertakers would raise men out of some slimy soil, impregnated with the influence of the stars upon some remarkable and *periodical* conjunctions. *Bentley*.—Regular; performing some action at stated times.—The confusion of mountains and hollows furnished me with a probable reason for those *periodical* fountains in Switzerland, which flow only at such particular hours of the day. *Addison*.—Relating to periods or revolutions.—It is implicitly denied by Aristotle in his politics, in that discourse against Plato, who measured the vicissitude and mutation of states by a *periodical* fatality of number. *Brown*.

PERIOD'ICALLY, adv. At stated periods.—The three tides ought to be understood of the space of the night and day; then there will be a regular flux and reflux thrice in that time, every eight hours, *periodically*. *Broome*.

PERIOD'ICALNESS, f. The state of being periodical.

PERICE'CI, f. [from the Gr. *περι*, about, and *οικω*, to dwell.] Such inhabitants of the globe as have the same latitudes, but opposite longitudes, or live under the same parallel, and the same meridian, but in different semicircles of that meridian, or opposite points of the parallel. These have the same common seasons throughout the year, and the same phenomena of the heavenly bodies; but their hours, or times of the day, are opposite to each other; i. e. when with the one it is mid-day, with the other it is midnight.

PER'ION, or PER'ION (Joachim), a learned French Benedictine, was born at Cormery in the Touraine, about the year 1500. At the age of seventeen he entered the monastery at his native place; and afterwards distinguished himself among the divines of his time. He particularly excelled in writing and speaking Latin with purity. He translated into that language several of the writings of the ancient philosophers and fathers, with notes; but his versions are entitled more to the praise of elegance than of fidelity; and for his deficiency in critical skill, he has been severely handled by Baillet, Joseph Scaliger, and other learned men. He was admitted to the degree of doctor by the faculty of theology at Paris; and during several years explained the Scriptures in that city with great applause, having among his auditors some of the most illustrious characters of his time. By a particular decree of the University, he was appointed to defend Aristotle and Cicero against Ramus; and discharged that task with great success. In the estimation of Henry II. he stood so high, that the monarch frequently sent for him, to enjoy the pleasure and benefit of his conversation. He died at his monastery about the year 1559, when he was near the age of sixty. His printed works are, 1. *De Dialectica*, lib. iii. 2. *Historia Abdiæ Babylonii*. 3. *Topicorum Theologicorum*, lib. ii. 4. *De Origine Linguæ Gallicæ, et ejus Cognatione cum Græca*. 5. *Liber de sanctorum Virorum qui Patriarchæ ab Ecclesia appellantur, rebus gestis ac Vitis*. 6. *De Vita Rebusque Jesu Christi, and De Vita Virginis et Apostolorum*; in both of which the Scripture-history is debased by the intermixture of absurd fabulous legends. 7. *De Romanorum et Græcorum Magistratibus*, lib. iii. 8. An edition of Aristotle, with a Commentary. 9. *Dionysii Areopagitæ Opera*. 10. *Ignatii et Polycarpi Epistolæ*. 11. *Juf-*

tini Martyris Opera, cum Observationibus S. Clementis de Vita S. Petri, &c. 12. *Exæmeri, et Platonis Axiochi, cum Annotationibus*. 13. *Orations, in Latin*. 14. *Notes on the Harangues of Livy*. 15. A Latin Version of the Commentary of Origen upon Job, &c. *Gen. Biog.*

PERIOPHTHAL'MIUM, f. [from the Gr. *περι*, about, and *οφθαλμος*, eye.] A thin skin which birds can draw over their eyes to defend them, without shutting their eye-lids; otherwise called the nistitating membrane.

PERJORE'E, a town of Bengal: ten miles west of Curruckdeah.

PERIOS'TEUM, f. [from the Gr. *περι*, about, and *οσσειν*, a bone.] The membrane that encompasses the bones.—All the bones are covered with a very sensible membrane, called the *periosteum*. *Cheyne's Philos. Prin.*

PERIPATET'IC, f. [from the Gr. *περι*, about, and *πατεω*, to walk.] One of the followers of Aristotle; so called, because they used to teach and dispute in the Lyceum at Athens, walking about:

Those

Surnam'd *Peripatetics*, and the sect
Epicurean, and the Stoic severe.

Milton's P. R.

Ludicrously used for one who is obliged to walk, who cannot afford to ride.—The horses and slaves of the rich take up the whole street, while we *peripatetics* are very glad to watch an opportunity to whisk cross a passage, very thankful that we are not run over for interrupting the machine that carries in it a person neither more handsome, wife, or valiant, than the meanest of us. *Tatler*, N^o 144.

Cicero tells us, that Plato left two excellent disciples, Xenocrates and Aristotle, who founded two sects, which only differed in name; the former taking the appellation of *Academics*, who were those that continued to hold their conferences in the academy, as Plato had done before; the others, who followed Aristotle, were called *Peripatetics*; from *περιπατεω*, I walk; because they disputed walking in the Lyceum; this was a grove in the suburbs of Athens, which had previously been used for military exercises.

Ammonius derives the name Peripatetic from Plato himself, who only taught walking; and adds, that the disciples of Aristotle, and those of Xenocrates, were equally called Peripatetics; the one Peripatetics of the Academy, the other Peripatetics of the Lyceum; but that, at length, the former quitted the title Peripatetic, for that of Academic, on occasion of the place where they assembled; and the latter retained simply that of Peripatetic.

The greatest and best part of Aristotle's philosophy he borrowed from his master Plato: Serranus affirms confidently, and says he is able to demonstrate it, that there is nothing exquisite in any part of Aristotle's philosophy, dialectics, ethics, politics, physics, or metaphysics, but is found in Plato. And of this opinion are many of the ancient authors, as Clemens Alexandrinus, &c. Gale endeavours to show, that Aristotle borrowed a good deal of his philosophy, both physical, about the first matter, and metaphysical, about the first being, his affections, truth, unity, goodness, &c. from the sacred books; and adds, from Clearchus, one of his (Aristotle's) scholars, that he made use of a certain Jew, who assisted him therein.

Aristotle, when he withdrew to Chalcis, was succeeded in the school of the Lyceum by one of his favourite pupils, Theophrastus, whom he appointed to this office in the 2d year of the 114th olympiad, B. C. 323. Under his conduct, the Peripatetic school maintained such high reputation, that he had about 2000 scholars. Theophrastus was succeeded by Strato of Lampascus, who undertook the charge of it in the 3d year of the 123d olympiad, B. C. 286. After his death, this school was continued, in succession, by Lycon of Troas, who enjoyed the friendship of Attalus and Eumenes, and filled the chair till the 138th olympiad; by Aristo, of the island of Coos, whom Cicero characterizes as more distinguished for the elegance

gance of his language than the depth of his philosophy; by Critolaus, a Lydian, who, with Carneades and Diogenes, was deputed by the Athenians on an embassy to Rome, and who is said to have held the doctrine of the eternity of the world; and Diodorus, with whom the uninterrupted succession of the Peripatetic school terminated. Of this school Demetrius Phalereus was an illustrious ornament.

The Peripatetic philosophy found its way into Rome, in the time of Sylla, with the writings of Aristotle and Theophrastus. However, the obscurity of Aristotle's writings greatly obstructed the progress of this philosophy; and Cicero, who seems to have had some respect for the Peripatetic philosophy, acknowledges that it was understood by very few even of the philosophers themselves. Under the Cæsars, it regained its ancient credit; and from the time of Andronicus, the preceptor of Plutarch, who, with Tyrannio, brought it to Rome, to that of Ammonius, that is, till the time of Nero, the peripatetic doctrines were taught with great purity in its schools. But after Ammonius it began to experience the influence of that spirit of confusion which prevailed among the eclectic philosophers; and the plan of Antiochus, who had formerly attempted a coalition between Aristotole, Plato, and Zeno, was revived. From this time the Peripatetic sect was divided into two branches; the one consisting of such as attempted to combine the doctrines of other schools with those of Aristotle; the other, including those who wished to follow more closely the steps of the Stagyræite.

Julius Cæsar and Augustus patronized the Peripatetic philosophy; the former in the person of Sofigenes, the latter in that of Nicolaus. Under the tyrannical reigns of Tiberius, Caligula, and Claudius, it experienced worse fortune; many excellent men of this sect, as well as others, being either banished from Rome, or obliged, through fear of persecution, to remain silent. In the reign of Nero, the philosophers of this sect, as well as others, enjoyed the temporary protection of the imperial court; but after a period of five years, they shared the fate of the professors of magical arts, or, as they were then called, "mathematicians," and were again banished the city. During the first century of the Roman empire, we find few celebrated names among the Peripatetic philosophers. The principal are Sofigenes, Boethius, Nicolaus, and Ægeus. About this time Ammonius, the preceptor of Plutarch, attempted to extend the authority of Aristotle beyond the limits of his own sect, by blending the Platonic and Stoic doctrine with the Peripatetic. After his death many Platonists studied the writings of Aristotle, and commented upon them; and thus prepared the way for the formation of the Eclectic Sect under Ammonius Sacca, who flourished about a century later than Ammonius the Peripatetic. After this time we meet with several genuine followers of Aristotle, of whom the most celebrated was Alexander Aphrodisæus. Among the eclectic commentators upon Aristotle, we may reckon, besides Porphyry, Jamblichus, Plutarchus, Nestorius, &c. Darippus, Themistius, Olympiodorus, and Simplicius.

From this concise detail we may learn, that, under several of the Cæsars, the philosophers of this school shared, with their brethren, the common discouragements and misfortunes of oppression. The concise and logical method of philosophizing, which prevailed in this school, could obtain few admirers at a period remarkable for a loose and florid kind of eloquence. Besides, the doctrine, which the Peripatetics of this period had received from their master, suffered much adulteration from the unwearied endeavours of the Alexandrian philosophers to establish an eclectic system. Many bold but injudicious grammarians and critics attempted to supply chasms, and to clear up absurdities, in the writings of Aristotle, from their own ingenious conjectures, which they presumed to incorporate with the author's text. Even Alexander Aphrodisæus, who professed to restore the genuine

Aristotelian system, not confining himself to the doctrine of his master, contributed towards its adulteration. But nothing proved so injurious to the Peripatetic philosophy, as the rage for commenting upon the works of Aristotle, which prevailed among his followers. Notes, paraphrases, arguments, summaries, and dissertations, piled up, century after century, under the general name of Commentaries upon Aristotle, created, as might be expected, endless disputes concerning the meaning of his writings; and it may perhaps be asserted with truth, that their genuine sense, after all the pains which have been taken to explore it, yet remains, in many particulars, undiscovered.

Some knowledge of the Aristotelian system was introduced among the Jews by Aristobolus, an Alexandrian Jew, who lived in the reign of Ptolemy Philometer, and was an admirer of the Greek philosophy. In order to facilitate the study of Aristotle among the Jews, his writings were, in a subsequent period, translated from the Arabic into the Hebrew tongue; and towards the end of the 13th century, the name of Aristotle was so highly respected among the Jews, that they not only called him the Prince of Philosophers, but maintained that his philosophy was the perfection of human science, and could only be excelled by the doctrine of divine revelation; and, in order to screen themselves from censure for submitting to receive wisdom from a heathen philosopher, they pretended that Aristotle was himself a proselyte to Judaism, and was indebted to Solomon for a great part of his philosophy.

The commencement of the Aristotelian philosophy among the *Arabians* may be referred to the time of Al-Mamon, who, among other writings in various languages, caused the works of Galen and of Aristotle to be translated into Arabic. After his death, which happened in the year 833, philosophy continued its progress among the Saracens, to which the eminent schools that were founded in different parts of the empire in no small degree contributed. In order to accommodate the established system, which was guarded by the sanction of penal laws, to their philosophical ideas, they blended the abstract speculations of the schools with the gross and vulgar conceptions of the Koran. They made use of the subtleties of the Aristotelian philosophy in the defective and corrupt state in which it had come into their hands, to assist them in improving upon the literal meaning of their sacred books, and thus gave a new, and for the most part a metaphysical, turn to the religion and law of Mahomet. This, it is said by one of their own writers, was the origin of their religious sects. Many of the Arabian philosophers, among whom we may reckon Jacobus-Al-Kendi of Bassora, Al-Farabi, or Abu-Nair, a native of Balch Farab, who flourished in the 10th century, Al-Rafi, called also Abubeker and Al-Mansor, a native of Rai in Persia, Avicenna, Avenpace, a Spanish Saracen, who flourished about the middle of the 12th century, Avenzoar of Seville, Thophail of the same city, and Averroes, acquired celebrity by their commentaries upon Aristotle, and other philosophical works. In every branch of science, in which Aristotle led the way, the Arabian philosophers followed him as an infallible guide; inasmuch that their tenets, as far as they are distinct from the peculiar dogmas of the Koran, are, without variation, those of the Peripatetic school.

In the earlier ages of *Christianity*, the Platonic philosophy was more generally preferred to the Peripatetic: the Christian fathers pointed the severest censures against the Peripatetic and Epicurean sects. The doctrines of the Peripatetics concerning Divine Providence, and the eternity of the world, chiefly excited their aversion against this sect; and, besides this, they were much displeased with Aristotle, for having furnished heretics and infidels with the weapons of sophistry. Nevertheless this did not prevent the doctrine of Aristotle from forcing its way into the Christian church. Towards the close of the fifth century, it rose into considerable credit: the Platonists,

nics, interpreting, in their schools, some of the writings of Aristotle, particularly his *Dialectics*, and recommending them to young persons. This seems to have been the first step to that universal dominion which Aristotle afterwards obtained in the republic of letters; which was also very much promoted by the controversies which Origen had occasioned: he was zealously attached to the Platonic system: and, therefore, after his condemnation, many, to avoid the imputation of his errors, and to prevent their being counted among the number of his followers, openly adopted the philosophy of Aristotle. Nor was any philosophy so proper for furnishing those weapons of subtle distinctions and captious sophisms, which were used in the Nestorian, Arian, and Eutychian, controversies. About the close of the sixth century, the Aristotelian philosophy, as well as science in general, was almost universally decried; and it was chiefly owing to Boethius, who had explained and recommended it, and who united the Platonic with the Aristotelian doctrine, that it obtained a higher degree of credit among the Latins than it had hitherto enjoyed. Towards the end of the seventh century, the Greeks, abandoning Plato to the monks, gave themselves up entirely to the direction of Aristotle: and in the succeeding century the Peripatetic philosophy was taught every-where in their public schools, and propagated in all places with considerable success. John Damascenus, who flourished at the beginning of the eighth century, very much contributed to its credit and influence, by composing a concise, plain, and comprehensive, view of the doctrines of the Stagirite, for the instruction of the more ignorant, and in a manner adapted to common capacities. Under the patronage of Photius, and the protection of Barda, the study of philosophy, having for some time declined, revived again about the end of the ninth century. About the year 1050, a revolution in philosophy commenced in France; when several eminent logicians, who followed Aristotle as their guide, took nevertheless the liberty of illustrating and modelling anew his philosophy, and extending it far beyond its ancient limits. In the twelfth century, three methods of teaching philosophy were practised by different doctors. The first was the ancient and plain method, which confined its researches to the philosophical notions of Porphyry, and the dialectic system, commonly attributed to St. Augustine, and in which were laid down this general rule, that philosophical inquiries were to be limited to a small number of subjects, lest, by their becoming too extensive, religion might suffer by a profane mixture of human subtilty with its divine wisdom. The second method was called "the Aristotelian," because it consisted in explications of the works of that philosopher, several of whose books, being translated into Latin, were almost every-where in the hands of the learned. The third was termed the "free method," employed by such as were bold enough to search after truth, in the manner the most adapted to render their inquiries successful, without rejecting the succours of Aristotle and Plato.

About this time, dialectic philosophy was supposed to be the key of theology, without which it would be impossible to unlock the mysteries of sacred wisdom. On account of this supposed alliance between logic and theology, the former was made the principal object of study in all the schools, and those who excelled in the dialectic art were regarded with the highest admiration, and attended by crowds of pupils. The Aristotelian philosophy had now for several centuries been studied by the Saracens, and was at this time taught in their schools in Spain. These schools were visited by many of the Western Christians, who learned Arabic, that they might be able to read translations of Aristotle, and other philosophical writers, and who afterwards translated many Arabic books into the European tongues. Another cause which served to establish a general taste for the Peripatetic philosophy, and particularly for the Aristotelian logic, was, that about this period many Greek copies of the writings

of Aristotle were brought from Constantinople into the West. Before this time, though they had been read in the original by a few monks, more learned than the rest, most persons had been contented with the translations of Victorinus and Boethius. But, at the beginning of the 12th century, the original writings of Aristotle were studied in Paris; whence they were introduced among the Germans, by Otho of Freisingen, in the time of Abelard. The guardians of the church were alarmed by the inundation of new opinions, which this fondness for logical disputations introduced; and, after having sentenced the works of two Parisian teachers of theology to be publicly burned, a general prohibition of the use of the physical and metaphysical writings of Aristotle in the schools, was issued first by the synod of Paris, and afterwards, under pope Innocent III. by the council of Lateran. The evil that had caused the alarm was not suppressed; but the fondness for the subtleties of Aristotelian logic and metaphysics became so general, that the orthodox clergy complained, that scholars spent their whole time in disputation. It was at length found necessary, under certain restrictions, to favour the study of Aristotle. Accordingly his *Dialectics*, *Physics*, and *Metaphysics*, were by express statute received into the university of Paris. It was ordered, however, in 1231, by a bull of pope Gregory IX. that only such books of Aristotle should be used in the schools as had been examined and purged from errors.

In several other countries, the Aristotelian philosophy was received with less opposition. In England, the writings of the Stagirite were read with great avidity; and in Germany and Italy the study of Aristotle was very much encouraged. The name of Aristotle, from the end of the twelfth century, obtained universal dominion; and so far were his writings, after this time, from falling under the censure of councils and popes, that the philosophy of Aristotle, and that of the Saracens, became the main pillars of ecclesiastical hierarchy. In the year 1452, Charles VII. ordered the works of Aristotle to be read and publicly explained in the university of Paris. Thus the union between the Peripatetic philosophy and the Christian religion was confirmed; and Aristotle became not only the interpreter, but even the judge, of St. Paul.

Although, at the beginning of the 16th century, the scholastic philosophy began to fall into general contempt, Aristotle still retained, in a great degree, his authority. This event was owing to many concurring circumstances. The partisans of the Platonic system, who, under the patronage of the Medicean family, had long maintained their ground against the Aristotelians, lost their influence as that of their patrons declined; and the advocates of the Peripatetic philosophy proportionally increased, and, after a violent conflict, obtained a victory. The deference which had been long paid to the decisions of Aristotle, induced the first restorers of learning to direct their principal attention to his writings: accordingly the number of critics and commentators became very considerable. The first persons of this description employed themselves in verbal rather than philosophical criticism, and in correcting the text of their author. But commentators of a different class were chiefly employed, from Pomponatius to the middle of the seventeenth century, in ascertaining and restoring the true Aristotelian philosophy. It would be an endless task to enumerate all the learned men, who, in the fifteenth and sixteenth centuries, attached themselves to the Aristotelian system. Among the Roman Catholics we may mention Nicholas Leonicus Thomæus, a Venetian, born in 1457, who seems to have been one of the first that attempted to restore the genuine Aristotelian philosophy; Pomponatius of Mantua, born in 1462, who taught the doctrines of Aristotle and Averroës in the schools of Padua and Bologna, and who had many followers of great celebrity; such were Simon Porta, a Neapolitan, Julius Cæsar Scaliger, a celebrated philologist, and Lazarus Romanicus,

namicus, who rivalled Erasmus in elegant Latinity: Majoragijs of Milan; Sepulveda of Cordova; Peter Victor of Florence; Zabarella of Padua; Strozza of Florence; Cæsalpinus, an Italian; and Cæsar Cremoninus of Modena.

Among the Protestants, especially in Germany, we find in their public schools many learned men who were followers of Aristotle. At the commencement of the reformation, indeed, both the scholastic philosophy and the dogmas of Aristotle were rejected with great indignation, particularly by Martin Luther. But afterwards, when men of the soundest judgment and best erudition perceived the value of philosophy as a guard against fanaticism, much labour was devoted to the promotion of learning, and to the encouragement of a love of science. The first place in this class of reformers is unquestionably due to Philip Melancthon. At Leipsic, Simon Simon of Lucca was distinguished; in the academy at Tubingen flourished Jacobus Schegkius; and in that of Altdorf, Philip Scherbius, whose contemporary, of the same school, was Nicholas Taurullus. To these we may add Ernestus Sonerus, a native of Nuremberg; and Hermannus Conringius, one of the most illustrious ornaments of the Germanic schools; and also Christianus Drierus, a native of Stettin in Pomerania; Melchior Zeidler of the same place; and Jacobus Thomasius of Leipsic, chiefly memorable as the preceptor of the illustrious Leibnitz.

The general prepossession in favour of the Aristotelian system, which from a variety of causes, some of which have been enumerated, prevailed for several centuries after the revival of letters, was attended with much inconvenience and mischief. Opinions were imbibed from the Peripatetic philosophy, wholly inconsistent with the principles of true religion; such as, for example "that God, the first mover, wholly intent upon the contemplation of his own intellect, disregards the affairs of the world; that the Intelligence, which presides over the lower sphere, is the universal soul of the world, of which all men partake; and consequently, that the soul of man has no distinct existence, and will no longer subsist as such than whilst the body continues to live." In consequence of these and similar tenets, infidelity prevailed; and the minds of the multitude, both ecclesiastics and laity, were deeply tinctured with atheism; and this fatal relaxation of principle produced an uncommon depravity of manners. In order to restrain this evil, the fathers of the Lateran council issued a bull, in 1510, against the Aristotelian corruptions; but the Peripatetics ridiculed this idle fulmination. The Stagirate having, for many centuries, possessed authority in the schools little inferior to that of Jesus Christ in the church, and his dogmas being intimately interwoven with those of religion, it was thought exceedingly hazardous to whisper any thing to the discredit of his philosophy. This reverence for Aristotle was supported, in popish universities, by statutes which required the professors to promise upon oath, that in their public lectures on philosophy they would follow no other guide. Among Protestants, the errors and corruption of the Peripatetic philosophy met with opposition; but it was attended with little success. Several eminent men ventured to inveigh against Aristotle himself, as the author of many pernicious errors. But, still, his system, for the most part, retained its authority; and even those who forsok this master, thought it necessary to make choice of some other ancient guide; so that, after all, the question was, what Aristotle, Plato, or Pythagoras, had taught, rather than what was truth.

The Peripatetic system, after having prevailed with very great and very extensive dominion for many centuries, began rapidly to decline towards the close of the seventeenth century, when the disciples of Ramus attacked it on the one hand, and it had still more formidable adversaries to encounter in Des Cartes, Gassendi, and Newton. *Brucker's Hist. Phil. by Enfield. Moheim's Eccl. Hist.*

PERIPATET'IC, or PERIPATETICAL, *adj.* Belonging

to the Peripatetics; denoting the Peripatetics.—Peregrination may be not improperly called a moving academy, or the true *peripatetic* school. *Howell's Instruct. for Trav.*—With those of the *peripatetic* school, he allows that ideas are impressed upon the mind from sensible objects. *Norris's Reflect. on Locke.*

PERIPATET'ICISM, *f.* The notions of the Peripatetics.—No man will dispute whether that be genuine *peripateticism*, which is plainly read in the writings of Aristotle. *Barrow of the Creed.*

PERIPA'TON, *f.* in antiquity, the name of that walk in the Lyceum where Aristotle taught, and whence the name of Peripatetics given to his followers.

PERIPE'TIA, *f.* [from the Gr. περιπέτης, something falling into a different state; of περι, about, and πέτω, to fall.] That part of a tragedy in which the action is turned, the plot unravelled, and the whole concludes.

PERIPH'ERY, *f.* [from the Gr. περι, about, and φέρω, I bear, or carry.] The circumference or bounding-line of a circle, ellipsis, parabola, or other regular curvilinear figure. The periphery of every circle is supposed to be divided into three hundred and sixty degrees; which are again subdivided, each into sixty minutes, the minutes into seconds, &c. The division of degrees, therefore, are fractions, whose denominators proceed in a sexagecuple ratio; as, the minute $\frac{1}{60}$, second $\frac{1}{3600}$, third $\frac{1}{216000}$. But, these denominators being troublesome, in their stead are used the indices of their logarithms; hence the degree, being the integer, or unit, is marked by $^{\circ}$, the minute by $'$, second by $''$, &c.—Neither is this sole vital faculty sufficient to exterminate noxious humours to the *periphery* or outward parts. *Harvey.*

The first *periferie* of all

Engend'reth mist, and overmore

The dewes, and the frostes here. *Gower's Conf. Am.*

PERIPH'RASE, or PERIPH'RASIS, *f.* [from the Gr. περι, about, and φρασις, a speech.] Circumlocution; use of many words to express the sense of one: as, for *death*, we may say, *the loss of life*.—The *periphrases* and circumlocutions, by which Homer expresses the single act of dying, have supplied succeeding poets with all their manners of phrasing it. *Pope*.—They show their learning uselessly, and make a long *periphrasis* on every word of the book they explain. *Watts*.—They make the gates of Thebes and the mouths of this river a constant *periphrasis* for this number seven. *Brown.*

She contains all bliss,
And makes the world but her *periphrasis*. *Cleaveland.*

To PERIPH'RASE, *v. a.* To express one word by many; to express by circumlocution.

PERIPH'RASTICAL, *adj.* Circumlocutory; expressing the sense of one word in many.

PERIPH'RASTICALLY, *adv.* With circumlocution.—Dr. Grainger, having become sensible that introducing rats in a grave poem might be liable to banter, could not, however, bring himself to relinquish the idea; for they are thus, in a still more ludicrous manner, *periphrastically* exhibited in his poem [the Sugar-Cane] as it now stands. *Boswell's Life of Johnson.*

PERIP'LOCA, *f.* [an old name adopted by Tournefort and Linnæus, derived from the Gr. περι, about, and πλοκη, binding, or twining; alluding to the long trailing stems and branches, which twine about each other to a great extent.] In botany, a genus of the class pentandria, order digynia, natural order of contortæ, (apocineæ, *Juss.*) Generic characters—Calyx: perianthium five-cleft, very small, segments ovate; permanent. Corolla: one-petalled, wheel-shaped, five-parted: segments oblong, linear, truncated, emarginate. Nectary very small, five-cleft, surrounding the genitals, putting out five threads, curved inwards, shorter than the corolla, and alternate with it. Stamina: filaments short, curved inwards, converging, villose. Antheræ twin, acuminate, converging

P E R I P L O C A .



J. Pass 30

Esculent Periploca.

Engraved for the Encyclopædia Londinensis 1823.

over the stigma; with lateral cells. Pollen-bags five, at the notches of the stigma, each common to two antheræ. Pistillum: germs two, ovate, approximating. Styles united at top. Stigma capitate, convex, five-cornered, with the corners notched. Pericarpium: follicles two, large, oblong, ventricose, one-celled, one-valved, glued together at the tip. Seeds very many, imbricated, crowned with a down. Receptacle longitudinal, filiform. The above character is taken from *P. græca*.—*Essential Character*. Nectary encircling the genitals, and putting forth five threads. There are fourteen species.

1. *Periploca græca*, common periploca; otherwise climbing dog's-bane, or Virginian flk: flowers internally hirsute, terminating; corolla hairy on the upper side; leaves ovate, acute. Native of hedges and thickets in the Levant. Dr. Sibthorp gathered it on Mount Athos and near Prusa. Gerarde had the plant in 1597. "My loving friend," says he, "John Robin, herbarist in Paris, did send me plants for my garden, where they flower and flourish." He calls it *climbing dog's-bane*; and it has ever since been cultivated in England, as a hardy climber, flowering plentifully in July and August; and distinguished by the name of *Virginian flk*. Lord Bute sent a description of this periploca, as a new genus, without any idea of its being a described plant, to Peier Collinson, which the latter forwarded to Linnæus. The stem twines round every thing in its way to the extent of several yards, and is much branched, round, and smooth: Leaves opposite, on short stalks, ovate, sharp-pointed, entire, smooth and shining, very beautiful, two or three inches long, deciduous; the lowermost on each branch short, rounded, and obtuse. Flowers corymbosæ, at the ends of short lateral branches, inodorous, singularly elegant, with a velvet softness, each an inch in diameter; purple within, yellowish at the tips. It is cultivated in France to adorn arbours and walls, as its numerous purple flowers are very ornamental. It is not used in medicine; but is considered as a poison for destroying dogs and wolves; hence the old name of "dog's-bane." This pretty climber is represented on the preceding Engraving, (p. 618.) at fig. 3. the calyx and pistil at fig. 4. the petal detached, with a filament, at fig. 5. and the capsule which enclosed the seed at fig. 6.

2. *Periploca scamone*, or green periploca: flowers internally hirsute, panicled; leaves lanceolate-elliptic. Stem twining, shrubby, even. Leaves opposite, petioled, even, underneath paler, veined transversely. Flowers small. It differs at first sight from the preceding in its small copious flowers. Said to be a native of Egypt, but its place of growth is uncertain. It was cultivated in 1775, by John Fothergill, M. D. It flowers in July.

3. *Periploca lævigata*, or smooth periploca: corollas smooth, with blunt segments; cymes trichotomous; leaves oblong-lanceolate, veined, even; stem smooth. Native of the Canary islands, where it was found by Maffon. Introduced in 1779.

4. *Periploca angustifolia*, or narrow-leaved periploca: corollas smooth; segments emarginate; cymes trichotomous; leaves lanceolate, veinless, even; stem smooth. Stem frutescent, from three to five feet high, upright, branched, sometimes scandent by the top. Though very like the preceding, yet it is sufficiently distinct from it, by its narrower veinless leaves, and the emarginate segments of the corolla. Found by Labillardiere near Laodicea by the sea, and in the island Lampedosa; by Desfontaines on Mount Atlas; also on Mount Shibel Ichel, in the kingdom of Tunis.

5. *Periploca esculenta*, or esculent periploca: corollas smooth, wheel-shaped; racemes axillary; leaves linear-lanceolate, veined. Native of bushy places, near rivers and pools, in Ceylon and Malabar. Koenig, who sent fine specimens to Linnæus, has written on one of them that "the plant is esculent, and called *usepale* in the Tamul language." Dr. Roxburgh could not find that it was eaten by the people, at least of the Malabar coast.

He gives *oudy-palla* as its name among the Telingas, and remarks that cattle eat it. The root is fibrous, and perennial, as well as the twining, slender, smooth, round, branching stems. The leaves and flowers are produced during the rainy season; the former are opposite, stalked, above two inches long, linear lanceolate, acute, entire, smooth, single-ribbed, light green, rounded at the base, deciduous. Flowers the size of those of *Primula auricula*, of some of whose most beautiful varieties they give no very remote idea, but their segments are much more acute: their colour is a pale bluish, with crimson veins, a purple eye, and a mixture of green and white in the centre: they are well deserving, therefore, of a place in the flower-garden, though they have no scent. See the annexed Plate.

This (with the following) is made a distinct genus by Mr. Brown in the Wern. Transf. vol. i. and in his Prodr. Nov. Holl. vol. i. He calls his genus *Oxytelma*, from the Gr. *οξύς*, sharp, and *τελμα*, for *τεμμα*, a crown; because the crown of the stamens consists of five acute leaves.

6. *Periploca carnosa*, or fleshy periploca: leaves nearly oval, pointed. Segments of the corolla linear. Native of the tropical part of New Holland, where it was observed by Mr. Brown. The stems are twining, herbaceous; leaves fleshy, smooth, opposite. Flowers in umbellate stalked-clusters, from between the leaf-stalks. Mr. Brown remarks, that this New-Holland species is so very different from the East-Indian one, he is inclined to think they ought to be different genera. *Prodr. Nov. Holl. i. 462.*

7. *Periploca emetica*, or emetic periploca: corollas smooth; cymes few-flowered, axillary; leaves linear-lanceolate, veinless. Stem shrubby, with diffused rod-like even branches. Flowers small, smooth. Native of the East Indies, at the foot of mountains. Koenig sent it from Tranquebar. Thunberg says that the root is used as an emetic in the East Indies.

8. *Periploca Indica*, or Indian periploca: spikes axillary, imbricated; leaves elliptic, obtuse; mucronate; stem smooth. Stem twining, round. Leaves opposite, smooth, quite entire, on very short petioles: from the axils of them, simple spikes come out imbricated with sharp scales. According to Burman, the stem is ash-coloured, rugged with many very small tubercles. A pair of leaves from each joint, almost sessile, bright-green above, pale and ash-coloured underneath, oblong, acute, entire, veined; at the axils of these there are many flowers sitting close. Native of the island of Ceylon.

9. *Periploca capsularis*, or New-Zealand periploca: leaves lanceolate, quite entire, opposite; cymes axillary, diffused. Native of New Zealand.

10. *Periploca Africana*, or African periploca: leaves ovate, acute; flowers corymbed; stem hirsute. This has many slender stalks, which twine about each other, and by a shrub or other support will rise near three feet high, putting out several small side-branches: these are hairy, as are also the leaves, which are about three quarters of an inch long, and half an inch broad, standing by pairs upon very short footstalks. The flowers come out in small bunches from the side of the stalks; they are small, of a dull purple colour, and have a sweet scent. It flowers in the summer, but does not produce seeds here. Native of the Cape of Good Hope. Cultivated by Mr. Miller in 1726.

β. There is a variety of it with smooth leaves and stalks, from the same country.

11. *Periploca tunicata*: leaves oblong, heart-shaped, acuminate; flowers umbelled. Sent by Koenig from Tranquebar.

12. *Periploca sylvestris*: leaves roundish-ovate, netted-veined, pubescent underneath; flowers umbelled. Native of the East-Indies; found by Koenig.

13. *Periploca Cochinchinensis*: stem aboveous; leaves fleshy; racemes terminating. This is a middle-sized tree with

with spreading branches. Leaves heart-shaped, oblong, acute, quite entire, large, smooth, opposite. Flowers bluish-white, on short racemes. Native of Cochinchina, to the south of Huæa the metropolis. It occurs also in Bengal, but of a smaller size.

14. *Periploca fruticosa*: leaves oblong-cordate, pubescent; flowers axillary; stem shrubby, climbing. This rises with a strong woody stalk to the height of five or six feet, covered with a grey bark, putting out many weak branches, which twist themselves about any neighbouring support, and rise to the height of twenty feet; they are garnished with heart-shaped leaves three inches long, and two broad near their base; they are of a yellowish green, covered with silky hairs, which are soft to the touch; and stand opposite upon pretty long footstalks. The flowers come out in small bunches from the wings of the leaves; they are small, white, and of the open bell-shape; these are succeeded by swelling taper pods, filled with seeds crowned with long feathery down. Discovered by Dr. Houfoun at Vera Cruz in America.

Propagation and Culture. The first species is easily propagated by laying down the branches, which will put out roots in one year, and may then be cut from the old plant, and planted where they are to remain. These may be transplanted, either in autumn when the leaves begin to fall, or in the spring before they begin to shoot; and must be planted where they may have support, otherwise they will trail on the ground, and fasten themselves about whatever plants are near them. They require sun, as they will not flourish in the shade.

The tenth sort is hardy enough to thrive in this country, with a little protection from the frost in winter. If the plants are sheltered under a common frame, or placed in a green house during the winter season, and set abroad with other hardy exotic plants in summer, they will thrive and flower very well; but, as all the plants of this genus have a milky juice, so they should not have much wet, especially in cold weather, lest it rot them. They are easily propagated by laying down their branches, which in one year will have roots enough to transplant; these should be planted in a light sandy loam not rich, and the pots must not be too large, for when they are over-potted they will not thrive.

The fourteenth sort, being tender, will not thrive in England, unless the plants are placed in a warm stove. They may be propagated by laying down their branches in the same manner as the former; or from seeds, when they can be procured from the places where they naturally grow. These should be sown upon a good hot-bed; and, when the plants come up, they must be treated in the same manner as other tender exotic plants. If these plants are constantly kept plunged in the tan-bed of the stove, they will thrive and flower much better than in any other situation, but the stove should not be kept too warm in winter; and in the summer the plants should have a large share of free air admitted to them; for, when they are kept too close, their leaves will be covered with insects, and the plants will become sickly in a short time. See CEROPEGIA, CYNANCHUM, and ECHITES.

PER'IPLUS, *f.* [*περιπλος*, Gr. *periple*, Fr.] A voyage round a certain sea, or sea-coast; circumnavigation.—Arrian has described all the coasts of the Black Sea, after having inspected them in quality of general of the emperor Adrian, to whom he dedicates the description, under the title, "*Periplus of the Euxine Sea.*" *Chambers.*—The "*Periplus Hannonis*" is one of the most curious fragments transmitted to us by antiquity, and it is the only authentic monument of the Carthaginian skill in naval affairs. But some doubts have been entertained concerning its antiquity. The *Periplus* of the Erythrean Sea has been published by Dr. Vincent.

PERIPNEUMONY, *f.* [*peripneumonia*, Lat. from the Gr. *περι*, about, and *πνευμων*, the lungs.] An inflammation of the lungs and breast, attended with a fever and a difficulty of breathing. See p. 242, 3, of this vo-

lume.—A *peripneumony* is the last fatal symptom of every disease; for no body dies without a stagnation of the blood in the lungs, which is the total extinction of breath. *Arbutnot.*—Lungs, oft imbibing phlegmatic and melancholic humours, are now and then deprehended schirrous, by dissipation of the subtiler parts, and lapidification of the grosser, that may be left indurated through the gross reliques of *peripneumonia*, or inflammation of the lungs. *Harvey.*

PERIPO'LIUM, in ancient geography, a town of Magna Græcia, in the part called Brutium. It belonged to the Locrian-Epizephyrians, on the banks of the small river Alex, or Halex.

PERIP'TERAL, *adj.* in architecture, surrounded with columns. See the next article.

PERIP'TERE, or PERIPTERY, *f.* [from the Gr. *περι*, about, and *πτερον*, wing; q. d. winged on every side.] In ancient architecture, a building encompassed on the outside with a series of insulate columns, forming a kind of aisle, or portico, all around. Such were the Basilica of Antonine, the Septizon of Severus, the Portico of Pompey, &c.—*Peripteres* were properly temples which had columns on all the four sides; by which they were distinguished from prostyles, and amphiprostyles, the one of which had no columns before, and the other none on the sides. *Chambers.*—See ARCHITECTURE, vol. ii. p. 72, 3.

PERIPU', *f.* in botany. See DELIMA.

PERIPYE'MA, or PERIPYOMA, *f.* [from the Gr. *περι*, about, and *πυρ*, pus.] A collection of matter about any part.

PERIRRHANTE'RION, *f.* [Greek.] In antiquity, a vessel usually of stone or brass, filled with holy water, with which all those that were admitted to the sacrifices were sprinkled, and beyond which it was unlawful for any one that was profane to pass. Some say it was placed in the *adytum*, or inmost recess of the temple, into which none entered but the priest; but Casaubon will have it to be placed at the door of the temple, which opinion seems more probable, because all persons who were unpolluted were permitted to pass beyond it.

PERIRRHEU'SA, in ancient geography, an island placed by Pliny on the coast of Ionia, a province of Asia Minor.

PERIRRHO'E'A, *f.* [from the Gr. *περι*, about, and *ῥου*, to flow.] A reflux of humours from the habit into any of the larger excretories, in order to excretion.

PERISAB'ORA, in ancient geography, a town of Asia, in an island of the Euphrates, according to Ammianus Marcellinus. Zosimus calls it Bersabora, and says that it was well fortified, and that it was not inferior in grandeur to Ctesiphon. It was situated south-east of Sippara.

PERIS'BA, a town of Persia, in the province of Irac: fifty miles south of Hamadan.

PERISCIAN, *adj.* [from *periscii*, Lat.] Having shadows all around.—In every clime we are in a *periscian* state; and, with our light, our shadow and darkness walk about us. *Brown's Chr. Mor.*

PERIS'CII, *f.* [from the Gr. *περι*, about, and *σκια*, shadow.] Those inhabitants of the earth whose shadows do, in one and the same day, successively turn to all the points of the horizon. Such are the inhabitants of the frozen zones, or those who live within the compass of the arctic and antarctic circles; for, as the sun never goes down to them after he is once up, but moves always round about, so do their shadows; inasmuch that, in the same day they have their shadows on all sides.

To PER'ISH, *v. n.* [*perir*, Fr. *pereo*, Lat.] To die; to be destroyed; to be lost; to come to nothing. It seems to have *for* or *with* before a cause, and *by* before an instrument. Locke has *by* before the cause.—If I have seen any *perish for* want of cloathing, then let mine arm fall from the shoulder-blade. *Job*, xxxi. 29.—He keepeth back his soul from the pit, and his life from *perishing by* the

the sword. *Job*, xxxiii. 18.—I *perish* with hunger. *St. Luke*, xv. 17.—The sick, when their case comes to be thought desperate, are carried out and laid on the earth to *perish* without assistance or pity. *Locke*.

Still when the lust of tyrant pow'r succeeds
Some Athens *perishes*, or some Tully bleeds. *Pope*.

To be in a perpetual state of decay.—Duration, and time which is a part of it, is the idea we have of *perishing* distance, of which no two parts exist together, but follow in succession; as expansion is the idea of lasting distance, all whose parts exist together. *Locke*.—To be lost eternally.—O suffer me not to *perish* in my sins: Lord, carest thou not that I *perish*, who wilt that all should be saved and that none should *perish*? *Bp. Moreton's Daily Exercise*.

To *PER'ISH*, *v. a.* To destroy; to decay. *Not in use*.—Rise, prepar'd in black to mourn thy *perish'd* lord. *Dryden*.

The splitting rocks cow'r'd in the sinking sands,
And would not dash me with their ragged sides;
Because thy flinty heart, more hard than they,
Might in thy palace *perish* Margaret. *Shakespeare*.

His miseries have *perish'd* his good face,
And taken off the sweetness that has made
Him pleasing in a woman's understanding.

Beaum. and Fletcher's Hon. Man's Fortune.

Familiar now with grief, your ears refrain,
And in the public woe forget your own:
You weep not for a *perish'd* lord alone. *Pope*.

PER'ISHABLE, *adj.* Liable to perish; subject to decay; of short duration.—It is princes' greatest present felicity to reign in their subjects' hearts; but these are too *perishable* to preserve their memories, which can only be done by the pens of faithful historians. *Swift*.—Human nature could not sustain the reflection of having all its schemes and expectations to determine with this frail and *perishable* composition of flesh and blood. *Rogers*.

Thrice has he seen the *perishable* kind
Of men decay. *Pope's Odyssey*.

PER'ISHABLENESS, *f.* Liableness to be destroyed; liableness to decay.—Suppose an island separate from all commerce, but having nothing, because of its commonness and *perishableness*, fit to supply the place of money; what reason could any have to enlarge possessions beyond the use of his family? *Locke*.

PER'ISHMENT, *f.* Destruction.—Amidst this general scene of *perishment* and change, the holy gospel still remains. *Hewlett's Sermons*, vol. iii.

PERISSOL'OGY, *f.* [from the Gr. *περισσος*, superfluous, and *λογος*, a word.] A speech abounding with superfluous words.

PERISSO'SIS, *f.* A word used by Hippocrates to express a redundancy of humours.

PERISTAL'TIC, *adj.* [from the Gr. *περι*, about, and *σπασσω*, to contract.] Belonging to that vermicular motion of the guts, which is made by the contraction of the spiral fibres, whereby the excrements are pressed downwards and voided.—The *peristaltic* motion of the guts, and the continual expression of the fluids, will not suffer the least matter to be applied to one point the least instant. *Arbutnot*.

PERIS'TERA, in mythology, a nymph whom Cupid was supposed to have changed into a dove.

PERISTERION, *f.* The herb vervain.

PERISTERITES, *f.* the PIGEON-STONE; a name given by some whimsical people to an odd conformation of a pebble, which they suppose to represent very exactly a pigeon without its wings. It seems to have been a mere *hifus naturæ* in the formation of a common pebble. The variations of figure in the common pebbles are so infinite, that a person of a fertile imagination might find resemblances to all the parts of the creation in the stones of

a single gravel-pit. The giving names to such accidental things is not only unnecessary, but mischievous, as it causes great confusion in natural history.

PERISTOME, *f.* The fringe, or teeth, surrounding the mouth of the capsule in mosses.

PERISTYLE, *f.* [from the Gr. *περι*, about, and *στυλος*, a pillar.] A circular range of pillars.—The Villa Gordiana had a *peristyle* of two hundred pillars. *Arbutnot on Coins*.

PERISYS'TOLE, *f.* [from the Gr. *περι*, about, and *συστολη*, a contraction.] The pause or interval betwixt the two motions of the heart or pulse; namely, that of the *systole*, or contraction of the heart, and that of the *diastole*, or dilatation.

PERITA'NUS, an Arcadian who enjoyed the company of Helen after her elopement with Paris.

PERITAS, a favourite dog of Alexander the Great, in whose honour the monarch built a city.

PERITAS, a island in the Spanish Maine: ten miles west of Cumana Bay.

PERITE, *adj.* [*peritus*, Lat.] Skilful. *Not in use*.—A consumption of the whole body, left by the most *perite* physicians as incurable. *Whitaker's Blood of the Grape*, 1654.

PERITO, a town of Naples, in Abruzzo Ultra: sixteen miles west-south-west of Celano.

PERITONEUM, *f.* [from the Gr. *περι*, about, and *τεινω*, to stretch out.] The soft thin membrane that lies immediately under the muscles of the lower belly, and which encloses all the bowels contained in the lower belly, covering all the inside of its cavity.—Wounds penetrating into the belly, are such as reach no farther inward than to the *peritoneum*. *Wifeman*.

PERITONITIS, *f.* An inflammation of the *peritoneum*, or membrane lining the cavity of the abdomen, and investing all its viscera. For its causes and cure, see the article *PATHOLOGY*, p. 253, 4, of this volume.

PERITONIUM, in ancient geography, a town of Egypt, on the western side of the Nile, esteemed of great importance, as being one of the keys of the country. Antony was defeated there by C. Gallus, the lieutenant of Augustus.

PERITRO'CHIUM, *f.* [from the Gr. *περι*, about, and *τροχος*, to run.] A wheel or circle concentric with the base of a cylinder, and movable together with it, about an axis. The axis, with the wheel and levers fixed in it to move it, constitutes that mechanical power, called *axis in peritrochio*; which see. See also *MECHANICS*.

PER'IVALE, a town of Hindoostan, in Marawar: seven miles north of Ramanadporum.

PER'IVALE, the modern name given to a small village, formerly called Little Greenford, or Ganford, on the north side of Great Ealing and Castlebare-Hill; but is more properly that rich vale of excellent corn-land that extends from Heston to Harrow on the Hill and Pinner, including Northold, Southold, Norcote, Greenford, Hayes, &c.

PERJURA'TION, *f.* The act of committing perjury. *Bailey*.

PERJURE, *f.* [*perjurus*, Lat.] A perjured or forsworn person. *Not now in use*.

Hide thee, thou bloody hand,
Thou *perjure*, and thou simular of virtue,
Thou art incestuous. *Shakespeare's K. Lear*.

To *PER'JURE*, *v. a.* [from *per*, by, and *juro*, to swear.] To forswear; to taint with perjury. It is used with the reciprocal pronoun; as, *He perjured himself*.—The law is not made for a righteous man, but for the lawless and disobedient, for *perjured* persons. 1 *Tim.* i. 10.

Who should be trusted now, when the right hand
Is *perjur'd* to the bosom? *Shakespeare*.

PER'JURER, *f.* One that swears falsely.—The common oath of the Scythians was by the sword and fire; for that

that they accounted those two special divine powers, which should work vengeance on the *perjurers*. *Spenser*.—They write of a river in Bithynia, whose water hath a peculiar virtue to discover a *perjurer*; for, if he drink thereof, it will presently boil in his stomach, and put him to visible tortures. *Howell's Letters*.

PERJURIOUS, *adj.* Guilty of perjury.—The last [means] was their perfidious and *perjurious* equivocating, abetted, allowed, and justified, by the Jesuits. *Sir E. Coke in the Proceed. against Garnet, 1606.*—Thy *perjurious* lips confirm not thy untruth. *Quarles's Judg. and Mercy*.

PERJURY, *f.* [*perjurium*, Lat.] False oath:

My great father-in-law, renowned Warwick,
Cried aloud, What scourge for *perjury*
Can this dark monarchy afford false Clarence?
And so he vanish'd. *Shakespeare's Rich. III.*

PERJURY is defined to be, "a crime committed, when a lawful oath is administered by any who hath authority, to a person, in any judicial proceeding, who swears wilfully, absolutely, and falsely, in a matter material to the issue, or cause in question, by their own act, or by the subornation of others." 3 *Inft.* 163, 4.

In ancient times it was in some places punished with death; in others it made the false swearer liable to the punishment due to the crime he had charged the innocent person with; in others a pecuniary mulct was imposed. But, though it escaped human, yet it was thought, amongst the ancients in general, that the divine vengeance would most certainly overtake it; and there are many severe inflictions from the hand of God upon record, as monuments of the abhorrence in which this atrocious crime is held by the Deity. The souls of the deceased were supposed to be employed in punishing perjured persons. Even the inanimate creation was thought to take revenge for this crime. The Greeks supposed that no person could swear falsely by Styx without some remarkable punishment; and that no person guilty of perjury could enter the cave of Palæmon at Corinth without being made a memorable example of divine justice. In Sicily, at the temple of the Palici, there were fountains called *Delli*, from which issued boiling water, with flames and balls of fire; and we are told that, if any person swore falsely near them, he was instantly struck dumb, blind, lame, or dead, or was swallowed up by the waters. But, although perjury was thus held in general abhorrence, notwithstanding the credit which was given to such accounts of divine inflictions, it was so much practised by the Greeks, that *Græca fides* became a proverb. Lovers' perjuries, however, were supposed to pass unnoticed, or to be very slightly punished, as with blackness of the nails, a decayed tooth, or some small diminution of beauty. The ancient philosophers, however, were so afraid of perjury, that even an oath before a judge was never admitted but for want of other proof. Plato's precept was, "Not to administer an oath wantonly, but on deep grounds, and with the strictest caution." Ulpian gives his opinion thus: "Some are forward to take oaths from a contempt of religion; others, from an extraordinary awe of the Divine Majesty, carry their fear to an unreasonable superstition; so make an equitable decision of a judge necessary." "No man will perjure himself (says Aristotle) who apprehends vengeance from Heaven and disgrace among men." Clinias was so very scrupulous, that, rather than take an oath (though lawfully), he suffered the loss of three talents. Perjury, in the time of Philo Judeus, was abominated and capitally punished among the Jews; though since they have much degenerated, having been poisoned with the books of the Talmud, one of which says, "He who breaks his promissory oath, or any vows he enters into by the year, if he has a mind that they should be ineffectual and invalid, let him rise the last day of the year, and say, Whatever promises, oaths, and vows, I may think fit to make in the

year following, let them be null, void, and of no effect." Traët. iii. part 3. of the Talmud, in the treatise *Nedharim*, ch. 4. And the modern Jews use the same artifice, thinking they may then lawfully deceive the Christians. See Hieron. ex *Dictis* Talmud. c. 3. and Magister Joannes de Concor. Legum, tit. iv. c. 7.

In our law, no notice is taken of any perjury but such as is committed in some court of justice having power to administer an oath; or before some magistrate or proper officer invested with a similar authority, in some proceedings relative to a civil suit or a criminal prosecution: for it esteems all other oaths unnecessary at least, and therefore will not punish the breach of them. For which reason it is much to be questioned, how far any magistrate is justifiable in taking a voluntary affidavit in any extrajudicial matter, as is now too frequent upon every petty occasion; since it is more than possible that, by such idle oaths, a man may frequently, in *foro conscientie*, incur the guilt, and at the same time evade the temporal penalties, of perjury. The perjury must also be corrupt (that is, committed *malo animo*,) wilful, positive, and absolute; not upon surprise, or the like: it also must be in some point material to the question in dispute; for if it only be in some trifling collateral circumstance, to which no regard is paid, it is no more penal than in the voluntary extrajudicial oaths before mentioned.

Subornation of Perjury is the offence of procuring another to take such a false oath as constitutes perjury in the principal.

If a man calls another *perjured*, he may have an action upon the case. If he calls him *forsworn*, no action lies, because the forswearing may be extrajudicial.

At common law, the punishment of perjury, and subornation of perjury, was anciently death; afterwards banishment, or cutting out the tongue; then forfeiture of goods; and now it is fine and imprisonment; and the offender is ever afterwards incapable to be a witness. 3. *Inft.* 163. By stat. 5 Eliz. c. 9. persons committing wilful and corrupt perjury, in any cause depending concerning lands or goods, &c. in any of the courts of record, leet, ancient demesne-court, hundred-court, court-baron, or court of stannary, shall forfeit 20l. and be imprisoned six months, and their oaths shall not be received in any court of record, so that they are disabled from being jurors or witnesses; and, if the offenders have not goods or chattels to the value of 20l. they shall be set on the pillory in some market-place, and have both their ears nailed to it; and unlawful and corrupt procuring and suborning a witness to give false testimony in any court of record, &c. or corruptly procuring any witness to testify *in perpetuam rei memoriam*, incurs a forfeiture of 40l. and, if the offender be not worth 40l. he shall suffer six months imprisonment, and stand on the pillory one whole hour in some open market near the place where the offence was committed; and he shall incur perpetual infamy. But the prosecution is usually carried on for the offence at common law; especially, as, to the penalties before inflicted, the stat. 2 Geo. II. c. 25. (made perpetual by the 9 Geo. II. c. 18.) superadds a power for the court to order the offender to be sent to the house of correction for seven years, or to be *transported* for the same period; and makes it felony, without benefit of clergy, to return or escape within the time. Our ancient law inflicted the punishment of deliberate murder on wilful perjury, when it was the cause of the death of an innocent person; and by the laws of France it was universally capital.

By stat. 31. Geo. II. c. 10. § 24. the taking, or procuring to be taken, a false oath to obtain probates or letters of administration to seamen, is made felony, without benefit of clergy.

In Scotland the punishment of perjury is directed by statute, the last of which, 1555, c. 47, declares perjury to be punishable by confiscation of movables, piercing the tongue, and infamy; to which the judge, in aggravated cases, may add any other penalty that the case seems to require.

require. By the same act, subornation of perjury is punishable as perjury.

To convict a man of perjury, a *probable* evidence is not enough; but it must be a strong and clear evidence, and the witnesses must be more numerous than those on the side of the defendant, for otherwise it is only oath against oath. 10 *Mod.* 194. *Str.* 1230. It seems that the court will not ordinarily at the prayer of a defendant grant a certiorari for the removal of an indictment of perjury; for such crime deserves all possible discountenance, and the certiorari might delay, if not wholly discourage, the prosecution. 2 *Hawk.* c. 17.

Quakers making solemn affirmation wilfully and corruptly shall suffer as in cases of perjury. 8 *Geo.* c. 6.

If perjury be committed in a spiritual cause, the spiritual judge hath authority to inflict canonical punishment, and prohibition will not go. But the judge cannot punish *pro salute anime*; and the party grieved by such perjury must recover his damages at the common law. In the statute of the 5 *Eliz.* c. 23, concerning the writ *de excommunicato capiendo*, perjury in the ecclesiastical court is specified as an offence, among others, for which a person may be excommunicated; and conviction of perjury, either in the temporal or ecclesiastical courts, is cause of deprivation of benefice.

PER'IWIG, *f.* [*perruque*, Fr. The formation of our word, from the French, is curious; and I am surprised, says Mr. Todd, that Dr. Johnson should have taken no notice of it. Late in the sixteenth century, it was written *perwicke*, as by T. Churchyard; and in the following, *perewake*, by Fuller; afterwards it became *periwig*; and in modern times has sunk into *wig*.] Adcitious hair; hair not natural, worn by way of ornament or concealment of baldness.—For vailing of their visages, his highness and the marquiss bought each a *periwig*, somewhat to overshadow their foreheads. *Wotton*.

Her hair is auburn, mine is perfect yellow;
If that be all the difference in his love,
I'll get me such a colour'd *periwig*. *Shakespeare*.

From her own head Megara takes
A *periwig* of twisted snakes. *Swift*.

To PER'IWIG, *v. a.* To dress in false hair.—Having by much dress, and secrecy, and dissimulation, as it were *periwigged* his sin and covered his shame, he looks after no other innocence but concealment. *South's Sermons*.

Now when the winter's keener breath began
To crystallize the Baltic ocean,
To glaze the lakes, to bridle up the floods,
And *periwig* with snow the bald-pate woods. *Sylvester*.

Near the door an entrance gapes,
Crouded round with antic shapes,
Discord *periwigged* with snakes,
See the dreadful strides she takes. *Swift's Miscell.*

PER'IWIG-PATED, *adj.* Wearing a wig.—It offends me to hear a robustious *perwig-pated* fellow tear a passion to tatters, to split the ears of the groundlings. *Shakespeare*.

PER'IWINKLE, *f.* A small shell-fish; a kind of fish-snail; the *TURBO littoreus*.—Thetis is represented by a lady of a brownish complexion, her hair dishevelled about her shoulders, upon her head a coronet of *periwinkle* and escalop shells. *Peacham*.—A plant. See *VINCA*.—There are in use, for the prevention of the cramp, bands of green *periwinkle* tied about the calf of the leg. *Bacon*.—The common simples with us are comfry, bugle, ladies' mantle, and *periwinkle*. *Wifeman's Surgery*.

PERIZO'MA, *f.* [from the Greek.] A kind of girdle or truss for a rupture.

PERIZO'NIUS (James), a learned critic, was born in 1651 at Dam, in the province of Groningen, where his father was master of the public school. His family-name

was *Varbrek*, which, according to the pedantry of the times, he changed to *Perizonius*, having a similar signification in Greek. James studied at Deventer under Gifbert Cuper, and afterwards at Utrecht under Grævius. The invasion of Louis XIV. interrupted his academical studies in 1672; but he resumed them in 1674 at Leyden, where he attended the lectures of Ryckius. His first public employment was that of rector of the Latin school at Delft. In 1681, he was appointed to the chair of history and eloquence at Franeker, and in 1693 he removed to the same professorship, with that of the Greek language, at Leyden. He died, unmarried, in 1715, in his 64th year. This industrious scholar was the author of a number of learned works, of which the following are the principal: 1. *Animadversiones Historicae*, 1685, 8vo. consisting of explanations of many passages in the Greek and Latin writers. 2. *Dissertationes*, in several volumes 4to. chiefly relative to Roman history. 3. *Orations*. 4. *Origines Babylonicæ et Ægyptiacæ*, 2 vols. 8vo. 1736. a very learned performance, in which various errors of Sir John Marsham are corrected. 5. An Edition of Ælian's *Various History*, with a Commentary. 6. *Rerum per Europam, sæculo xvii. maxime Gestarum Comment. Histor.* Perizonius had collected a numerous and well-chosen library, and a cabinet of medals, which were sold after his death. He left to the University of Leyden several ancient manuscripts, and scarce editions of classics. *Moreri*.

PER'IZZITES, the ancient inhabitants of Palestine, mingled with the Canaanites. There is also great probability that they themselves were Canaanites; but having no fixed habitations, sometimes dispersed in one country and sometimes in another, they were for that reason called *Perizzites*, which signifies "scattered or dispersed." *Pherazoth* stands for "hamlets, or villages." The *Perizzites* did not inhabit any certain portion of the land of Canaan; there were some of them on both sides the river Jordan, in the mountains, and in the plains. In several places of Scripture the Canaanites and *Perizzites* are mentioned as the two chief people of the country. It is said, for example, that in the time of Abraham and Lot the Canaanite and *Perizzite* were in the land, (*Gen.* xiii. 7.) The Israelites of the tribe of Ephraim complaining to Joshua that they were too much pent up in their possession, (*Josh.* xvii. 14.) he bade them go, if they pleased, into the mountains of the *Perizzites*, and *Rephaims* or giants, and there, clearing the land, to cultivate and inhabit it. Solomon subdued the remains of the Canaanites and *Perizzites* which the children of Israel had not rooted out, and made them tributary to him: (*1 Kings* ix. 20, 21. *2 Chr.* viii. 7.) There is still mention made of the *Perizzites* in the time of Ezra, (*ix.* 1.) after the return from the captivity of Babylon; and several Israelites had married wives from that nation.

To PERK, *v. n.* [from *perch*. *Skinner*.—The original word is used by Nash in his *Lenten Stuffe*, 1599. "In 1240 it *perched* up to be governed by balies." Probably from a bird's mounting on a *perch* in his cage. *Malone*.] To hold up the head with an affected briskness.—Is not this therefore a fit bishop of Pergamus, that *perks* thus above all kings, and emperours, and princes of the earth? *More on the Seven Churches*.

If, after all, you think it a disgrace,
That Edward's mis's thus *perks* it in your face;
To see a piece of failing flesh and blood,
In all the rest so impudently good;
Faith, let the modest matrons of the town
Come here in crowds, and stare the strumpet down. *Pope*.

To PERK, *v. a.* To dress; to prank:
'Tis better to be lowly born,
And range with humble livers in content,
Than to be *perk'd* up in a glist'ring grief,
And wear a golden sorrow. *Shakespeare's Hen. VIII.*

PERK, *adj.* Pert; brisk; airy. *Obsolete*, Dr. Johnson

son says; but, I believe, it is yet in use among the vulgar. *Todd.*

My ragged ronts,
They wont in the wind wag their wriggle tails,
Perk as a peacock. *Spenser's Shep. Cal.*

PER'KELSKAREN, a small island in the Gulf of Finland. Lat. 60. 15. N. lon. 27. 24. E.

PER'KERI, a town of Curdistan, on Lake Van: eighteen miles east of Argish, and thirty north-north-west of Van.

PERKERNUCK'A, *f.* A term used in India for petty officers. *James's Mil. Dict.*

PER'KIN, *f.* [dimin. of *perry* or of *pear*.] A beverage made from pears, as cider from apples. It may be called the small beer of perry, as ciderkin of cider. See PERRY.

PER'KIN, [i. e. *Peterkin*, or Little Peter.] A man's name.

PER'KINS (William), a learned and pious English divine, was born at Marston, in Warwickshire, in the year 1558. From the grammar-school he was sent for academical education to Christ's College, Cambridge, where his behaviour was for some time wild and irregular, though he soon became reclaimed, and exhibited a commendable pattern of studious diligence, virtue, and piety. While he was an under-graduate he appears to have shown a strong attachment to the study of the mathematical sciences, which, in the reports of the ignorant and credulous, was construed into a fondness for the study of magic; but, after taking his first degree in arts, he devoted himself entirely to the study of divinity, and the branches of learning more immediately connected with that science. He was chosen a fellow of his college, of which he was also appointed one of the tutors, and acquired high reputation for the learning and judgment with which he discharged the duties of that office. He was likewise nominated catechist of his college, and delivered a course of Lectures on the Commandments, which made a deep impression on the minds of his pupils. After having entered into holy orders, he first exercised his pulpit-talents in preaching to the prisoners in the castle of Cambridge, whom he prevailed upon the jailor to bring to the adjoining shire-house every Sunday. When it was known that he had thus voluntarily undertaken the office of spiritual instructor to these ignorant and vicious wretches, some respectable persons from the contiguous parishes came to hear him, who soon spread abroad the fame of his extraordinary abilities as a preacher. At length he was invited to become preacher of St. Andrew's parish in Cambridge; and for many years was admired and followed by numerous auditories, comprehending many of the members of the University most respectable for learning and discrimination, who were instructed and edified by his discourses, while they were level to the understandings of the most common hearers.

Mr. Perkins had repeated offers of more advantageous situations; but, though he married, and had several children, his affection for the parishioners of St. Andrew's induced him to refuse them, and to be satisfied with the inconsiderable compensation for his arduous labours which he derived from his appointment, and the presents of some liberal individuals. Besides discharging the duties of his ministerial office, he devoted no inconsiderable portion of his time to the composition of various works. In his religious sentiments he was strictly Calvinistical; and he published several treatises in defence of the doctrines of that school, which involved him in a controversy with Arminius, then professor of divinity at Leyden, which continued till his death.

Perkins was deprived by archbishop Whitgift for Puritanism. He was one of those divines who "were sometimes called *conforming non-conformists*, as they were against separation from the national church." He fell

under the displeasure of the archbishop, in consequence of his having subscribed, or declared his approbation of, the *Book of Discipline*; but his deprivation, or suspension, seems not to have been of any long continuance; his great learning, worth, and quiet peaceable behaviour, making the high party ashamed of proceeding to any violent measures against him. He died of a violent attack of the stone in 1602, when he had only arrived at the 44th year of his age.

In person he was rather short and corpulent; in his disposition cheerful and pleasant; and, owing to a lameness in his right hand, wrote all his works with his left. Of his great industry, their number alone affords sufficient proof. Many of his pieces have been translated into elegant Latin; and others into the German, Dutch, French, Italian, and Spanish, languages. The whole have been collected together, in 3 vols. folio, consisting of A Foundation of Christian Religion; The Golden Chain, or Description of Divinity; An Exposition of the Apostle's Creed; An Exposition of the Lord's Prayer; Cases of Conscience, in Three Books; An Analysis and Harmony of the Bible; Commentaries upon the Fifth, Sixth, and Seventh, Chapters of St. Matthew; on the Five First Chapters of the Epistle to the Galatians; on the Epistle of Jude; and on the Three First Chapters of the Apocalypse; Problem of the forged Catholicism, or Universality of the Romish Religion, in Latin, intended as an introduction to young students in the study of the Fathers and Councils; together with numerous doctrinal, practical, and controversial, treatises. *Neal's Hist. Purit.* vol. i. ch. vii. viii.

PER'LEBERG, a town of Brandenburg, and capital of the Mark of Pregnitz, situated on the Stepenitz, and containing about 370 houses: seventy-six miles south-east of Hamburg, and sixty-two north-west of Berlin. Lat. 53. 8. N. lon. 11. 58. E.

PER'LICAN (New), a noted harbour on the east coast of Newfoundland-Island, eight leagues west-south-west of Old Pelican, and five leagues from Random-head. It has a wide and safe entrance; and ships may ride in it, locked from all winds, in from ten to five fathoms water.

PER'LING, *adj.* [from *pearl*.] Pearly:

Though plaine the saw, by all that she did heare,
That she of death was guiltie found by right,
Yet would not let just vengeance on her light;
But rather let, instead thereof, to fall
Few *perling* drops from her faire lampes of light.

Spenser's F. Q.

Her long loose yellow locks like golden wire,
Sprinkled with pearl, and *perling* flowers atween,
Did like a golden mantle her attire. *Spenser's Epithalamion.*

That in the latter of the foregoing citations the word *perling* could never mean *purling* is self-evident: whence it seems probable that the ingenious Upton was mistaken when he gave it that sense in the former. *Mason's Suppl. to Johnson.*

PER'LOUS, *adj.* [from *perilous*.] Dangerous; full of hazard.—In Phædrus's fleet bark over the *perulous* thard. *Spenser.*

A *perulous* passage lies,
Where many mermaids haunt making false melodies.
Spenser.

PERLUSTRA'TION, *f.* [*perlustratus*, Lat.] The act of viewing all over.—By the *perlustration* of such famous cities, castles, amphitheatres, and palaces, some glorious and new, some mouldered and eaten away by the iron teeth of time, he may come to discern the best of all earthly things to be but frail and transitory. *Howell's Instruct. for Trav.*

PERM, a town of Russia, and capital of a government, on the Kama: 808 miles east of Petersburg, and 620 east of Moscow. Lat. 57. 40. N. lon. 56. 14. E.

PERMA-

PERMACOIL, a town of Hindoostan in the Carnatic: seventeen miles north-north-west of Pondicherry, and forty-five south-south-east of Arcot. Lat. 12. 14. N. lon. 79. 55. E.

PERMAGY, *f.* A little Turkish boat.

PERMALOOR, a town of Hindoostan in the Carnatic: twelve miles south-west of Conjeveram.

PERMANENCE, or PERMANENCY, *f.* Duration; consistency; continuance in the same state; lastingness.—Salt, they say, is the basis of solidity and *permanency* in compound bodies, without which the other four elements might be variously blended together, but would remain incompact. *Boyle*.—Shall I dispute whether there be any such material being that hath such a *permanence* or fixedness in being? *Hale*.—From the *permanency* and immutability of nature hitherto, they argued its *permanency* and immutability for the future. *Burnet's Theory*.—Continuance in rest.—Such a punctum to our conceptions is almost equivalent to *permanency* and rest. *Bentley*.

PERMANENT, *adj.* [Fr. from *permanens*, Lat.] Durable; not decaying; unchanged.—If the authority of the maker do prove unchangeableness in the laws which God hath made, then must all laws which he hath made be necessarily for ever *permanent*, though they be but of circumstance only. *Hooker*.

Their joy sincere with no more sorrow mixt;
Eternity stands *permanent* and fixt.

Dryden.

Of long continuance.—His meaning is, that in these, or such other light injuries, which either leave no *permanent* effect, or only such as may be born without any great prejudice, we should exercise our patience. *Kettlewell*.

PERMANENTLY, *adv.* Durably; lastingly.—It does, like a compact or consistent body, deny to mingle *permanently* with the contiguous liquor. *Boyle*.

PERMAN'SION, *f.* [from *permaneo*, Lat.] Continuance.—Although we allow that haers may exchange their sex sometimes, yet not in that vicissitude it is presumed; from female unto male, and from male to female again, and so in a circle without a *perman'sion* in either. *Brown's Vulg. Errors*.

PERMEABLE, *adj.* [from *permeo*, Lat.] Such as may be passed through.—The pores of a bladder are not easily *permeable* by air. *Boyle*.

PERMEANT, *adj.* Passing through.—It entereth not the veins, but taketh leave of the *permeant* parts at the mouths of the meseraicks. *Brown*.

To PERMEATE, *v. a.* To pass through.—This heat evaporates and elevates the water of the abyss, pervading not only the fissures, but the very bodies of the strata, *permeating* the interstices of the sand or other matter whereof they consist. *Woodward's Nat. Hist.*

PERMEATION, *f.* The act of passing through.—The sensible world is inclosed within the intelligible; but withall I must add, that here is not a mere involution only, but a spiritual *permeation*. *Bp. Hall's Invis. World*.

PERMEL'LY, a town of Hindoostan, in the circar of Aurungabad: thirty miles north-west of Nander.

PERMERA ROCKS, rocks in the Eastern Indian Sea, near the coast of Canara: twenty miles north of Mangalore. Lat. 13. 10. N.

PERMES'SUS, in ancient geography, a river of Bœotia, rising in mount Helicon, and flowing all round it. It received its name from Permessus the father of Aganippe, who also gave her name to one of the fountains of Helicon. The river Permessus, as well as the fountain Aganippe, was sacred to the muses.

PERMIANS, a branch of the Finns, called in the Icelandic Reports *Biarmians*, and denominated by the Russians *Permiaki*, situated in the governments of Perm and Viatka, and in the northern districts of the river Oby. In the middle ages the Scandinavians seem to have given the name of Biarmia to the whole country between the White Sea and the Ural. The Permians on the Dwina were discovered in the ninth century by Othere of Halgoland, a province at the extremity of Norway, Vol. XIX. No. 1331.

who afterwards entered into the service of Alfred the Great, and drew up an account of this voyage in the Anglo-Saxon language.

The Icelandic Reports abound with accounts of these people. According to these Reports, the Permians on the White Sea, and the parts about the Dwina, were the most wealthy, most powerful, and most remarkable, of all the northern Finns. Here the carved image of the god Yummala, who was the universal deity of the Finns, as Perune was of the Slavonians and Lettes, and Odin of the Germans, had its far-famed temple, the description of which borders on the marvellous. According to this description, the temple was artfully constructed of costly wood, and so richly ornamented with gold and precious stones, that it threw a radiance round the whole circumjacent country. The image of the god wore a golden crown set with twelve precious stones, a necklace worth three hundred marks in gold, and a dress which outweighed the lading of three of the richest ships that navigated the Grecian sea. The figure also bore on its knees a golden chalice of such capacity, that four men might quench their thirst from its contents; and this vessel was filled with the same valuable metal of which its mass consisted. The northern free-booters were tempted by the reports of the wealth of this country to make incursions into it, and to take away some spoil from this temple. Even several Norwegian kings made predatory excursions into Permia, and usually returned with rich booty. We find also that the Scandinavian mariners visited this country for the purposes of trade, &c. without any piratical views. It is a curious inquiry how these Permian Finns accumulated so much gold, and how their country became the mart of a great and lucrative commerce. In very remote ages the Permians were already famous for their trade with the Persians and Indians: these nations brought their commodities over the Caspian, up the Volga and the Kama, to Tscherdyn, a trading town of ancient date on the river Kolva; and the Permians transported these goods as well as their own products along the Petchora to the Frozen Ocean, where they bartered them with the people of those parts against furs for their oriental trade. The ruins of ancient towns bear witness to the flourishing condition and the civilization of this people. The Permians appear, by historical traces still subsisting, to have been the only race of the Finns who were a polished and commercial people, and known to other nations, while their kindred tribes were in a state of barbarism. The reports likewise speak of kings, and a sort of political constitution in Biarmeland. With the year 1217, the expeditions of the Norwegians to Permia cease; but probably at an earlier period, in the eleventh and twelfth centuries, the republic of Novgorod made itself master of this country, leading thither Russian colonies to keep the people in subjection. About the year 1372, the Christian faith was propagated in Permia by bishop Stephen. The Novgorodians having renounced all claim to this country, the Permians for a considerable period maintained the liberty of choosing their rulers from their own body. In 1543 the czar Ivan gave them the first viceroy, to whom the chief of the inhabitants were to act in a subordinate capacity in the affairs of government, and who had his seat, first at Kolmogor, and afterwards at Archangel. At present the whole of ancient Biarmia, the borders of which cannot now be accurately defined, is divided into several governments; and the descendants of the Permians, heretofore so famous, numerous, and powerful, are dwindled away into an insignificant remainder, who, amidst thorough Russians, have lost almost all their national characteristics, even to their very language. *Tooke's Russia*, vol. i.

PERMISCIBLE, *adj.* [from *permisco*, Lat.] Such as may be mingled.

PERMISSIBLE, *adj.* [from *permisus*, Lat.] What may be permitted.

PERMIS'SION, *f.* [Fr. from *permisus*, Lat.] Allowance; grant of liberty.—You have given me your *permis'sion*

mission for this address, and encouraged me by your personal and approbation. *Dryden*.

With thy *permission* then, and thus forewarn'd,
The willing I go. *Milton's P. L.*

PERMISSIVE, *adj.* [from *permitto*, Lat.] Granting liberty; not favour; not binding, though not approving.—When evil deeds have their *permissive* pass. *Shakespeare's Measure for Measure*.

Hypocrisy, the only evil that walks
Invisible except to God alone,
By his *permissive* will, through heaven and earth. *Milton*.

Granted; suffered without hindrance; not authorized or favoured.—If this doth authorize usury, which before was but *permissive*, it is better to mitigate usury by declaration than to suffer it to rage by connivance. *Bacon's Essays*.

Thus I embolden'd spake, and freedom us'd
Permissive, and acceptance found. *Milton's P. L.*

PERMISSIVELY, *adv.* By bare allowance; without hindrance.—As to a war for the propagation of the Christian faith, I would be glad to hear spoken concerning the lawfulness, not only *permissively*, but whether it be not obligatory to Christian princes to design it. *Bacon's Holy War*.

PERMISTION, *f.* [*permistus*, Lat.] The act of mixing.
To PERMIT', *v. a.* [*permitto*, Lat. *permettre*, Fr.] To allow without command.—What things God doth neither command nor forbid, the same he *permitteth* with approbation either to be done or left undone. *Hooker*.—To suffer, without authorizing or approving.—To allow; to suffer.—Age oppresses us by the same degrees that it instructs us, and *permits* not that our mortal members, which are frozen with our years, should retain the vigour of our youth. *Dryden*.

Ye gliding ghosts, *permit* me to relate
The mystick wonders of your silent state. *Dryden*.

To give up; to resign.—*Not used*.—If the course of truth be *permitted* unto itself, it cannot escape many errors. *Brown's Vulg. Err.*

Nor love thy life, nor hate; but what thou liv'st,
Live well; how long or short, *permit* to heav'n. *Milton*.

Whate'er can urge ambitious youth to fight,
She pompously displays before their sight;
Laws, empire, all *permitted* to the sword. *Dryden*.

Let us not aggravate our sorrows,
But to the gods *permit* th' event of things. *Addison's Cato*.

PERMIT', *f.* A written permission from an officer for transporting of goods from place to place, showing the duty on them to have been paid.

PERMITTANCE, *f.* Allowance; forbearance of opposition; permission. A bad word.—When this system of air comes, by divine *permittance*, to be corrupted by poisonous acrimonious steams, what havock is made in all living creatures? *Derham's Phys. Theol.*

PERMIXTION, *f.* [from *permistus*, Lat.] The act of mingling; the state of being mingled.—They fell into the opposite extremity of one nature in Christ, the divine and human natures in Christ, in their conceits, by *permixtion* and confusion of substances, and of properties growing into one upon their adunation. *Brewerwood*.

PERM'SKOE, a government of Russia, including the provinces of Perm and Ekaterinburg; bounded on the north by the government of Vologda and Tobolsk, on the east by the government of Tobolsk, on the south by Uhimskoe, and on the west by Viatskoe; about 360 miles from north to south, and from 240 to 260 east to west. Lat. 55. 15. to 61. 15. N. lon. 52. to 63. E. The province of Perm extends from lat. 55. 30. to 61. 14. N. lon. 52. to 58. E.

PERMUTATION, *f.* [Fr. from *permutatio*, Lat.] Exchange of one for another.—If you can, by *permutation*, make the benefices more compatible. *Bacon on the Ch. of England*.—Gold and silver, by their rarity, are

wonderfully-fitted for this use of *permutation* for all sorts of commodities. *Ray*.—[In algebra and arithmetic.] Change, or different combination, of numbers or quantities.—*Permutation* of proportion hath place only in homogeneous. *Wallis*.—See ALGEBRA, vol. ii. and NUMBERS, vol. xvii.

To PERMU'TE, *v. a.* [*permuto*, Lat. *permuter*, Fr.] To exchange.

PERMU'TER, *f.* An exchanger; he who permutes.

PERNABIACA'BA, or PARANONBIACUBA, a mountain of Brazil, near the city of St. Paul.

PARNAL'LA, a town of Hindoostan, in the country of Guzerat: thirty-eight miles south of Surat, thirty west of Durrampour. Lat. 20. 35. N. lon. 72. 53. E.

PERNAMBUCO. See FERNAMBUC, vol. vii. In that place we spoke very briefly of a province which is now stated to contain 550,000 souls, and its chief town of the same name 60,000. But circumstances have since occurred to make the place better known, as well as more interesting to an English public. In fact, the great jealousy which the Portuguese have observed from time immemorial in all their commercial dealings, had induced them to prohibit foreigners visiting this coast; and, before the year 1807, when the prince regent emigrated with his court to Rio Janeiro, if any foreign vessel was discovered upon it, she was liable to confiscation, and her crew to imprisonment. But, soon after that had taken place, as mankind in general go from one extreme to the other, we had free access to all their ports; and, to say the truth, were allowed, like the Jews in Turkey, to monopolize nearly the whole of their trade, even the coasting part of it. Previous to this event, we were so little acquainted with the Brazils, that in most of our maps, the town is called "Olinda, or Pernambuco," though those are in fact two separate and distinct places; the first a city, and the second a populous town, distant at least three miles.

Pernambuco is a large town, containing 60,000 people, and carrying on a great foreign and domestic trade. The coast near it is very low, and the country well clothed with woods in perpetual verdure, which, contrasted with the white cottages scattered along the shore, the Indians fishing in their *jugadas*, or canoes, and the beautiful serene sky, affords to the European, as he approaches it, a most pleasing prospect.

The town stands on a great extent of ground, and many of the houses are well built, chiefly of stone. The streets are wide and spacious, the churches are truly magnificent, and the images they contain are immensely valuable. It is supposed that the religious form one-eighth part of the population; and of the continual crowd passing through the streets, they make no small portion. Nearly half of the inhabitants are slaves, who are humanely treated by the Portuguese, and make good and faithful servants. There is a market appropriated purposely for these unfortunate beings, where two or three hundred are commonly seen huddled together, squatted on their hams like monkeys, and completely *in cenero*. They are thus exposed for sale, having been previously rubbed over with a species of oil, which gives them a glossy shining appearance; and, in addition, are decorated with bead necklaces and bracelets, to set them off to advantage.

Pernambuco stands on two islands, and is connected together by two bridges, one of which is a most beautiful structure, built by the Dutch when they took this place from the Portuguese in 1630. It consists of fifteen arches, under which runs a strong and rapid river, that comes many hundred miles down the country. On each side of this bridge are shops full of European merchandise, particularly English manufactures, or, as they are called by the Portuguese "fazendas Inglesas." It is only in the middle that a person knows he is on a bridge; he then beholds an opening, which during the day is often full of passengers, enjoying the cool refreshing breeze that comes down the river, and gratifying themselves with the prospect, which from this spot is truly delightful. The river seen winding

winding up as far as Olinda, which is seated on a hill; on either bank beautiful white cottages, intermixed with mangrove and cocoa trees, and fruitful vineyards; the Indians paddling down the river with their unwieldy canoes, the fishermen on the beach drying their nets, and nature displaying her gayest verdure, form altogether a *coup d'œil*, which it is impossible to conceive, much more to describe. The other is a very long wooden bridge, in which there is nothing at all remarkable, more than being quite open to the breeze which comes down the river. It is on that account much resorted to in the evening.

Most of the houses in Pernambuco are lofty, and, instead of glass windows, have green lattices, which has a pretty effect, especially as all their houses are white, and frequently surrounded with beautiful evergreens. All these windows are prominent, not unlike the Elizabethan windows seen in some of our old country towns. During the morning, the better sort of Portuguese are seen leaning out of them, muffled up in their long cloaks, and exhibiting a genuine picture of indolence. They never live on the ground-floor, which is commonly used for cellars or shops. The ladies are only seen towards the evening, peeping through the lattices; very few ever appearing in the streets, and then closely veiled, and in a kind of hammock with curtains, carried by two slaves on a long pole.

There are a good many coffee-houses here, which are known by a small round board, with *Café de Caffé* written upon it. The principal one is kept by a priest, and is the common resort of the merchants, serving them as an exchange. Good wine, fangaree, and a tolerable breakfast, can be procured here at all hours of the day: here is also an excellent billiard-table, and several back-gammon tables, well frequented, especially on a Sunday, the day these amusements are mostly followed, according to the custom of the Roman-catholic religion. About eleven in the morning, the merchants make a tolerable show at this place, and a good deal of business is transacted.

After the Prince Regent came to the Brazils, the trade increased greatly. Before this period it was carried on with Europe in large ships, similar to our East Indiamen; but it was then thrown open to all nations. The Portuguese merchants are rich and respectable.

The harbour of Pernambuco is formed by a natural pier, extending in a direct line many miles: this is a coral reef, so exactly straight and even, that one would almost imagine it the work of art. The vessels lie alongside each other in tiers, moored head and stern, about half-pistol-shot from the shore, and close to this reef, which at high-water spring-tides is nearly on a level with the surface of the sea, and forms an excellent barrier. This place is in latitude 8° S. consequently the heat is excessive, the thermometer frequently being at 90° in the shade. During the night it is always calm, with a good deal of lightning. About nine in the morning the sea-breeze comes gradually, and is strongest about noon, when by degrees it dies away into a calm that generally takes place towards sunset.

The churches at Pernambuco are large buildings. They contain some excellent paintings, and each of them has a number of chancels, or more properly chapels, dedicated to particular saints, which on certain days are shown ornamented with flowers. They are quite open, having no pews; and the people either stand or kneel. All are very richly furnished; in short, no one can conceive the grandeur the insides some of them exhibit. They are generally very large, with a great number of pillars, which gives them the appearance of cathedrals. One large consecrated lamp is continually burning over the high altar, and also a great number of tapers in candle-sticks about seven or eight feet high, some of them of mafly silver. The glimmering of these candles, at noon-day, has a curious, and rather solemn, effect. The doors are generally open, and a good many people are seen on their knees at prayers before the different saints; others receiving the sacrament, some confessing, and *pa-*

dres (priests) gliding from one door to another, or traversing with a silent sanctified deportment the different parts of the church. These conspire to give a stranger an idea, that they have enough to do. A confessional chair, of which there are generally six or eight in a church, is made very large and high, so that the priest, who is in it, is not seen. Those who wish to confess (mostly women) go singly, and, kneeling down opposite a lattice-work in the side of it, ease their burthened consciences, and get absolution. Besides the church itself, there is always under the same roof apartments for the *padres*, or fathers, (as the Portuguese style the priests,) in which they live much in the same manner as our monks of old, having their cells, and a large room where they dine together. There are numbers of helpless old women, who live constantly in the churches, and are subsisted by what is left at their tables. Great numbers of the religious are always seen in the streets, dressed in their robes, soliciting alms; for which purpose they carry a small square box, with the figure of Christ, or some particular saint, painted upon it. Notwithstanding they consider the English as heretics, they do not scruple to receive their money, for which they bestow in return a benediction; and so well are they aware of the liberality of our countrymen, that, if a Portuguese and an Englishman are standing together in the street, they will never fail to accost the Englishman first.

In every street there are different images of the Virgin Mary and the saints, which on particular days are exposed to view, superbly illuminated with a number of large candles. About eight in the evening the children in the neighbourhood assemble round them, and sing hymns. This has a pleasing effect, especially as they keep time with great exactness, and have a person to direct them, who rings a little bell whilst they are singing particular parts. Another custom seems remarkably strange. Twice every day, about ten in the morning and seven in the evening, at the tolling of a bell every thing in an instant is at a stand. Men, women, or children, whether in the streets or the houses, instantly pull off their hats, cross themselves, and say a short prayer. This continues about a minute. At the second tolling every thing goes on again as usual. During this time a particular part of the mass is being performed in the grand church. Although this has a striking effect, the positions people are sometimes caught in are very ludicrous. It appears almost the effect of magic. Lent is most rigidly observed. The illuminations on the churches, as well as the fire-works and processions, during Easter, are very grand. It is impossible to avoid smiling at such a combination of superstition and folly, and at the same time being sensibly struck with the immense value of the images displayed on the occasion. As the procession passes along, the people fall on their knees with uplifted hands. These shows are often repeated, and, as may be conceived, have a wonderful effect on the lower classes, especially the slaves. Indeed the Portuguese take every method of impressing on the minds of the latter the importance of religion; and, whenever a slave happens to die before he is baptized, they do not allow him burial; but his body is thrown down on the sea-shore, a little below the town, where it is left a prey for bustards and wild beasts.

As Pernambuco is seated on low ground, and quite surrounded by water, intermittent fevers are very common. There is only one hospital, which consists of a very large room with about thirty beds on each side, filled with wretches suffering under the most loathsome diseases. A man stands at the door to solicit the charity of passengers, which helps to defray the expenses. When a patient dies, he is laid on a table at the entrance with a plate on his breast, to raise in a similar way money to bury him. It often happens four or five bodies are thus exposed. Great numbers of slaves die of the small-pox on their first importation, and still more from the fever and dysentery.

The country a few miles from the town is full of thick impenetrable woods, dreadfully infested with wild beasts

and reptiles, especially snakes. But it also abounds with the most beautiful birds, some of which are as red as scarlet, and sing delightfully. Macaws and parrots are also very common, nearly every house having one or two at the door. Fish are very numerous on this coast. The river near Pernambuco abounds with alligators, which are often very destructive; and that extraordinary fish the torpedo is frequently caught here: the electric power is so strong in this fish, that even the line which catches him conveys a slight shock. See RAJA. The blacks have a curious way of catching fish, which is thus performed: on a dark night they go on jungadas, (a sort of canoe composed of three or four long pieces of wood lashed together,) on which they make a large fire, which attracts the fish, when they strike them with harpoons; most of the fish with which Pernambuco is supplied are caught in this way.

We have before observed that OLINDA is a distinct city, three miles from Pernambuco. It is seated on a hill, on the summit of which is a large monastery. The place is small; and, though most of the merchants of Pernambuco have seats here, it is nevertheless very thinly peopled. The houses are beautiful white buildings, interspersed with delightful gardens; rising as they do one above another on the sides of the hill, the place is seen a great way off at sea. The trade and other advantages of Pernambuco have drawn all the merchants from it; and it now contains little more than two monasteries and a nunnery, with a few poor people dependent on them. The object which particularly attracts attention is the monastery on the hill. One cannot imagine a more romantic situation, or one which commands a more lovely prospect, than this monastery, especially the church, which is far the highest object on this coast, and is visible a long way off at sea.

This account is abridged from a very interesting article in the Monthly Magazine for Sept. 1811, to which we refer for farther particulars.

PER'NANCY, *f.* [from the Fr. *prendre*, to take.] In law, the taking or receiving any thing.—Tithes in *pernancy*, are tithes taken, or which may be taken, in kind. *Chambers.*

PER'NEK, a castle of Hungary: twelve miles north of Presburg.

PER'NES, a town of France, in the department of the Straits of Calais: $1\frac{1}{2}$ post north of St. Pol, $8\frac{1}{2}$ north of Amiens.—A town of France, in the department of the Mouths of the Rhone: twelve miles east-north-east of Avignon.

PERNET'TI (James), historiographer of the city of Lyons, and a member of the academy of that place, was a native of Forez. He assumed the title of "Miles Ecclesiæ Lugdunensis;" he was a man of pleasant manners, and entirely void of pedantry. He died at Paris in 1777. His works are, 1. History of Cyrus, in three vols. 12mo. 2. Counsels of Friendship. 3. Letters on Physiognomy, 3 vols. 4. The Abuses of Education. 5. Picture of the City of Lyons.

PERNETTY (Antony-Joseph), an ingenious and learned French writer, was born in 1716 at Roanne in Forez. He entered into the order of Benedictines, and devoted himself to study, and the composition of numerous works, in which he displayed a systematizing spirit with a singular mode of thinking. Some of the principal of these are the following: 1. Dictionnaire de Peinture, Sculpture, et Gravure, 1757. 2. Dictionnaire mytho-hermetique, 1758. 3. Discours sur la Physiognomie. 4. Journal historique d'un Voyage fait aux Îles Malouines en 1763 et 1764, 2 vols. 8vo. 1769. This contains many curious particulars: it was translated into English, and read with interest at the time of the dispute with Spain, relative to these islands, which are the same with the Falkland Isles. 5. Dissertation sur l'Amérique et les Américains, 1770. 6. Examen des Recherches Philosophiques de Pauw sur les Américains, 1772. 7. La Connoissance de l'Homme moral par celle de l'Homme physique, 1776. He likewise published

a translation of Columella, and of Wolff's Course of Mathematics; assisted in the 8vo. volume of the Gallia Christiana; and communicated several memoirs to the Academy of Berlin, of which he was a member, and in which capital he resided a long time. He at length returned to Valence, in the department of the Drome, where he died about the close of the century.

PERN'IA, a town of Croatia: sixteen miles south-east of Carlstadt.

PERN'ICIOUS, *adj.* [*perniciosus*, Lat. *pernicieux*, Fr.] Mischievous in the highest degree; destructive.—To remove all out of the church, whereat they show themselves to be sorrowful, would be, as we are persuaded, hurtful, if not *pernicious* thereunto. *Hooker.*

I call you servile ministers,
That have with two *pernicious* daughters join'd
Your high-engender'd battles, 'gainst a head
So old and white as this. *Shakespeare's K. Lear.*

Let this *pernicious* hour
Stand ay accursed in the kalendar! *Shakespeare.*

[*Pernix*, Lat.] Quick. An use which I have found only in Milton, and which, as it produces an ambiguity, ought not to be imitated. *Johnson.*

Part incentive reed
Provide, *pernicious* with one touch to fire. *Par. Lost.*

PERN'ICIOUS ISLANDS, a cluster of islands in the South Pacific Ocean, about fifteen miles in circumference; so called by Roggewein, on account of one of the vessels belonging to his Squadron being wrecked on the coast of one of them in the year 1772. Lat. 16. S. lon. 140. 45. W.

PERN'ICIOUSLY, *adv.* Destructively; mischievously; ruinously.—Some wilful wits, wilfully against their own knowledge, *perniciously* against their own conscience, have taught. *Afcham.*

All the commons
Hate him *perniciously*, and wish him
Ten fathom deep. *Shakespeare's Hen. VIII.*

PERN'ICIOUSNESS, *f.* The quality of being *pernicious*.

PERN'ICITY, *f.* [from *pernix*, Lat.] Swiftmess; celebrity.—Others armed with hard shells, others with prickles, the rest that have no such armature endued with great swiftmess or *pernicity*. *Ray on the Creation.*

PER'NO, a town of Sweden, in the province of Nyland, at the mouth of a river which forms a bay on the north coast of the Gulf of Finland: twelve miles east of Borgo, thirty-five west of Frederichamn. Lat. 60. 26. N. lon. 16. 4. E.

PERNOCTA'TION, *f.* [*pernoctatio*, Lat.] Act of tarrying or watching all night.—Whether we have paid for the pleasure of our sin by smart or sorrow, by the effusion of alms, or *pernoctations* or abodes in prayers. *Bp. Taylor's Holy Dying.*—When these *pernoctations* were laid aside, it was the custom to rise early. *Bourne's Antiq. of the Comm. People.*

PERNO'V or PERNAU, a town of Russia, in the government of Riga, on a river near the Baltic, fortified and defended by a castle. In 1635, it was numbered among the Hanse-towns. In 1562, it was taken by the Swedes from the Poles, who recovered it in 1565. The Russians took it in 1575, but restored it in 1617. It was afterwards taken by the Swedes; and finally, with the rest of Livonia, annexed to Russia. It is ninety-two miles north of Riga. Lat. 58. 30. N. lon. 42. 16. E.

PER'NSTAIN, a town of Austria: twelve miles north-north-west of St. Wolfgang.

PERO, or PERONE, a daughter of Cimon, remarkable for her filial affection. When her father had been sent to prison, where his judges had condemned him to starve, she supported his life by giving him the milk of her breasts. *Val. Max.*

PERO'E,

PERO'E, a town of Hindoostan, in Bahar: forty-five miles south-west of Patna.

PERO'LA, *f.* in botany. See MOMORDICA.

PEROJO'A, *f.* in botany, was so named by Louis Née, who gathered the plant at Port Jackson, New South Wales, in honour of Francis del Perojo, a Spanish apothecary, who had been his botanical companion in a journey over the hills of the north of Spain. Mr. R. Brown however reduces the Perojoa to his genus *Leucopogon*, the species of which are, however, generally included under *STYPHELIA*; see that article.

PERO'NES, *f.* in Roman antiquity, a kind of high shoes formed rudely of raw hides, and reaching up to the middle of the leg. Though, in the more ancient times of the commonwealth, the senators wore them, yet in later ages they were only used by ploughmen and labourers: hence *Peronatus Arator*; Persius's Sat. v. 192. and Juv. xiv. 186.

PERON'NE, a town of France, and principal place of a district, in the department of the Somme, situated on the Somme, surrounded by marshes, and strongly fortified. It contains spacious streets and good shops. The church is a building in the modern Gothic style, with a pretty tower, and a splendid roof something resembling King's Chapel, Cambridge, having a remarkable echo, which must peculiarly adapt it for music. This place has been several times besieged, but never taken; on which account it has been called *Pucelle*. It is a place of great antiquity; and the kings of the Merovingian race had a palace here: five posts south of Cambrai, and 16½ north-east of Paris. Lat. 50. 22. N. lon. 3. 1. E.

PERORATION, *f.* [*peroratio*, Lat.] The conclusion of an oration:

What means this passionate discourse?

This *peroration* with such circumstances? *Shakespeare*.

PE'ROS BAN'HOS, a range of small islands in the Eastern Indian Sea. Lat. 5. 30. S. lon. 72. 10. E.

PEROS'NA, an island in the Adriatic, about twelve miles in circumference. Lat. 45. 17. N. lon. 14. 22. E.

PE'ROT, an island of Canada, in the river St. Laurence, at the mouth of the Utawas river; fourteen miles in circumference; fertile, and well cultivated.

PERO'TA, a town of Mexico, in the province of Tlaxcala: forty-five miles east of Puebla de los Angeles.

PERO'TIS, *f.* [so named by the late Dr. Solander, from *περος*, deficient, because the calyx was supposed to be wanting.] In botany, a genus of the class triandria, order digynia, natural order gramina. Generic characters—Calyx: none. Corolla: glume two-valved; valves oblong, acute, almost equal, awned at the tip. Stamina: filaments three, capillary; antheræ oblong. Pistillum: germen superior, oblong. Styles two, capillary, shorter than the corolla; stigmas feathered, divaricating. Pericarpium: none; corolla inclosing the seed. Seed one, linear-oblong.—*Essential Character*. Calyx none; corolla two-valved; valves equal, awned. There are three species.

1. *Perotis latifolia*, or broad-leaved perotis: culm simple, leaves waved, joints smooth. Culm a foot and a half high, frequently jointed to a third part of its height, the joints half an inch and an inch distant from each other; from each joint springs a branch, which is also frequently jointed, and terminated by a spike. Leaf at each joint waved, and as it were curled, an inch long or less, a line and a half or two lines wide, smooth, with a white line, and short loose stiffish hairs at the edge. Sheath half an inch or an inch in length, whitish especially towards its origin; ending in a scarcely-visible whitish ligule. Spike a hand or half a foot in length, very thin. Florets pedicelled, a line long, livid or purplish; awn very slender, yellowish or purple, four or five lines in length. Seed very slender, acuminate, brown, near a line long. Peltiver sent it to Scheuchzer from London. It is an annual grass, native of the East Indies. Introduced

VOL. XIX. No. 1331.

in 1777 by Daniel Charles Solander, LL.D. It flowers in August and September.

β. The variety with flat lanceolate leaves, is, according to Willdenow, a distinct species.

2. *Perotis rara*, or narrow-leaved perotis: stem erect, somewhat branched; leaves linear, smooth; the lower ones flat, the upper involute. Gathered by Mr. Brown in the tropical part of New Holland.

3. *Perotis polytaclia*: culm branching, leaves flat, joints bearded. Culm branched. Leaves linear, not waved. Sheaths bearded at the edge. Native of the East Indies. This, which is the *Saccharum panicum* of Lamarck, and perhaps *Andropogon chirinum* of Thunberg, is judged by Mr. Brown to be a plant of a genus by itself, very nearly related to his *Imperata*, but differing in having awns to the calyx, no inner valve to the hermaphrodite floret, and only one stamen; marks which perhaps are not sufficient in this case to found a genus upon. See *SACCHARUM* and *LAGURUS*.

PEROT'TI (Nicolo), one of the early Italian men of letters, was born of an ancient but decayed family at Safferrato, in 1430. He was the scholar of Volpe at Bologna; and, after finishing his studies, became himself a professor in that city, first of polite literature, and then of philosophy. He made himself known by various translations of Greek authors into Latin. As early as 1453, he sent to pope Nicholas V. his version of the three first books of Polybius, to which he afterwards added two more, all that were then known of that author. He subsequently translated Epictetus's *Enchiridion*, the Commentary of Simplicius upon Aristotle's *Physics*, and Tatian's Oration to the Greeks. In 1452, when the emperor Frederic III. visited Bologna, Perotti complimented him in the name of the city in an oration which was printed, and was recompensed with the title of Poet Laureat and Imperial Counsellor. He appears in 1456 to have been in the service of pope Callixtus III. as his secretary, and a count of the Lateran palace. In 1458 he was nominated by Pius II. archbishop of Siponto, which is the same see as Manfredonia. He was also appointed to honourable offices under the court of Rome; being made governor of Umbria in 1465, of Spoleto in 1471, and of Perugia in 1474. He died in 1480 at a country seat to which he had given the name of *Fugicura*. The writings of this learned person are numerous, considering the public employments in which he was engaged. His most celebrated work was entitled "Cornucopia," being a diffuse and learned commentary on Martial's book on Spectacles, and the first book of his Epigrams. It was not published till after his death, as being somewhat incongruous with his ecclesiastical dignity. It contains a treasure of erudition respecting the Latin language. He also wrote remarks on other classical authors, many orations and letters; and had a share in the angry contentions among the literati of his time. *Tiraboschi*.

PEROU'GE, a town of France, in the department of the Ain: two miles west of Meximieux, and six north-east of Montluel.

PEROU'R, a town of Hindoostan, in the circar of Gooty: twenty-four miles south-south-west of Anantpour.

PEROU'SA (La), a town of Italy, in the department of the Po, on the river Cluson. It gave name to one of the four valleys of Piedmont: six miles north of Pinerolo, twenty-four east of Briançon.

PEROU'SE, or PEYROUSE (J. F. G. de la), an eminent but unfortunate navigator, was born of a gentleman's family at Toulouze in 1741. In his fifteenth year he entered into the French navy, in which he passed a life of almost constant service. Uniting the vivacity and gaiety usual to the natives of a warm climate with equanimity and solidity of character, he was generally esteemed and beloved, while his firmness and professional skill caused him to be regarded as fit for the most arduous enterprises.

fes. The triumphs of the French marine were few in his time; he however commanded in the successful attempt to destroy the English settlements in Hudson's Bay, in 1782. On that occasion he gave a signal proof of his considerate humanity; for, reflecting that the English who had fled into the woods would be exposed by the destruction of their settlements to perish through want, or by the hands of the savages, he left them a supply of provisions and arms upon his departure.

On the restoration of peace, it was resolved by the French ministry that a voyage of discovery should be undertaken to supply what had been left defective in the voyages of the illustrious Cook and his associates. Louis XVI. himself drew up the plan of the intended expedition with great intelligence; and La Perouse was the person fixed upon to conduct it. With two frigates, *la Boussole* and *l'Astrolabe*, the first under his own command, the second under that of M. de Langle, but subject to his orders, he sailed from Brest in August 1785. They touched at Madeira and Teneriffe, and in November anchored on the coast of Brazil. Thence they proceeded round Cape Horn into the South Sea, and in February 1786 cast anchor in the Bay of Conception, on the coast of Chili. At this time, so well had the means of preserving health been employed, they had not a man sick. The ships reached Easter-island in the month of April; and thence sailed, without touching at any land, to the Sandwich-islands. On June 23, they anchored on the American coast in lat. 58. 37. and landed on an island to explore the country and take observations. At this place M. Perouse had the misfortune of having two boats wrecked, with the loss of all their crews. Thence he ran down to California, and in September anchored in the bay of Monterey; whence they took their departure across the Pacific Ocean, and in January 1787 arrived in Macao-roads. In February they reached Manilla, which they quitted in April, shaping their course for the islands of Japan. Passing the coasts of Corea and Japan, they fell in with Chinese Tartary in lat. 42. 30. and ran to the northward. They anchored in a bay of the island of Saghalien; and thence proceeded up the shallow channel between that island and the continent, as far as lat. 51. 29. Returning thence, they reached the southern extremity of Saghalien in August, and passed a strait between it and Jesso (since named Perouse Strait) into the North Pacific. On September 6, they anchored in the harbour of St. Peter and St. Paul, in Kamtschatka. The ships having been refitted, they set sail, September 30, for the southward; and, crossing the line, arrived in December at the group called by Bougainville the Navigator's Islands. Anchoring in the Bay of Maoua, they met with a friendly reception from the numerous natives, and began to take in refreshments. A party of sixty-one, under the command of M. de Langle, went ashore to procure fresh water, when a most unfortunate occurrence took place. The natives, confiding in their numbers and personal strength, were resolved to make prize of the boats, and without the least provocation commenced an attack with clubs and stones, in which M. de Langle and eleven more lost their lives, the rest escaping with great difficulty. The humane forbearance, which was the principle of conduct during the whole voyage, appears to have been carried to an extreme on this occasion, and to have produced the catastrophe.

Quitting this polluted spot without any fruitless attempts at vengeance, Perouse proceeded to New Holland, and arrived at Botany Bay in January 1788, just at the time when governor Phillip with the whole English colony was leaving it for the new settlement at Port Jackson. Here terminates all that is known of the voyage of this navigator, from the journal which he transmitted to France. He had many and important objects of research remaining; but was never more heard of. There can be little doubt that both the vessels perished by shipwreck, probably with their whole crews. The interest excited by their continued absence caused the National Assembly in 1791 to decree that two ships should be sent in search

of them, and they accordingly failed under M. d'Entrecasteaux; but the effort proved fruitless, and no certain information has ever been procured of their fate. In the same year a decree passed for the publication of the accounts sent home by Perouse, at the national expense, and for the profit of his widow. Circumstances retarded the execution of this design till 1798, when the "Voyage autour du Monde, par J. F. G. de la Perouse, &c." edited by M. L. A. Milet Mureau, appeared in 3 vols. 4to. with an atlas in folio. It is an interesting work, and has been twice translated into English. The proper discoveries of Perouse are chiefly in the seas between China and Japan, and the latter and Tartary. *Voy. de Perouse*.

PEROUSE (La), Straits of, a narrow channel of the North Pacific Ocean, between the islands of Saghalien and Jesso.

PERPENAGAR'DE, a town of Hindoostan: twenty miles south of Calicut.

To PERPEND, *v. a.* [*perpendo*, Lat.] To weigh in the mind; to consider attentively.—Consider the different conceits of men, and duly *perpend* the imperfection of their discoveries. *Brown*.

Thus it remains, and the remainder thus;

Perpend.

Shakespeare's Hamlet.

PERPEND'ER, *f.* [from the Lat. *per*, by, and *pendeo*, to hang.] Any thing hanging down in a straight line. A stone fitted to the thickness of a wall; a coping-stone.

PERPEND'ICLE, *f.* [*perpendicularis*, Fr. *perpendicularum*, Lat.] Any thing hanging down by a straight line.

PERPEND'ICULAR, *adj.* [*perpendicularis*, Fr. *perpendicularis*, Lat.] Crossing any other line at right angles.—The angle of incidence is that angle, which the line, described by the incident ray, contains with the *perpendicular* to the reflecting or refracting surface at the point of incidence. *Newton's Optics*.

If in a line oblique their atoms rove,

Or in a *perpendicular* they move;

If some advance not slower in their race,

And some more swift, how could they be entangled?

Blackmore.

Cutting the horizon at right angles.—Some define the *perpendicular* altitude of the highest mountains to be four miles. *Brown's Vulg. Err.*

PERPEND'ICULAR, *f.* in geometry, a line falling directly on another line, so as to make equal angles on each side; called also a *normal* line.—From the very notion of a *perpendicular*, it follows that the perpendicularity is mutual; i. e. if a line be perpendicular to another, that other is also perpendicular to the first. *Chambers*.—A line crossing the horizon at right angles.—Though the quantity of water thus rising and falling be nearly constant as to the whole, yet it varies in the several parts of the globe; by reason that the vapours float in the atmosphere, and are not restored down again in a *perpendicular* upon the same precise tract of land. *Woodward*.—A level.—Her feet were placed upon a cube, to shew stability; and in her lap she held a *perpendicular*, or level, as the ensign of evenness and rest. *B. Jonson*.

PERPEND'ICULAR'ITY, *f.* The state of being perpendicular.—The meeting of two lines is the primary essential mode or difference of an angle; the *perpendicularity* of these lines is the difference of a right angle. *Watts's Logick*.

PERPEND'ICULARITY OF PLANTS, or the tendency which the stems of plants in general have to ascend, while their roots descend, is a curious phenomenon, first particularly noticed by M. Dodart, who laboured without much success to explain it; nor was M. de la Hire more happy in his theory on the subject. Dr. Darwin has, in our opinion, given the best explanation. He supposes that the root is most stimulated by moisture, the ascending part of the plant by air; and that each extends itself in the direction in which it meets with its requisite stimulus. This theory accounts, not only for the general direction

of

of the stem and root, but for the occasional variations observable in both.

PERPENDICULARLY, *adv.* In such a manner as to cut another line at right angles.—In the direction of a straight line up and down.—Shoot up an arrow *perpendicularly* from the earth, the arrow will return to your foot again. *More*.—All weights naturally move *perpendicularly* downward. *Ray*.

Ten masts attach'd make not the altitude
Which thou hast *perpendicularly* fallen. *Shakespeare*.

PERPEN'NA. See the article **ROME**.

PERPEN'SION, *f.* [from *pend.*] Consideration. *Not in use*.—Unto reasonable *perpensions* it hath no place in some sciences. *Brown's Vulg. Err.*

PERPEN'SUM, *f.* in botany. See **GUNNERA**.

PERPES'SION, *f.* [*perpessio*, Lat.] Suffering.—The eternity of destruction in the language of Scripture signifies a perpetual *perpessio* and duration in misery. *Pearson on the Creed*.

To **PER'PETRATE**, *v. a.* [*perpetro*, Lat.] To commit: to act. Always in an ill sense:

Hear of such a crime
As tragick poets, since the birth of time
Ne'er feign'd a thronging audience to amaze;
But true and *perpetrated* in our days. *Tate*.

It is used by Butler in a neutral sense, in compliance with his verse, but not properly:

Success, the mark no mortal wit
Or surest hand can always hit;
For whatfoe'er we *perpetrate*,
We do but row, we're steer'd by fate. *Hudibras*.

PERPETRA'TION, *f.* The act of committing a crime.—A desperate discontented assassin would, after the *perpetration*, have hounded a meer private revenge. *Wotton*.

—A woman, who lends an ear to a seducer, may be infensibly drawn into the *perpetration* of the most violent acts. *Richardson's Clarissa*.—A bad action.—The strokes of divine vengeance, or of men's own consciences, always attend injurious *perpetrations*. *King Charles*.

PERPET'UA (Cape), lies on the north-west coast of North America, in lat. 44. 6. N. lon. 235. 52. E. This is the northern extreme of the projecting land; and the southern extreme was called by Cook "Cape Gregory," in lat. 43. 30. N. lon. 235. 57. E.

PERPET'UA (Saint), was a married lady of distinguished parentage, and only in the 22d year of her age, when she was ordered into confinement, by Minutius Firmianus, the proconsul of Africa, in the fifth general persecution of the Christians, under the emperor Severus; who, having in the early part of his sovereignty been favourable to Christianity, proved, in the subsequent period of his reign, one of its most unrelenting and bitter enemies. The husband and mother of Perpetua were reputed Christians; her father was a heathen. While under confinement, every art which parental authority or affection could dictate, was essayed by the father of Perpetua, to make her abandon the Christian faith, and save the life of herself and that of the infant which she nourished at her breast: but she remained firm against every effort; and, when under the awful examination before Hillarian the procurator, who officiated as judge, displayed the most heroic fortitude, receiving with magnanimous resignation her sentence "to be devoured by wild beasts." A conduct so noble wrought upon Hillarian, who afterwards embraced those doctrines which he found no reason could refuse, or earthly power overcome. In the amphitheatre, where Perpetua was exposed to the fury of an enraged bull, she received several bruises from the animal, though none of immediate danger; and was finally dispatched by the hands of the public executioner, amidst the scoffs and exultations of the brutal spectators, A. D. 205.

St. Augustin records, that the day of Perpetua's martyrdom was commemorated in his time; but why, after

having been expunged from our calendar by the first reformers, it was again introduced, not any reason has been assigned. It stands, in our calendar, against the 7th of March.

PERPET'UAL, *adj.* [*perpetuel*, Fr. *perpetuus*, Lat.] Never ceasing; eternal with respect to futurity.—Under the same moral, and therefore under the same *perpetual*, law. *Holyday*.

Mine is a love, which must *perpetual* be,
If you can be so just as I am true. *Dryden*.

Continual; uninterrupted; perennial.—By the muscular motion and *perpetual* flux of the liquids, a great part of them is thrown out of the body. *Arbutnot*.

Within those banks, where rivers now
Stream, and *perpetual* draw their humid train. *Milton*.

A screw which acts against the teeth of a wheel, and continues its action without end; and hence called otherwise an endless screw.—A *perpetual* screw hath the motion of a wheel and the force of a screw, being both infinite. *Wilkins's Math. Magick*.

PERPET'UAL is sometimes also used for a thing that lasts, or holds, during a person's life. Thus offices, &c. held *durante vita*, are sometimes called perpetual offices. In this sense, M. Fontenelle was said to be perpetual secretary of the Royal Academy of Sciences; and the French called him absolutely, *M. le Perpetuel*.

PERPET'UAL PILLS, *Pilula perpetuae*, among physicians, are pills made of regulus of antimony; which, being swallowed and voided fifty times, will purge every time with undiminished force. *Chambers*.

PERPET'UALLY, *adv.* Constantly; continually; incessantly.—The bible and common prayer book in the vulgar tongue, being *perpetually* read in churches, have proved a kind of standard for language, especially to the common people. *Swift*.

To **PERPET'UATE**, *v. a.* [*perpetuer*, Fr. from *perpetuo*, Lat.] To make perpetual; to preserve from extinction; to eternize.—Medals, that are at present only mere curiosities, may be of use in the ordinary commerce of life, and at the same time *perpetuate* the glories of her majesty's reign. *Addison*.—To continue without cessation or intermission.—What is it, but a continued *perpetuated* voice from heaven, resounding for ever in our ears? to give men no rest in their sins, no quiet from Christ's importunity, till they awake from their lethargick sleep and arise from so mortiferous a state, and permit him to give them life. *Hammond*.

PERPETUA'TION, *f.* The act of making perpetual; incessant continuance.—Nourishing hair upon the moles of the face is the *perpetuation* of a very ancient custom. *Brown's Vulg. Err.*—Now the prophetic function consisteth in the promulgation, confirmation, and *perpetuation*, of the doctrine containing the will of God for the salvation of man. *Pearson on the Creed*.

PERPETU'ITY, *f.* [*perpetuité*, Fr. from *perpetuitas*, Lat.] Duration to all futurity.—For men to alter those laws, which God for *perpetuity* hath established, were presumption most intolerable. *Hooker*.—There can be no other assurance of the *perpetuity* of this church, but what we have from him that built it. *Pearson*.

Yet am I better

Than one that's sick o' the gout, since he had rather
Groan so in *perpetuity*, than be cur'd
By the sure physician, death. *Shakespeare's Cymbeline*.

Exemption from intermission or cessation.—A cycle or period begins again as often as it ends, and so obtains a *perpetuity*. *Holder*.—What the Gospel enjoins is a constant disposition of mind to practise all Christian virtues, as often as time and opportunity require; and not a *perpetuity* of exercise and action; it being impossible at one and the same time to discharge variety of duties. *Nelson*.—Something of which there is no end.—A morsel of pottage for a birthright;

birthright; a present repast for a *perpetuity*. *South*.—The ennobling property of the pleasure that accrues to a man from religion, is, that he that has the property may be also sure of the *perpetuity*. *South*.

The laws of God, as well as of the land,
Abhor a *perpetuity* should stand;

Eitates have wings, and hang in fortune's power. *Pope*.

PERPIGNAN, a city of France, and capital of the department of the East Pyrenees; before the revolution, the capital of Rouffillon, and the see of a bishop; situated on the Tet, about a league from the sea. The walls are of brick and stone, very high and thick, with several bastions; the citadel is upon an eminence, and commands the town. This town was founded in 1068 by Guinard earl of Rouffillon, and is said to have received its name from Bernard Perpignan, who kept an inn on the spot. The eastern and western divisions contain, each of them, 5550 inhabitants. The place has been often contested by the French and Spaniards, and under the present circumstances (April 1823) is likely to be so again. The climate is in general so mild here, that it was with no little surprise the inhabitants beheld a considerable fall of snow from Thursday the 19th till Saturday the 21st of December last, (1822), where snow had not been seen for 17 years before. Perpignan is 19 posts south-west of Montpellier, 224 south of Paris. Lat. 42. 41. N. lon. 2. 59. E.

To PERPLEX', *v. a.* [*perplexus*, Lat. from the Gr. *περιπλεωω*, to entangle, to involve.] To disturb with doubtful notions, to entangle; to make anxious; to tease with suspense or ambiguity; to distract; to embarrass; to puzzle.—Being greatly *perplexed* in his mind, he determined to go into Persia. *1 Mac. iii. 31.*—He *perplexes* the minds of the fair sex with nice speculations of philosophy, when he should engage their hearts. *Dryden*.—To make intricate; to involve; to complicate.—What was thought obscure, *perplexed*, and too hard for our weak parts, will lie open to the understanding in a fair view. *Locke*.

Their way

Lies through the *perplex'd* paths of this drear wood. *Milton*.

We both are involv'd

In the same intricate *perplex'd* distress. *Addison's Cato*.

To plague; to torment; to vex. *A sense not proper, nor used.*

Chloe's the wonder of her sex;

'Tis well her heart is tender;

How might such killing eyes *perplex*,

With virtue to defend her!

Granville.

PERPLEX', *adj.* Intricate; difficult. *Perplexed* is the word in use.—How the soul directs the spirits for the motion of the body, according to the several animal exigents, is *perplex* in the theory. *Granville's Seepsis*.

PERPLEX'EDLY, *adv.* Intricately; with involution.—He handles the question very *perplexedly*, which yet is very easily resolved upon the grounds already laid. *Bp. Bull*.

PERPLEX'EDNESS, *f.* Embarrassment; anxiety.—Be good without much noise: be provident without *perplexedness*: be merry without lightness: be bountiful without waste: live to the benefit of all, but to the service only of God. *Dr. Henshaw's Daily Thoughts, 1651.*—Intricacy; involution; difficulty.—Obscurity and *perplexedness* have been cast upon St. Paul's Epistles from without. *Locke*.

PERPLEX'ITY, *f.* Anxiety; distraction of mind.—The fear of him ever since hath put me into such *perplexity* as now you find me. *Sidney*.—*Perplexity* not suffering them to be idle, they think and do, as it were, in a phrenzy. *Hooker*.

The royal virgin, which beheld from far.

In pensive plight and sad *perplexity*,

The whole achievement of this doubtful war,

Came running fast to greet his victory.

Spenser.

Entanglement; intricacy.—Let him look for the labyrinth; for I cannot discern any, unless in the *perplexity* of his own thoughts. *Stillington*.

PERPLEX'LY, *adv.* Confusedly.—This is the sum of what past, set down so *perplexly* by the Saxon annalist. *Milton's Hist. of Eng.*

PERPOTATION, *f.* [*per* and *poto*, Lat.] The act of drinking largely.

PERPURA, a river of Brazil, which runs into the Atlantic in lat. 3. 50. S. lon. 38. 16. W.

PERQUA'IN, or PEL'HAM, a small island on the south coast of England, in Pool Harbour.

PERQUIMINS, a river of North Carolina, which runs into the Atlantic in lat. 36. 5. N. lon. 76. 32. W.

PERQUIMINS, a county of Edenton district, in North Carolina, bounded west by Chowan county, and east by Pasquotank, from which last it is separated by the river Pasquotank, a water of Albemarle Sound. It contains 6052 inhabitants, of whom 2017 are slaves.

PERQUISITE, *f.* [*perquisitus*, Lat.] Something gained by a place or office over and above the settled wages.—To an honest mind, the best *perquisites* of a place are the advantages it gives a man of doing good. *Addison*.

Tell me, perfidious, was it fit

To make my cream a *perquisite*,

And steal to mend your wages?

Widow and Cat.

In law, any thing gotten by industry, or purchased with money, different from that which descends from a father or ancestor; and so Bracton uses it, when he says, *Perquisitum facere*, lib. ii. cap. 30. and lib. iv. c. 22.

PERQUISITED, *adj.* Supplied with perquisites:

But what avails the pride of gardens rare,

However royal, or however fair,

If *perquisited* varlets frequent stand,

And each new walk must a new tax demand? *Savage*.

PERQUISITION, *f.* [*perquisitus*, Lat.] An accurate enquiry; a thorough search.—The acid is so fugitive as to escape all the filtrations and *perquisitions* of the most nice observers. *Bp. Berkeley's Siris*.

PERQUISITOR, *f.* A searcher. *Cole*.

PERRAHGUN'GE, a town of Bengal: seventeen miles north of Dinagepour.

PERRANGUN'GE, a town of Bengal: sixty-six miles north of Dacca.

PERRAULT (Claude), a physician, and an eminent architect, born at Paris in 1613, was the son of an advocate of parliament, originally from Tours. He was brought up to the medical profession, and was admitted a doctor of the faculty of Paris in 1641. He practised little, however, except among his friends and the poor, and made himself chiefly known by his architectural talents. He had studied mathematics in his medical course, and had acquired great skill as a draughtsman. When in 1666 the Academy of Sciences was founded, under the patronage of Colbert, Perrault, who was one of the first members, was appointed to select a spot for an Observatory; and he also gave a plan of the building, which was executed. When it was resolved, among the magnificences of Louis XIV. to proceed in completing the palace of the Louvre, all the eminent architects were invited to send designs for the façade, and that of Perrault was preferred. This is accounted the master-piece of French architecture; and it would alone suffice to transmit his name with honour to posterity. It was in vain that persons jealous of his reputation endeavoured to make the public believe that the real designer of this work was Le Veau: they entirely failed in their proof; and the glory of Perrault remained untarnished. When Colbert, after the king's first conquests, proposed to construct a grand triumphal arch to his honour, Perrault's design had the preference, and the edifice was commenced. It was, however, never finished; and the stones were all removed under the regency of the

duke of Orleans. In its masonry, Perrault employed the practice of the ancients, of rubbing the surfaces of the stones together with grit and water, so as to make them cohere without mortar; and he invented a machine for the purpose. Other works of this architect were the chapel at Sceaux, that of Notre Dame in the church of the Petits Peres in Paris, the water-alley at Versailles, and most of the designs of the vases in the park of that palace. By the king's command he undertook a translation of Vitruvius with notes, published in 1673, fol. All the designs for the plates of this work were drawn by himself, and were regarded as master-pieces of the kind. He afterwards published an abridgment of that author for the use of students. He likewise facilitated the study of architecture by a work entitled, "Ordonnance des cinq Especes de Colonnnes, selon la Methode des Anciens," fol. In its preface he maintains that there is no natural foundation for the architectural proportions, but that they may be infinitely varied according to taste and fancy; an opinion which has given much offence, though justified by the practice of the ancients themselves. A Collection of several Machines of his invention was published after his death in 4to. 1700.

Claude Perrault also holds a respectable place among the writers in his original profession. He employed himself assiduously in the dissection of animals; and, besides various memoirs on this subject communicated to the Academy of Sciences, he published "Memoires pour Servir à l'Histoire naturelle des Animaux," in 2 vols. fol. 1671-6, with fine plates. Du Verney assisted in the dissections and descriptions, which were from subjects in the royal menagerie. His other writings of this class are contained in his "Essais de Physique," 4 vols. 1680-88. One of these volumes relates entirely to the organ of hearing; and includes a Dissertation upon the Music of the Ancients, which is chiefly employed in proving that counterpoint was unknown to antiquity. He has manifested himself to have been perfectly master of the subject: he had read all the ancient authors who have written expressly upon it; he had examined the passages which have been thought the most favourable to it, in some authors who have only mentioned it occasionally; and had considered the marvellous effects attributed to it in others. He reasons forcibly, and the facts he alleges in support of the side he has taken are strong and well stated. He had indeed given his opinion upon the subject very freely in the notes to his excellent translation of Vitruvius in 1673; where, in his commentary of the chapter upon Harmonic Music according to the Doctrine of Aristoxenus, he declares that, "there is nothing in Aristoxenus, who was the first that wrote upon concords and discords, nor in any of the Greek authors who wrote after him, that manifests the ancients to have had the least idea of the use of concords in music of many parts." Another volume of the Essays relates to the mechanism of animals, in which he has anticipated Stahl in some of his opinions respecting the functions of the animal soul; and in other parts of them he treats on the peristaltic motion, on the senses, on nutrition, on the regeneration of lost parts, &c. on all which topics he has many good and ingenious observations, mixed with much hypothesis.

From this account of his labours in art and science, it appears that he was not a man to be rendered ridiculous and contemptible by the petulance of wit; and Boileau, who attempted it, has injured his own memory by the attack, rather than that of his foe. Claude, who was a man of a kind and gentle disposition, had expressed himself in disapprobation of the severities of the satirist; on which account Boileau, in his Art of Poetry, brought him forward under the fiction of a doctor of Florence, who, from a bad physician, became an able architect. Perrault's complaint of this outrage only produced a more flagrant insult from the poet, in an epigram in which he pretended not to have had him in his view, because, though an ignorant physician, he was not a skilful architect. But this double injustice was too gross for the

public feeling; and Boileau afterwards thought fit to retract part of his censure. Claude died in Paris in 1688, aged 75. His death is said to have been in consequence of dissecting a camel which had died of disease. His portrait was placed in the hall of the faculty of medicine, with an honourable inscription.

Claude had three brothers.—*Peter*, the eldest, receiver-general of the finances of the generality of Paris, wrote a Treatise on Fountains, and a translation of the *Secchia rapita* of Tassoni. Some of his papers are contained in the "Oeuvres Physiques de Claude et de Pierre Perrault," Leyd. 1721.

Nicholas, the second brother, was a doctor of the Sorbonne, and published "Theologie Morale des Jesuites," 4to. 1677. The youngest is the subject of the following article.

PERRAULT (Charles), younger brother of the preceding, and also a distinguished literary character, was born at Paris in 1633. He was placed at an early age in the college of Beauvais, where he soon attracted notice by his facility in making verses. He was still more addicted to scholastic disputation; but a quarrel with his master, which obliged him to quit the college, interrupted the ordinary course of his studies. He however by no means deserted literary pursuits; but, associating himself with a friend of the same age, they read good authors together, and discussed their merits; and this second education was, in his opinion, more useful to him than the first. They also indulged themselves in burlesque, which was then much in vogue; and they joined in a travesty of the 6th book of the *Eneid*, which juvenile task might, perhaps, produce a more permanent effect upon the taste of Perrault than he was aware of. He was brought up to the profession of the law; and, having been admitted an advocate, began to plead causes. He was, however, taken from this career by the minister Colbert, who chose him for secretary to a small society of men of letters which assembled twice a-week at his house. Their business was to plan devices for medals, and other memorials, at the king's requisition, and commemorative of the glories of his reign; and this was the germ of the celebrated Academy of Inscriptions and Belles-Lettres. Charles Perrault had a singular talent for inventions of this kind, and those which he proposed commonly obtained the preference. His influence with the minister was constantly employed in the service of science and literature. He procured, for the French Academy, apartments in the Louvre; and, with his brother Claude, shared in the establishment of the Academy of Sciences. When Colbert caused a sum to be set apart in the treasury, for pensioning, in the king's name, the most eminent men of letters, as well in foreign countries as in France, its distribution was principally confided to Perrault. This was an office likely to give him much consequence among the literati, and also to procure him much envy and ill-will. He seems to have executed his trust very honourably; yet the list of pensions granted in France was far from being a scale of relative merit.

The esteem of Colbert for Perrault was substantially proved by appointing him controller-general of the royal buildings, of which he was himself superintendent. In this post he conducted himself with equal disinterestedness and intelligence; and he was of great use to his patron, by suggesting to him, in conversation, much information on points which he had no time to study, and which he could afterwards display to advantage before the king, who was equally uninstructed with himself. During his possession of this office, he obtained the establishment of the Academies of Painting and Sculpture. The French Academy manifested its gratitude for his services, by admitting him as a member in 1671; and his discourse at reception gave so much satisfaction to that body, that it thenceforth became a custom to print admission-harangues.

His connexion with Colbert was at length interrupted

by some mortifications to which the minister exposed him; possibly because he could not condescend to servility. Perrault retired, and resisted the advances soon after made for recalling him. He withdrew to a house in one of the suburbs of Paris, in the neighbourhood of the colleges, which he chose for the purpose of superintending the education of his two sons. Here he passed his time in literary leisure, and the enjoyment of domestic happiness. He exercised himself in writing; and composed several poems, which are said to be remarkable for the exactness of their descriptions. One of these, entitled, "Le Siècle de Louis XIV." published in 1687, made the commencement of a controversy, which is one of the most remarkable circumstances of his life, and for a time divided all his wits in France. In enumerating the glories of the reign, he had enhanced them by a depreciation of the ancients in every point of comparison; and, as this was regarded by the votaries of antiquity in the light of a profanation, he supported his opinion by an elaborate prose work, entitled, "Parallele des Anciens et des Modernes," 4 vols. 12mo. Among other antagonists, he had to encounter the formidable satirist Boileau, who attacked him not only with all the powers of argument of which he was master, but with ridicule and invective. He, indeed, treated Perrault as a personal enemy; and, as he was of a much less forgiving temper than his adversary, he seems never, even after an apparent reconciliation, to have regarded him without a degree of malignity. The breach had been widened by a poem of Perrault's called "Apologie des Femmes," intended as a kind of reply to Boileau's virulent satire on the sex. He next occupied himself in drawing up his "Eloge Historique d'une Partie des Grands Hommes qui ont paru dans le xvii Siècle." Of this work he published two vols. folio, 1697, 1700, with the portraits of the subjects of his eulogy. The style of the work is simple and pleasing, and a tone of moderation reigns through the whole. Among the illustrious persons commemorated, he had not omitted Arnauld and Pascal; but the odious intrigues of the Jesuits excluded them from the collection, till after the death of Louis XIV. This estimable writer, who invariably maintained the character of a man of worth, died in 1703, at the age of 70. His poetry is less valued than his prose, which last is a model of elegant simplicity. Sixty years after his death appeared his "Memoirs," written by himself, valuable for their character of frankness, and curious for the anecdotes they contain. *D'Alembert Eloges Academ.*

PER'RE, in ancient geography, a town of Asia, in Comagene, situated at the confluence of two small rivers, which discharged themselves into the Euphrates south of this town.

PER'REL, a small island in the Gulf of Tonquin, near the coast. Lat. 20. 59. N. lon. 106. 58. E.

PER'RECY, a town of France, in the department of the Saone and Loire: ten miles north-north-west of Charolles, and sixteen east of Bourbon Lancy.

PER'RENOT (Antony), usually known by the name of *Cardinal Granvelle*, a distinguished statesman, was the son of Nicholas Perrenot, lord of Granvelle, chancellor to the emperor Charles V. He was born in 1517 at Besançon; and, after studying in the universities of Louvain and Padua with great reputation, entered into holy orders. He was brought to court by his father, and was employed by Charles V. in various embassies, in which he acquitted himself so well, that he was made bishop of Arras at the age of twenty-five; and, upon the resignation of Charles, was recommended so strongly by that sovereign to his son Philip II. that he became his most confidential minister. From the see of Arras he was translated to the archbishoprick of Mechlin, and in 1561 was created a cardinal by Pius IV. Cardinal Granvelle possessed great talents for business; and is said to have occupied five secretaries at once, dictating to them in differ-

ent languages, of which he thoroughly possessed seven. He was a master of crafty politics; and in the reign of Charles endeavoured to lull the Protestants into a state of security, with respect to the preparations that were making against them. When Margaret of Austria was placed by Philip at the head of the government in the Low Countries, Granvelle was her principal counsellor, and in reality exercised the whole authority. His character is by Grotius represented as a compound of industry, vigilance, ambition, luxury, and avarice; and as equally surpassing the common measure both in good and bad qualities. A zealous servant to the crown, his sole principle of government was the extension of the royal prerogative, whilst at the same time he was animated with professional hatred against the Protestants. He at length grew so odious to the nobles and people, that in 1566 public complaints against him were transmitted to Philip, who thought it prudent to recall him. His conduct, however, by no means lost him his master's favour and confidence. After having retired for some time to Besançon, of which city he was made archbishop, Philip again employed him in public affairs. He was sent to Rome at the election of Pius V. and was commissioned to negotiate a league against the Turks. After having resided some time at Naples in quality of viceroy, the king called him into Spain, and left him in charge of the affairs of that kingdom while he went to take possession of the crown of Portugal. He was finally nominated ambassador to conclude the marriage of the infanta Catharine with the duke of Savoy. The fatigue of this journey threw him into an illness on his return, which carried him off at Madrid in 1586, in the 70th year of his age. *Robertson's Charles V.*

PERREPTATION, *f.* [from the Lat. *per*, through, and *repto*, to creep.] The act of creeping through. *Colo.*

PERREUX, a town of France, in the department of the Rhone and Loire: three miles east of Roanne, and seven south of Charlieu.

PERRHÆ, in ancient geography, one of the twelve principal towns of Etruria.

PERRHÆBI, a people who inhabited the eastern part of Thessaly, in the vicinity of the sea and of the mouth of the river Peneus, according to Strabo, lib. ix. In the wars between these people and the Lapithæ, Ixion and his son Pirithous took possession of their country; many of them retired into Epirus, and the rest withdrew into the interior of the country near the river Peneus, and the environs of mount Olympus and the river Titaresse, where they were blended with the Lapithæ. Simonides calls them "Pelagiotes." The migration of the Perrhæbi into Epirus took place about thirty years before the last war of Troy.

PERRIER, *f.* [from *pierre*, Fr. a stone.] A kind of great gun for shooting stones.

PERRIER (Charles), a French writer, called by Menage "the prince of lyric poets," was born at Aix, and died 1692.

PERRIERS, a town of France, and seat of a tribunal, in the department of the Channel: eight miles north of Coutances, and nine south-west of Carentan.

PERRIN (Charles-Joseph), a French Jesuit, and an admired preacher, was born at Paris in the year 1690. He exercised his pulpit-talents with great success and applause in several of the principal cities in the kingdom, and particularly in the metropolis. Upon the disgrace of his society in France, the archbishop of Paris, who was favourable to the order, gave him a temporary asylum in his palace. His deportment as an ecclesiastic was regular and edifying, and his manners agreeable and conciliating; but, having rendered himself peculiarly obnoxious by the ardour of his zeal on behalf of his society, the ruin of which was irrevocably determined, he was under the necessity of retiring to Liege. In this city he died in 1767, when about 77 years of age. He published a Latin poem

on the Death of Louis XIV. and from his manuscripts were printed, at Liege, in 1768, 4 vols. of Sermons, 12mo. *Gen. Biog.*

PERRITIO, a river of Naples, which runs into the Crate in the province of Calabria Citra.

PER'RON, *f.* in architecture, a staircase lying open, or withoutside the building: properly, the steps before the front of the building, which lead into the first story when raised a little above the level of the ground.

PER'RON (James Davy du), a learned and celebrated cardinal, was descended from two ancient and noble families of Lower Normandy, which, on account of their adherence to the Protestant faith, had found it necessary to seek an asylum in Switzerland, and settled in the canton of Berne, where the subject of this article was born in the year 1556. Till he was ten years of age, his father, who possessed considerable learning and abilities, undertook the office of his tutor, and initiated him in the mathematics and the Latin language. At this period of his life his parents returned with their family into Normandy; but were for some years afterwards driven from place to place by persecution and the civil wars, till the Protestants obtained peace from Charles IX. During this time young Du Perron applied diligently to his studies, and with such success, that he taught himself the Greek language, and philosophy, commencing the science last mentioned with the logic of Aristotle. He then employed himself in studying the orators and poets; and afterwards cultivated an acquaintance with the Hebrew language, and became such a proficient in it, that he could read it with facility without the points, and was able to deliver lectures upon it before the Protestant ministers. In the year 1576, M. de Lancosme carried him to the court of Henry III. which was then at Blois, where the states were assembled, and introduced him to the king, as a young man of extraordinary abilities and acquirements. Here he afforded evidence of his talents and learning in public lectures upon the mathematics and philosophy; and obtained such celebrity as a disputant, that he was soon left without an opponent who would venture to enter the lists with him. Upon the breaking-up of the states he went to Paris, where he mounted the rostrum in the great hall of the Augustines, in the habit of a cavalier, and held public conferences upon the sciences.

He now seems to have entertained a disposition towards a change in his religious sentiments. This was strengthened by his perusal of the "Summa" of Aquinas, and by the intimate friendship which he cultivated with Philip Desportes, abbot of Tiron, who made him his substitute in the office of reader to the king, Henry III. From the perusal of Aquinas's Summa, M. du Perron was led to the study of the fathers, particularly of the works of St. Augustine; and at length he determined to embrace the Catholic creed. Having taken this resolution, he entered himself minutely into all the controverted points at issue between the two communions, and then formally made his abjuration. No sooner had he thus become a convert to the Catholic church, than, with a zeal not unusual in new proselytes, he laboured assiduously for the conversion of others; and this even before he had embraced the ecclesiastical profession, in a conference with the chaplain of the English ambassador, and on several other occasions.

In the year 1586, he was selected to pronounce the funeral oration for the celebrated poet Ronsard; and in the following year, the king appointed him to pay a similar tribute of respect to the memory of Mary queen of Scots. Afterwards he wrote, by his majesty's command, "A Comparison of moral and theological Virtues;" and two "Discourses," one concerning the soul, and the other upon self-knowledge, which he pronounced before that prince. He was in attendance upon the king when his majesty afterwards assembled the states of the kingdom at Blois; and after the murder of Henry III. he went to reside with cardinal Bourbon.

He now laboured more assiduously than ever in making converts from the reformed, and is said to have been the means of restoring great numbers of them to the Catholic fold. Among others, he converted Henry Sponde, afterwards bishop of Pamiez, as that prelate acknowledged, in a dedicatory letter prefixed to his Abridgment of Baronius's Annals. His Catholic biographers also claim for him the honour of having had a principal share in the conversion of king Henry IV. It is certain that, when the king had come to a determination to avow himself a Catholic, and expressed his willingness to receive instruction on the subject of religion, M. du Perron waited on him while he was engaged in the siege of Rouen, and followed him to Mante, where he maintained a famous dispute with four Protestant divines. Afterwards, when the king was resolved to hold a conference about religion with the principal prelates of the kingdom, he sent for du Perron to assist in it; and, as he was then only a layman, the king nominated him to the vacant see of Evreux, that he might be qualified to take his place among them. This conference was held at St. Dennis, and was followed by the king's abjuration of the Protestant faith.

After this sacrifice of his religion to views of state policy, Henry sent M. du Perron, together with M. d'Osat, to Rome, for the purpose of negotiating his reconciliation with that see; in which object they succeeded, when pope Clement VIII. found that the king was firmly fixed upon his throne, and might be tempted to follow the example of Henry VIII. of England, were his holiness to prove much longer implacable. While M. du Perron continued at Rome, in the year 1595, he was consecrated bishop of Evreux. After his return to France, he laboured ineffectually to convert some of the leading Protestants to the Romish faith, and frequently preached and wrote upon the points in controversy between them and the Catholics. Having read M. du Plessis-Mornay's treatise "On the Eucharist," he pretended that he had discovered in it more than five hundred errors and false quotations; which proved the occasion of a conference between our prelate and that gentleman at Fontainebleau, in the presence of the king, when the honours of victory were rewarded to each of the opponents by their respective parties. Afterwards the king made M. du Perron grand almoner of France, and in 1604 translated him from the see of Evreux to the archbishopric of Sens. In the same year, in consequence of a letter written by the king to pope Clement VIII. that pontiff conferred on the archbishop the dignity of Cardinal, with singular marks of esteem. The indisposition of Clement soon afterwards having determined the king to send the French cardinals to Rome, that they might be on the spot when the next conclave should be assembled, cardinal du Perron on his arrival was immediately employed by the pope in the most important councils and congregations. He supported the elections of Leo XI. and Paul V. and assisted at the congregation *de auxiliis*; and it was said to be chiefly owing to his advice, that the pope last mentioned dismissed the controversy between the Jesuits and Dominicans concerning *grace*, in such a manner as we have seen under his article, at p. 411 of this volume. Upon his return to France, at the request of the king, he wrote a Reply to King James of England's Letter concerning Differences in Religion, which that prince sent to Henry; and he was also employed by his majesty in various other affairs. Some time afterwards he was sent a third time to Rome, together with the cardinal de Joyeuse, for the purpose of bringing the differences between Paul V. and the republic of Venice to an amicable termination; and their endeavours were not ineffectual. Such weight had his advice with that pontiff, that he once said to those about him, "We ought to pray to God that he would inspire cardinal du Perron, for he will persuade us to do whatever he pleases."

It was the king's wish that the cardinal-archbishop should

should reside for some time at Rome, superintending the interests of France at the papal court; but the ill state of his health rendered it necessary for him to be recalled home. After the execrable murder of Henry IV. he devoted himself entirely to the interests of the court of Rome; and, by his subserviency to its policy, excited the indignation and hatred of the friends to the independence and liberties of the Gallican church. He rendered useless the arret of the parliament of Paris against Bellarmin's book, and the high notions of papal power maintained in it. He supported the notion of the infallibility of the pope, and his superiority over a general council, in a thesis which he held in 1611 before the pope's nuncio. He convened an assembly of his suffragans at Paris, in which he assumed an inquisitorial authority, and passed a sentence of condemnation on Edmund Richer's celebrated treatise "concerning ecclesiastical and political Power." At the meeting of the states-general in 1614, he opposed, under the pretence of its comprehending points of faith with which a secular body had no business to interfere, a motion introduced by the third estate, purporting, "that the assassinations of Henry III. and IV. called upon all good Frenchmen to condemn the doctrine which permitted the murder of tyrants, and gave the pope power to depose kings, and to absolve subjects from their oaths of allegiance." He was one of the presidents of the assembly of the clergy held at Rouen in 1615; and pronounced discourses before the king at the commencement and close of their sessions, which were much applauded. From this time he lived chiefly in retirement at Bagnolet, employed in putting the last hand to his works, which were printed in a press set up in his own house, that he might be satisfied of their correctness, by carefully revising every sheet before it was worked off. He died at Paris in 1618, in the sixty-third year of his age.

Du Perron possessed a lively penetrating genius, and a prodigious memory; had studied much, and was well versed in antiquity, sacred and profane; and he well knew how to avail himself of his acquaintance with the fathers, the councils, and the ecclesiastical historians, in refuting or puzzling his adversaries. He delivered his sentiments with ease and force, and wrote purely and eloquently. From his obsequiousness, however, to the lordly pretensions of the court of Rome, he has not been unjustly characterised by some of his Catholic critics as a bad Frenchman, a political priest, and an ambitious prelate. His works, which were printed separately in his life-time, were collected together after his death, and published in 3 vols. folio, in 1622 and 1623. In the year last mentioned, his secretary, Cæsar de Ligni, added to them a fourth volume, comprising his embassies and negotiations. Some years after his death, a volume was published under the title of "Perroniana," consisting of thoughts, maxims, observations, &c. relating to literature, history, &c. arranged in alphabetical order; which was composed by Christopher de Puy, prior of the Carthusian monastery at Rome; and has been repeatedly printed in a 12mo. volume. Some parts of this collection are useful in illustrating the literary and ecclesiastical history of the age in which Perron lived; but it also contains many puerile, imprudent, and absurd, remarks, which it is generally supposed he never uttered, and many of which were proved by M. Chevreau to have been the interpolations of his friends. Some of his assertions, as that Luther denied the immortality of the soul, and that every English peasant drinks from a silver goblet, are evidently false. Nor can much reliance be placed on the judgment or taste of an author, who has elsewhere declared, that a page of Quintus Curtius is worth thirty of Tacitus; and that, next to Quintus Curtius, Florus is the greatest Roman historian. The *Thuana*, or observations of the president De Thou, have usually been published along with the Perroniana. *Dupin. Moreri. Ency. Brit. Suppl. art. ANA.*

PERRON (Abraham Hyacinth Anquetil du), a very eminent literary character, was born at Paris, on the 7th of December, 1731. Having distinguished himself as a student at the university of that city, and acquired a considerable knowledge of the Hebrew language, he was invited to Auxerre by M. de Caylus, then the bishop of that diocese. This prelate made him study theology, first at the academy of his diocese, afterwards at that of Amersfort, near Utrecht; but Anquetil had no desire to embrace the ecclesiastical vocation, and devoted himself with ardour to the study of the different dialects of the Hebrew, and of the Arabic and Persian. Neither the solicitations of M. de Caylus, nor the hopes of rapid preferment, had the power to detain him at Amersfort, after he thought he had acquired every thing that was to be learnt there. He returned to Paris, where his diligent attendance at the Royal Library, and his ardour in the prosecution of his favourite studies, attracted the attention of the Abbé Sallier, keeper of the manuscripts, who introduced him to the acquaintance of his associates and friends, whose united exertions procured for him a small salary, as student of the oriental languages. He had scarcely received this appointment, when, having accidentally laid his hands on some manuscripts in the *Zend*, he formed the project of a voyage to India, with the view of discovering the works of Zoroaster. At this period, an expedition was preparing at Port l'Orient, which was destined for India. M. du Perron, however, applied in vain, through his protectors, for a passage; and, seeing no other means of accomplishing his plan, he enlisted as a common soldier, and set out from Paris, with a knapsack on his back, on the 7th of November, 1754. His friends procured his discharge; and the minister, affected by this romantic zeal for science, granted him a free passage, a seat at the captain's table, and a salary, the amount of which was to be fixed by the governor of the French settlements in India. After a passage of nine months, Anquetil landed, on the 10th of August, 1755, at Pondicherry. Here he remained no longer than was necessary to make himself master of the modern Persian; and then hastened to Chandernagore, where he thought to acquire the Sanscrit. But in this he was deceived; and he was on the point of returning, when a serious complaint threatened his life. He had scarcely escaped from this danger, when war was declared between France and England; Chandanagore was taken, and Anquetil resolved to return to Pondicherry by land. After a journey of a hundred days, in the course of which he encountered many adventures and suffered many hardships, he arrived at Pondicherry. Here he found one of his brothers who had arrived from France, and embarked with him for Surat; but, with the view of exploring the country, he landed at Mahè, and proceeded on foot. It was at Surat that he succeeded, by perseverance and address in his intercourse with the native priests, in acquiring a sufficient knowledge of the languages to enable him to translate the Dictionary called the *Vedidad-Sade*, and some other works. From thence he proposed going to Benares, to study the languages, antiquities, and sacred laws, of the Hindoos; but the capture of Pondicherry obliged him to return to France. He accordingly embarked on-board an English vessel, and landed at Portsmouth in the month of November, 1761. After spending some time in London, and visiting Oxford, he set out for Paris, where he arrived on the 4th of May, 1762, without fortune, or the desire of acquiring any; but esteeming himself rich in the possession of a hundred and eighty oriental manuscripts, besides other curiosities. The Abbé Barthelemy, and his other friends, procured for him a pension, with the title and emoluments of Interpreter for the Oriental Languages at the royal library. In 1763, the Academy of the Belles Lettres received him among the number of its associates; and from that period he devoted himself to the arrangement and publication of the materials he had collected during his eastern travels.

In 1771, he published a work in three volumes 4to. under the title of *Zend-Avesta*, containing collections from the sacred writings of the Persians, among which are fragments of works ascribed to Zoroaster; and he accompanied this work with an account of the life of that sage. This publication must be considered as constituting a very important accession to our stores of oriental literature. A recent historian, and very competent judge, refers to the *Zend-Avesta*, as certainly the most authentic source from which we can derive information regarding the religion and institutions of the great Persian legislator. (Sir John Malcolm's *Hist. of Persia*, vol. i. p. 193.) To the *Zend-Avesta* M. du Perron prefixed a Discourse, in which he treated the university of Oxford, and some of its learned members, with ridicule and disrespect. Mr. (afterwards Sir William) Jones replied to these invectives in an anonymous letter, addressed to the author, written in French, with uncommon force and correctness of style, but, at the same time, with a degree of asperity which could only be justified by the petulance of M. du Perron. In 1778, he published his *Legislation Orientale*, in 4to. a work in which he controverts the system of Montesquieu, and endeavours to prove, that the nature of oriental despotism has been misrepresented by most authors; that in the empires of Turkey, Persia, and Hindoostan, there are codes of written law, which equally bind the prince and subject; and that, in these three empires, the inhabitants possess both moveable and immoveable property, which they enjoy with perfect security. His *Recherches Historiques et Geographiques sur l'Inde*, appeared in 1786, and formed part of Thieffenthaler's Geography of India. They were followed, in 1789, by his treatise *De la Dignité du Commerce et de l'Etat du Commerçant*.

The Revolution seems to have greatly affected him. During that period, he abandoned society, shut himself up in his study, and devoted himself entirely to literary seclusion. In 1798, he published *L'Inde en Rapport avec l'Europe*, &c. in 2 vols. 8vo. a work which is more remarkable for its virulent invectives against the English, and for its numerous misrepresentations, than for the information which it contains, or the soundness of the reflections which it conveys. The spirit of the work, indeed, may be ascertained from the summary of its contents, stated in the title-page, in which the author professes to give a detailed, accurate, and terrific, picture of English Machiavelism in India; and he addresses his work, in a ranting bombastic dedication, "to the Manes of Dupleix and Labourdonnais." In 1804, he published a Latin translation from the Persian of the *Oupnek'hat*, or *Upanishada*; i. e. "Secrets which must not be revealed," in 2 vols. 4to. On the re-organization of the Institute, M. Anquetil was elected a member, but soon afterwards gave in his resignation. He died at Paris on the 17th of January, 1805.

Besides the works which we have already enumerated, M. Anquetil read to the Academy several memoirs on subjects connected with the history and antiquities of the East. At the time of his death, he was engaged in revising a translation of the Travels of Father Paulin de St. Barthelemy in India; which work was continued by M. Silvestre de Sacy, and published in 1808, in 3 vols. 8vo. He also left behind him a great number of manuscripts, among which, his biographers particularly notice the translation of a Latin treatise On the Church, by Doctor Legros, in 4 vols. 4to.

From the preceding narrative, our readers will be enabled to form some notion of the character of Anquetil du Perron. Among his countrymen, he is regarded as one of the most learned men of the eighteenth century. He certainly distinguished himself by a very ardent and disinterested zeal in the prosecution of those studies to which he dedicated the labours of a long life; but the lustre of his literary character was obscured by a very absurd vanity, and the most inveterate prejudices. In a Discourse addressed to the Asiatic Society at Calcutta, in

Vol. XIX. No. 1332.

1789, Sir William Jones speaks of him, as "having had the merit of undertaking a voyage to India, in his earliest youth, with no other view than to recover the writings of Zeratust (Zoroaster); and who would have acquired a brilliant reputation in France, if he had not sullied it by his immoderate vanity and virulence of temper, which alienated the good-will of his own countrymen." In the same Discourse, he affirms, that M. Anquetil most certainly had no knowledge of the Sanscrit. See Lord Teignmouth's *Life of Sir William Jones*, p. 101-110. *Gent. Mag.* 1762 and 1805. *Ency. Brit. Suppl.*

PERRONE, a town of Hindoostan, in Oude: seventeen miles south of Fyzabad.

PERRONET (John Rodolphus), director of the bridges and roads of France, was born in 1708. He was brought up to the profession of architecture in the city of Paris, and made great progress in the art. In 1745 he became inspector of the school of engineers, of which he was afterwards a director. France is indebted to him for several of its finest bridges and its best roads, the canal of Burgundy, and other great works. He was, for his public services, honoured with the order of St. Michael, and admitted a member of the Academy of Sciences at Paris, of the Royal Society of London, and of the Academy of Stockholm. He died at Paris in 1794. He wrote a description of the bridges which he had constructed, in 2 vols. 12mo. and *Memoirs on the Method of constructing Grand Arches of Stone from 200 to 500 Feet span*.

PERROQUET, or PARRAQUET. See PSITTACUS.

PERROT (Sir John), an eminent statesman, was born of an ancient family in Pembrokeshire, about the year 1527. He was bred up in the house of the marquis of Winchester, that he might profit by the discourses and example of that great man. He was one of the knights of the Bath at the coronation of Edward VI. who had a great partiality for him. At the beginning of the reign of Mary he was sent to prison for harbouring Protestants. He assisted at the coronation of Elizabeth, who sent him, in 1572, to Ireland, as lord president of Munster, which was in a state of rebellion, but by his promptitude was quickly reduced to obedience. He was next appointed admiral of a fleet on the coast of Ireland, which was threatened to be invaded by the Spaniards. In 1583 he was made lord deputy of Ireland, where he carried things with so high a hand as to give very great offence; and he was recalled in 1588, and sent to the Tower. In 1592 he was tried by a special commission, brought in guilty of high treason, and sentenced to die. He was, however, respited by favour of the queen, but died in confinement the same year. *Biog. Brit.*

PERROT D'ABLANCOURT (Nicholas), a distinguished French writer, descended from a considerable family in the law, was born in 1606, at Chalons sur Marne. His father, who was a convert to Protestantism, sent him for education to the college of that religion at Sedan. He afterwards studied philosophy at home under a private tutor; and then went to Paris, where, at the age of eighteen, he was admitted an advocate. Through the persuasion of an uncle, who was a counsellor in parliament, he solemnly abjured Calvinism at the age of twenty, but he refused to enter into the ecclesiastical state. He had passed five or six years in the dissipation common to youth, when serious thoughts respecting the religion in which he had been bred occupied his mind, and he studied controversial points with a Lutheran divine for three years: the conclusion was, that he renounced his new faith, and, retiring to Holland and England, again declared himself a Protestant. After a time, he returned to Paris, where he frequented the polite and literary world, and was generally well received. His acquisitions were, indeed, extraordinary. He was well versed both in the sciences and belles lettres, understood the ancient and several modern languages, and displayed quick parts and a penetrating judgment. He was keen in debate, but mild and easy in the com-

8 B

merce

merce of life. The French Academy admitted him among its members in 1637. He had set himself to work on a translation of Tacitus, when he was obliged to go to his province to take care of his small property. Retiring with his sister to his estate of Ablancourt, he passed the rest of his life upon it, only occasionally spending the winter at Paris, for the purpose of printing his works. When, in 1662, Colbert made a kind of muster of the men of letters in France, for the purpose of selecting those who in their several kinds were best qualified to labour for the *glory of the king*, (the leading object of that reign,) d'Ablancourt, who had now made himself known by numerous writings, was fixed upon for historiographer to his majesty, with a pension of 1000 crowns. But the king, when informed that he was a protestant, declared that he would have no historian who was not of his own religion; and the appointment was superseded: the pension, however, was continued to him as a man of learning; but he probably received little of it, since he is said to have died poor. After severe sufferings from the stone and gravel, which he bore with patience, he sunk under them in October 1664, in his 59th year.

It is chiefly as a translator that d'Ablancourt has obtained a name among polite writers, and his industry in this office was remarkable. He published versions of Minutius Felix, four of Cicero's Orations, Tacitus, Lucian, Xenophon's Anabasis, Arrian's Hist. of Alexander, Cæsar's Commentaries, Thucydides with Xenophon's Continuation, the Apophthegms of the Ancients, Frontinus on Stratagems, and Marmol's Description of Africa. In all these he was very careful as to style, and readily attended to the suggestions of his friends for its improvement; whence he was reckoned one of the best French writers of the age. With respect to the mode of translating, he adopted the splendid but hazardous principle of writing like an original author, with all the freedom and boldness of expression that would have been expected on such a supposition. This occasionally led him to great deviations from the sense of his originals, so that his versions acquired the title of *les belles infidèles*. On this account, as well as the alteration of language since the period in which he wrote, they are much fallen in estimation. D'Ablancourt had studied history at Leyden, and the Bible was one of the books on which he bestowed the closest attention. He read it with all the commentators, and was well acquainted with all its difficulties. With several other eminent men, he thought the natural arguments for the immortality of the soul were defective, and relied only on the faith inspired by revelation: on this subject he wrote a Discourse to his friend Patru, which is published in the works of the latter. *Bayle. Moreri.*

PER'ROT ISLAND, a small island in the river St. Laurence. Lat. 45. 24. N. lon. 73. 36. W.

PER'ROS GUERIC, a town of France, in the department of the North Coasts; four miles north of Lannion, and seven north of Treguier.

PER'RUKE, vulgarly PERIWIG, *f.* [*perruque*, Fr.] A wig. But the word was anciently used for a long head of natural hair, such, particularly, as there was care taken in the adjusting and trimming of. Menage derives the word, by a long detour, from the Latin *pilus*, hair. The several stages of its passage, according to the critic, are *pilus*, *pelus*, *pelutus*, *peluticus*, *pelutica*, *perutica*, *peruca*, *peruque*. The Latins called it *coma*; whence part of Gaul took the denomination of *Gallia Comata*, from the long hair which the natives wore as a sign of freedom.

PERRUKE is now used for a set of false or borrowed hair, curled, buckled, woven on strong thread, and sewed together on a frame, or cawl; anciently called *capillamentum*, or false perruque.

It is doubted, whether or not the use of perrukes was known among the ancients. It is true, they used false hair. Martial and Juvenal are merry with the women of their time, for making themselves look young with their borrowed hair; with the men, who changed their colours

according to the seasons; and with dotards, who hoped to deceive the Deities by their white hair.

But these seem to have scarcely had any thing in common with our perrukes; and were, at best, only composed of hair painted, and glued together. Nothing can be more ridiculous than the description Lampridius gives of the emperor Commodus's perruque; it was powdered with scrapings of gold, and oiled (if we may use the expression) with glutinous perfumes for the powder to hang by. In effect, the use of perrukes, at least in their present mode, is not more than two hundred years old: the year 1629 is reckoned the epocha of long perrukes; at which time they began to appear in Paris; whence they spread, by degrees, throughout the rest of Europe. At first it was reputed a scandal for young people to wear them, because the loss of their hair at that age was attributed to a disease, the very name of which is a reproach: but at length the mode prevailed over the scruple, and persons of all ages and conditions have worn them; foregoing, without any necessity, the conveniences of their natural hair. However, it was some time before ecclesiastics came into the fashion: the first who assumed the perruque were some of the French clergy, in the year 1660. Cardinal Grimaldi, in 1684, and the bishop of Lavaur, in 1688, prohibited the use of the perruque to all priests, without a dispensation, or necessity. M. Thiers has a treatise express, to prove the perruque indecent in an ecclesiastic, and directly contrary to the decrees and canons of councils. A priest's head embellished with an artificial hair curiously adjusted, he esteems a monster in the church; nor can he conceive any thing so scandalous as an abbot with a florid countenance, heightened with a well-curled perruque. See the article HAIR, vol. ix.

PER'RY, *f.* [*poiré*, Fr. from *poire*.] A drink made from pears, as cider from apples. See CIDER, vol. iv. — *Perry* is the next liquor in esteem after cyder; in the ordering of which, let not your pears be over ripe before you grind them; and, with some sorts of pears, the mixing of a few crabs in the grinding is of great advantage, making *perry* equal to the redstreak cyder. *Mortimer.*

The best pears for perry, or at least the sorts which have been hitherto deemed the fittest for making this liquor, are so excessively tart and harsh, that no one can think of eating them as fruit; for even hungry swine will not eat them; nay, hardly so much as smell to them. Of these the Bosbury pear, the Barelard pear, and the horse pear, are the most esteemed for perry in Worcestershire, and the squash pear, as it is called, in Gloucestershire; in both which counties, as well as in some of the adjacent parts, they are planted in the hedge-rows and most common fields. There is this advantage attending pear-trees, that they will thrive on land where apples will not so much as live; and that some of them grow to such a size, that a single pear-tree, particularly of the Bosbury and the squash kind, has frequently been known to yield, in one season, from one to four hogheads of perry. The Bosbury-pear is thought to yield the most lasting and most vinous liquor. The John-pear, the Harpary-pear, the Drake-pear, the Mary-pear, the Lullum-pear, and several others of the hardest kinds, are esteemed the best for perry; but the redder or more tawny they are, the more they are preferred. Pears, as well as apples, should be full ripe before they are ground.

Dr. Beale, in his general advertisements concerning cider, subjoined to Mr. Evelyn's Pomona, disapproves of Palladius's saying, that perry will keep during the winter, but that it turns sour as soon as the weather begins to be warm; and gives as his reasons for being of a contrary opinion, that he had himself tasted, at the end of summer, a very brisk, lively, and vinous, liquor, made of horse-pears; that he had often tried the juice of the Bosbury-pear, and found it both pleasanter and richer the second year, and still more so the third, though kept only in common hogheads, and in but indifferent cellars, without being bottled; and that a very honest, worthy,

and

and ingenious, gentleman in his neighbourhood, assured him, as of his own experience, that it will keep a great while, and grow much the stronger for keeping, if put into a good cellar and managed with due care. He imputes Palladius's error to his possibly speaking of common eatable pears, and to the perry's having been made in a very hot country: but he would have ascribed it to a more real cause, perhaps, had he pointed out the want of a thorough regular fermentation, to which it appears plainly that the ancients were entire strangers; for all their vinous liquors were medicated by boiling before they were laid up in order to be kept.

Mr. Knight states, that, in the making of this sort of liquor, the pears are ground and pressed in exactly the same manner as those of apples in the manufacturing of cider; but that it is not usual for the reduced pulp to be suffered to remain any length of time without being pressed. It has never been the practice in Herefordshire, or in the counties in the vicinity of it, to blend the juices of the different varieties of the pear, in order to correct the defects of one kind by the opposite properties of the other. It is, however, he allows, more easy to find the required portion of sugar and of astringency, as well as flavour, in three or four varieties than in one; hence, he supposes, a judicious mixture of fruits affords a prospect of great benefit. In grinding, the pulp and rind of the pear, as in the apple, should be perfectly reduced, and, though no benefit is said to have been derived from the reduced pulp remaining some hours unpressed, he has no doubt but that, where all other circumstances are the same, that portion of liquor will for the most part be found the best which has remained the longest under the power of the mill-stone.

The method of managing this sort of liquor during the process of fermentation, is nearly the same as that in cider; but it does not afford the same indications by which the proper period of racking it off may be known. The thick scum that collects on the surface of cider rarely appears on the juice of the pear; and, during the time of the suspension of its fermentation, the excessive brightness of the former liquor is seldom seen in the latter; but, where the fruit has been regularly ripe, its produce will generally become moderately clear and quiet in a few days after it is made, and it should then be drawn off from its grosser lees. An excess of fermentation is prevented by the means used in the making of cider, and the liquor is rendered bright by isinglass. The power this substance possesses of fining liquors appears to be purely mechanical: it is composed of innumerable fibres, which, being dispersed over the liquor, attach themselves to, and carry down, its impurities. For this purpose it should be reduced to small fragments by being pounded in a mortar, and afterwards steeped twelve or fourteen hours in a quantity of liquor sufficient to produce its greatest degree of expansion. In this state it must be mixed with a few gallons of the liquor, and stirred till it is diffused and suspended in it; and it is then to be poured into the cask, and incorporated with the whole by continued agitation for the space of two hours. This process must be repeated till the required degree of brightness is obtained, the liquor being each time drawn off, on the second or third day, from its precipitated lees. Not more than an ounce and a half or two ounces of isinglass are generally put into a cask of a hundred and ten gallons at once; but, were its mode of action purely mechanical, there could be no objection to a larger quantity; but it has also a chemical action on the liquor; it combines with and carries down the tanning principle, and hence, during the process of fining, the liquor is deprived of a large portion of its astringency. This substance is most readily diffused in liquors by boiling; but by this it is dissolved, and converted into glue; and its organization, on which alone its powers of fining depend, is totally destroyed. The application of it is sometimes also necessary in the manufacture of cider; though colour is seldom wanting

in that liquor. But, when the perry or cider can be made sufficiently bright without it, the above-cited writer would not by any means recommend its use. The liquor is rendered extremely agreeable to the eye by it; but has always appeared to him to become more thin and acid by its action.

In the after-management of perry, the method is the same as that of cider; but it does not bear situations where it is exposed to much change of temperature so well, and its future merit cannot so well be judged of by its present state. In the bottle it almost always retains its good qualities, and in that situation he would always recommend it to be put, if it remains found and perfect at the conclusion of the first succeeding summer. On the whole, the pear furnishes a less popular liquor than the apple; but the tree is capable of being grown on a greater variety of soil, and is more productive, furnishing in the proportion of 600 gallons of liquor to the acre, where the trees are full grown and in good bearing.

A kind of small perry, called *perkin*, as *ciderkin* from cider, is made of the murk or gross matter remaining after the perry is pressed out. To make this liquor, the murk is put into a large vat, with a proper quantity of boiled water, which has stood till it is cold again: if half the quantity of water be used that there was of perry, it will be good; if the quantities be equal, the perkin will be small. The whole is left to infuse forty-eight hours, and then well pressed; what is squeezed out by the press is immediately tunned up and stopped; it is fit to drink in a few days. It clarifies of itself, and serves in families instead of small beer. It will keep, if boiled, after pressure, with a convenient quantity of hops.

PER'RY (Captain John), an eminent English engineer, was recommended to the czar Peter the Great, during his abode in England, as a proper person to assist him in his favourite schemes of forming a navy, and promoting inland navigation within his dominions. He was taken into the czar's service at a liberal salary, and with promises of further reward; and was employed for three summers in making a communication between the rivers Don and Volga. The czar's ill success against the Swedes at the battle of Narva, and other circumstances of discouragement, caused an interruption of the work in 1707; and during the two following years he was engaged in refitting the ships at Voronetz, and making navigable the river of that name. Like most of the foreigners whom the czar's offers drew into Russia, he experienced many disappointments respecting the recompense for his labours; and finally was indebted to the protection of the English ambassador for the privilege of quitting the country in 1712. After his return, he published "The State of Russia," 8vo. 1716. In 1721 he was employed in stopping the alarming breach of the embankment of the Thames at Dagenham, which he successfully performed, and of which he published an "Account" in 1721, 8vo. He was also consulted about improving the harbour of Dublin, and printed an "Answer" to some objections made to his plan. He died in 1733. *Gen. Biog.*

PER'RY (James), a celebrated literary character, and long distinguished as a public journalist of the highest note for independence and political consistency, was a native of Aberdeen. His father was a builder, named *Pirie*. James was born on the 30th of October, 1756; and received the first rudiments of education at Chapel Garioch, of which parish the Rev. W. Farquhar, father of sir Walter Farquhar, was minister, and where, along with the youngest brother of sir Walter, he received from that venerable and learned divine, the most assiduous instruction. The Rev. Dr. Tait, who has long since risen to a dignified station in the church, was then master of the school of Chapel, and gave it celebrity by his erudition and abilities. From this, Mr. Perry was removed to the high school of Aberdeen, which he went through with credit to himself, under the Messieurs Dunn, then

its principal masters. In the year 1771, he was entered of Marechal College, Aberdeen; and was afterwards placed under Dr. Arthur Dingwall Fordyce, advocate, to qualify him for the profession of the Scots law. When his term had expired, his genius led him to associate with the actors in a company which visited Aberdeen; and, being at that time a good dancer, he was seduced by Digges, Mills, and others of the company, to engage himself in their pursuits. He accordingly appeared on the stage at Montrose, Arbroath, Dundee, and Perth, and, according to Mr. Holcroft, at Newcastle upon Tyne, where Mr. H. was of the same company. His performances consisted of Sempronius, and some second-rate characters, and of a hornpipe between the acts; but on the company's return to Edinburgh, Digges the manager candidly told Pirie (*Anglicè* Perry) that his brogue was an insuperable bar to his success on the stage. He continued some time at Edinburgh, in the hope of obtaining a situation in some professional gentleman's chambers, where he might at once pursue his studies and obtain a livelihood; but, after many ineffectual attempts to gain employment, he came to England, and was for two years engaged in Manchester, as clerk to Mr. Dinwiddie, a respectable manufacturer. In this situation he cultivated his mind by the study of the best authors, and gained the friendship and protection of the principal gentlemen of the town by the talents he displayed in a society which was then established by them for philosophical and moral discussions, and by several literary essays which obtained their approbation. In the beginning of 1777, he came to London, bringing with him recommendations from the principal manufacturers to their correspondents, but they all failed of procuring him any suitable introduction: it was, however, the accidental effect of one of them that threw him into the line of life which, from that period, he persevered in with such invariable constancy. The *General Advertiser* being then a new concern, it was the practice of the proprietors to exhibit the whole contents of it upon boards at the shop-window. Mr. Perry, being unemployed, amused himself with writing essays and scraps of poetry for this paper, which he flung into the letter-box of the printing-house, and which were always inserted. Calling one day at the shop of Messrs. Richardson and Urquhart, bookfellers, to whom he had letters of recommendation, he found the latter busily engaged in reading, and apparently enjoying, an article in the *General Advertiser*. After Mr. Urquhart had finished the perusal, Mr. Perry put the usual question to him, whether he had heard of any situation that would suit him; to which he replied in the negative; at the same time, holding out the paper, he said, "If you could write such articles as this, I could give you immediate employment." It happened to be a humorous essay, written by Perry himself. This he instantly intimated to Mr. Urquhart, and gave him another article in the same hand-writing, which he had proposed to drop into the letter-box. Mr. Urquhart expressed great satisfaction at the discovery, and informed him that he was one of the principal proprietors of the paper: that they wanted just such a person; and, as there was to be a meeting of the proprietors that same evening, he would propose Mr. Perry as a writer. He did so, and the next day he was engaged at a salary of one guinea per week, and an additional half-guinea for assistance to the *London Evening Post*, then printed by the same person.

Such was the incident that threw Mr. Perry into the profession of a journalist. He was most assiduous in his exertions for the *General Advertiser*; and, during the memorable trials of admirals Keppell and Palliser, he, for six weeks together, by his individual efforts, sent up daily from Portsmouth eight columns of the trials, taken by him in court; which, from the interest they excited, raised the paper to a sale of several thousands per day. At this time Mr. Perry wrote and published several political pamphlets and poems; and in 1782 he formed the

plan, and was the first editor, of the *European Magazine*, upon the design of combining, in one monthly publication, the usual miscellaneous contents of such a work, with a review of new books. He conducted it, however, only for the first twelve months, as, on the death of a Mr. Wall, he was chosen by the proprietors of the *Gazetteer* to be the editor of that paper, the proprietors of which consisted of the principal bookfellers in London, Payne, White, Nicol, Lockyer Davies, and Paul Vaillant; with sir N. Conant, Mr. Elmsley, &c. Mr. Perry undertook the editorship of the paper at a salary of four guineas per week, on the express condition that he was to be left to the free exercise of his political opinions, which were those of Mr. Fox.

On his commencing editor of the *Gazetteer*, he suggested to the proprietors the plan of employing several reporters to facilitate the publication of the debates in parliament. Up to that time each paper had but one reporter in each house of parliament; and the predecessor of Mr. Perry in the *Gazetteer*, had been in the habit of spinning out the reports of debates for weeks, and even months, after the session had closed; while Mr. Woodfall, in the *Morning Chronicle*, used to bring out his hasty sketch of the debate in the evening of the following day. Mr. Perry's plan was adopted; and, by a succession of reporters, the *Gazetteer* was published in the morning with as long a debate as Mr. Woodfall brought out in the evening, and sometimes at midnight.

It happened that, in the years 1780, 1781, and 1782, there were numerous debating societies in every part of the metropolis, where many persons that have since been conspicuous in parliament, in the pulpit, and on the bench, distinguished themselves as public speakers. Mr. Perry was a speaker in these societies, and is mentioned with great praise in the History of the Westminster Forum. Mr. Pitt used to attend these societies, although he never spoke at any of them; and it is not perhaps generally known, that the Lyceum was fitted up, and received that title, expressly for a superior school of oratory, by John Sheridan, esq. a barrister, with the view of enabling such young gentlemen as were designed for the senate and bar, to practise public speaking before a genteel auditory. It was opened for a few nights at five shillings as the price of admittance. Mr. Pitt and several of his friends frequented it; but the enterprise fell to the ground. It is positively stated, that afterwards, when Mr. Pitt came to be chancellor of the exchequer, having had frequent opportunities of witnessing Mr. Perry's talent in public speaking, and particularly in reply, he caused a proposal to be made to him of coming into parliament, which would have probably led on to high fortune. Mr. Perry, however, thought proper to reject it, as he did afterwards an offer of the same kind from the earl of Shelburne; and he uniformly maintained the principles with which he first set out in his political course.

Mr. Perry was for several years editor of *Debrett's Parliamentary Debates*, to the exclusion of advertisements and other extraneous matter. This work had fallen into disrepute, and the proprietors set it up to public sale. In the mean while, Mr. Woodfall undertook another paper, under the title of the *Diary*, and Mr. Perry bought the *Morning Chronicle*. He announced himself, in conjunction with his friend Mr. Gray, (who died soon after,) as joint proprietor and editor, and declared he would be responsible for its contents. From that time to the present day it has continued to be the organ of genuine Whig principles: and it is but justice also to remark, what is truly creditable to Mr. Perry, that he never suffered his paper to be degraded by private personalities or scandal, and that he never was suspected of venality. Twice in the course of forty years he was prosecuted by ex-officio informations: the first time for the resolutions of the Derby meeting; the second time for a paragraph copied from the *Examiner*, the substance of which was, that his present majesty (then prince of Wales) would have
a noble

a noble opportunity to be popular. On the first occasion he was defended by Erskine, and was acquitted in consequence of the strenuous stand of one of the jurymen. On the second occasion he defended himself with great skill, and so successfully, that the late lord Ellenborough, the judge, charged the jury in his favour. Though he never was condemned by a jury of his countrymen, he was committed for some months to Newgate, together with Mr. Lambert, the printer of the Morning Chronicle, by the house of lords, for a paragraph which that illustrious assembly pronounced a breach of its privileges.

Besides the Morning Chronicle, Mr. Perry embarked in a speculation of Mr. Booth's for Polygraphic paintings, which did not succeed; and he afterwards engaged and sunk much property in some mills at Merton, by which he was harassed for a considerable period. The Morning Chronicle, however, proved an inexhaustible mine of wealth, netting for many years from six to eight and ten thousand per annum, which enabled its proprietor to live in a style of the first respectability, and keep the best company, for which he was qualified by his mind and manners. In prosperity Mr. P. did not neglect his family. He cherished a widowed sister, who married the celebrated professor Porson; and supported his mother, who died at Richmond. He was twice married, and left six children. It merits notice, that Mr. Perry was not less distinguished by the admirers of black-letter literature, than by the public as a journalist; his library of rare books, at his house in Tavistock-square, being one of the most valuable and curious in the metropolis. It was lately brought to the hammer; and some of the articles fetched large sums of money.

Mr. Perry's declining health had long prevented him from taking an active part in the business of his paper; and for the last four months of his life he had resided entirely at a distance from London. He died at his house at Brighton, Dec. 4, 1821, having just entered the 66th year of his age; and was interred in his family-vault at Wimbledon. Mr. Perry was greatly beloved and respected by his numerous friends; he was generous and liberal to all who stood in need of his bounty; and, while he took care that the duties belonging to his extensive establishment were punctually fulfilled, he had the rare quality of securing the attachment, as well as the esteem, of all those who were in his employ. By none will his death be more sincerely lamented than by that benevolent body of men, the Freemasons of England, of whom he was a most distinguished member. For many years he was P. D. G. M. under the duke of Athol; and by his influence the late duke of Kent was elected G. M. for the purpose of effecting the union, which shortly after his royal highness's election took place, between the two societies of Scotland and England. Mr. Perry was most active in promoting that and all other events which had for their object the welfare of the fraternity. See the article MASONRY, vol. xiv. p. 492. Of late the declining state of his health had compelled him to relinquish the more active duties of a mason; but his benevolence was exerted to the benefit of his less opulent brethren, up to the latest period of his existence.

PERRYBAZAR', a town of Persia, in the province of Ghilan, on the Caspian Sea: two miles north of Reshd.

PER'SA, in ancient geography, a town of Asia, near the Euphrates, and in the vicinity of Samosata.

PER'SA, a town of Hindoostan, in Oude: sixty miles east of Bahraitch.

PER'SA, a town of European Turkey, in the province of Servia, on the Danube: forty-five miles east of Passarowitz.

PER'SAC, a town of Persia, in the province of Irak: twenty-five miles south-south-east of Sultania.

PER'SAH, a town of Hindoostan, in the circar of Surgooja: ten miles north-north-east of Surgooja.

PER'SAH, a town of Mocaumpour: thirty-six miles south-south-west of Mocaumpour.

VOL. XIX. No. 1332.

PERSA'IN, a town of Pegu, near a river of the same name: 132 miles south-west of Pegu, and 252 south-south-east of Aracan. Lat. 16. 45. N. lon. 94. 55. E.

PERSA'IN, a river of Pegu, which runs from the great river Ava into the Bay of Bengal a little to the south-east of Cape Negrais.

PERSAN'TE, a river which rises in a small lake about four miles north-west from New Stettin, crosses Pomerania, and runs into the Baltic a little below Colberg.

PERSAW', a town of Prussia, in Pomerelia: seven miles north-west of Marienburg.

PER'SCHLING, a river of Austria, which runs into the Danube three miles above Tulln.

PER'SCHLING, a town of Austria, on a river of the same name: eight miles south-west of Tulln.

PERSCOVA'RI, a town of Walachia: eight miles south-west of Brancovani.

To PERSCRIBE, *v. a.* [from the Lat. *per*, through, and *scribo*, to write.] To write out to the end. *Cole.*

PERSCRUTATION, *f.* [from the Lat. *per*, through, and *scruto*, to search.] A thorough search. *Cole.*

PER'SE, *f.* [perhaps from *Persian*.] A sky colour. *Scott.*

PER'SE, *adj.* Sky-coloured, having a bluish-grey colour. *Chaucer.*

PERSE-BRIDGE, is on the Tees, west of Darlington, Durham, where it is said that priests were formerly stationed to officiate for the devotion of travellers, as well as of the neighbours, in a chapel, the ruins of which remain, near to the bridge. This would tempt one to think the original name of this place was Priest's Bridge, especially if it be true, as tradition says, that the old bridge, which was of wood, was replaced with one of stone, by two neighbouring priests. A Roman altar, besides urns, coins, and other marks of antiquity, has been found here; and it is supposed that here the Roman highway from Catrick entered this county.

PERSE'A, *f.* in botany. See LAURUS.

To PERSECUTE, *v. a.* [*persecutor*, Fr. *persecutus*, Lat.] To harass with penalties; to pursue with malignity. It is generally used of penalties inflicted for opinions.—I *persecuted* this way unto the death. *Acts xxii. 4.* —To pursue with repeated acts of vengeance or enmity.—They might have fallen down, being *persecuted* of vengeance, and scattered abroad. *Wisdom, xi. 20.*

Relate

For what offence the queen of heaven began

To *persecute* so brave, so just, a man!

Dryden.

To importune much: as, He *persecutes* me with daily solicitations.

PERSECUTION, *f.* [Fr. *persecutio*, Lat.] The act or practice of persecuting.—The deaths and sufferings of the primitive Christians had a great share in the conversion of those learned Pagans who lived in the ages of *persecution*. *Addison.*

Heavy *persecution* shall arise

On all who in the worship persevere
Of spirit and truth.

Milton's P. L.

The state of being persecuted.—Our necks are under *persecution*; we labour, and have no rest. *Lam. v. 5.*

PERSECUTION is any pain or affliction which a person designedly inflicts upon another; and, in a more restrained sense, the sufferings of Christians on account of their religion. Historians usually reckon ten general persecutions; the first of which was under the emperor Nero, 31 years after our Lord's ascension; when that emperor, having set fire to the city of Rome, threw the odium of that execrable action on the Christians, who under that pretence were wrapped up in the skins of wild beasts, and worried and devoured by dogs; others were crucified, and others burnt alive. The second was under Domitian, in the year 95. In this persecution St. John the apostle was sent to the isle of Patmos, in order to be employed

ployed in digging in the mines. The third began in the third year of Trajan, in the year 100, and was carried on with great violence for several years. The fourth was under Antoninus the Philosopher, when the Christians were banished from their houses, forbidden to show their heads, reproached, beaten, hurried from place to place, plundered, imprisoned, and stoned. The fifth began in the year 197, under the emperor Severus. The sixth began with the reign of the emperor Maximinus in 235. The seventh, which was the most dreadful persecution that had ever been known in the church, began in the year 250, in the reign of the emperor Decius, when the Christians were in all places driven from their habitations, stripped of their estates, tormented with racks, &c. The eighth began in the year 257, in the fourth year of the reign of the emperor Valerian. The ninth was under the emperor Aurelian, A. D. 274; but this was very inconsiderable; and the tenth began in the 19th year of Dioclesian, A. D. 303. In this dreadful persecution, which lasted ten years, houses filled with Christians were set on fire, and whole droves were tied together with ropes and thrown into the sea. But, as to the dispute whether there were more or fewer of these persecutions, see the article MARTYR, vol. xiv. p. 451, 2.

PERSECUTOR, *f.* One who harasses others with continued malignity.—Henry rejected the pope's supremacy, but retained every corruption besides, and became a cruel persecutor. *Swift.*

What man can do against them, not afraid,
Though to the death; against such cruelties
With inward consolations recompend'd;
And oft supported so, as shall amaze
Their proudest persecutors.

Milton's P. L.

PERSEES, or PARSEES, the descendants of a colony of ancient Persians, who took refuge at Bombay, Surat, and in the vicinity of those cities, when their own country was conquered 1100 years ago by the Mahometan Arabs. They are a gentle, quiet, and industrious, people, loved by the Hindoos, and living in great harmony among themselves. The consequence is, that they multiply exceedingly, whilst their countrymen in the province of Keman are visibly diminishing under the yoke of the Mahometan Persians.

The Persees were till lately but very little known: the ancients speak of them but seldom, and what they say seems to be dictated by prejudice. On this account Dr. Hyde, who thought the subject both curious and interesting, about the end of the 17th century attempted a deeper investigation of a subject which till then had been but very little attended to. He applied to the works of Arabian and Persian authors, from whom, and from the relations of travellers, together with a variety of letters from persons in India, he compiled his celebrated work on the religion of the Persees. Other accounts have been given by different men, as accident put information in their way. But the most distinguished is by M. Anquetil du Perron, who undertook a voyage to discover and translate the works attributed to Zoroaster. Of this voyage he drew up an account himself, and read it before the Royal Academy of Sciences at Paris in May 1761. A translation of it was made and published in the Gentleman's Magazine for 1762, to which we refer our readers. The account begins at page 373, and is concluded at page 614. Remarks were afterwards made on du Perron's account by a Mr. Yates. See the same Magazine for 1766, p. 529.

We learn from Mr. Hanway, that the Persees worship the everlasting fire as an emblem of *Ormuzd*, or the supreme ineffable Creator; while the evil principle, believed to have sprung from matter, was styled *Ahriman*. Subordinate to Ormuzd, the *ferishtas*, or angels, are charged with the preservation of the material world. The sun, the moon, and the stars, the years, the months, and the days, have each their presiding angel; angels attend on every human soul, and an angel receives it when it

leaves the body. *Mithra* is the *ferishta* to whom this important charge is assigned, as well as that of judging the dead; he is also the guardian of the Sun, and presides over the sixth month, and the sixth day of the month. The good *ferishtas* have corresponding evil geni, who endeavour to counteract them in all their functions: they particularly encourage witchcraft, and willingly hold converse with enchanters of both sexes, sometimes revealing the secrets of futurity for malicious purposes. As in other countries, the old, the ugly, and the miserable, are stigmatized as witches, and the Indian Bramins are regarded by the Guebres as powerful magicians.

The most recent account we have of this singular people is that of Mrs. Maria Graham, who went to India in 1809, and published the "Journal of her Residence" there (for she was not a flying traveller) in 1812. Some extracts from her useful and authentic work we shall interweave with our selections from Stavorinus, Niebuhr, Hanway, Du Perron, and others.

"When the Guebres were driven from their own country by the Mussulmans, a considerable body of them resolved to seek a new land, and accordingly put to sea, where they suffered great hardships. After attempting to settle in various places, they at length reached Sunjum in Guzerat, and sent their chief *dustoor*, or priest, onshore to ask an asylum. This was granted by the rajah on certain conditions, and a treaty to the following effect was drawn up: The Guebres shall have a place allotted to them for the performance of their religious and burial rites; they shall have lands for the maintenance of themselves and their families; they shall conform to the Hindoo customs with regard to marriages, and in their dress; they shall not carry arms; they shall speak the language of Guzerat, that they may become as one people with the original inhabitants; and they shall abstain from killing and eating the cow. To these conditions the Persees have scrupulously adhered, and they have always been faithful to their protectors.

"Fire is the chief object of external worship among the Persees. In each *atsh-khaneh*, or fire-house, there are two fires; one of which it is lawful for the vulgar to behold, but the other, *atsh-baharam*, is kept in the most secret and holy part of the temple, and is approached only by the chief *dustoor*; it must not be visited by the light of the sun, and the chimneys for carrying off the smoke are so constructed as to exclude his rays. The *atsh-baharam* must be composed of five different kinds of fire, among which I was surprised to hear the *dustoor* mention that of a funeral pile, as the Guebres expose their dead; but he told me that it was formerly lawful to return the body to any of the four elements; that is, to bury it in the earth or in the water, to burn or to expose it, but that the latter only is now practised; consequently, if the *atsh-baharam* goes out, they must travel to such nations as burn their dead, to procure the necessary ingredient to rekindle it. When the last *atsh-khaneh* was built in Bombay, a portion of the sacred fire was brought from the altar at Yezd, in a golden censer, by land, that it might not be exposed to the perils of the sea. The death of a father is observed as an annual festival. The body must not touch wood after death; it is accordingly laid upon an iron bier, to be conveyed to the repository for the dead, where it is left exposed to the air till it is consumed. In Bombay these repositories are square inclosures, surrounded by high walls: the vulgar Persees superstitiously watch the corpse, to see which eye is first devoured by the birds, and thence augur the happiness or misery of the soul."

By marrying wives of their own nation, their race has been preserved pure and unmixed to the present day. Adultery and fornication they punish among themselves, and even by death, giving cognizance of any capital punishment to the Moorish government: the execution is performed in secret, either by lapidation, drowning in the river, castigation, or beating to death, and sometimes by

by poison. Their females are marriageable before they are twelve years old; but, though their marriages are contracted at a very early age, yet they are not consummated till the above-mentioned time of puberty. It is not customary to give any portion with the bride; but every relation and friend of the bridegroom is obliged to present him with some articles of household furniture, money, or clothes, as soon as the intended nuptials are announced to them.

The Persees live temperately; but, contrary to the custom of the Gentoos, they eat all kinds of flesh meat, except that of oxen and hares, that they may not give offence to that nation; but it must be killed and prepared by their own people. The Persees at Surat allege, that they possess a genuine copy of the Institutes of Zoroaster: they likewise pretend, that the holy fire, which they brought with them at the time of the flight from Persia, has remained burning to the present day, without being extinguished, in their largest and principal temple, which stands near the Portuguese city of Daman. This holy fire is exposed to the vulgar only once a-year, on a festival in the month of October, which marks the commencement of their year: besides this festival, they have one every month, of a religious nature; in which they offer up devout supplications to their divinity. Every Persee likewise offers up a prayer every morning, turning towards the rising sun, and another every evening, presenting himself towards the moon, if she be visible.

The element of water is also an object of reverence; and their reverence for fire is carried so far, that they will not extinguish it on any occasion, even by putting out a candle or lamp. When a fire takes place in the town, they do not endeavour to quench it with water, but pull down the houses and buildings liable to be consumed by the flames, that the fire may go out for want of combustibles to maintain it.

The Persees in British India enjoy every privilege, civil and religious. They are governed by their own *panchait*, or village-council. The word *panchait* literally means a "council of five," but that of the Guebres in Bombay consists of thirteen of the principal merchants of the sect; these were chosen originally by the people, confirmed by the government, and have continued hereditary. This little council decides all questions of property, subject however to an appeal to the recorder's court; but an appeal seldom happens, as the *panchait* is jealous of its authority, and is consequently cautious in its decisions. It superintends all marriages and adoptions, and inquires into the state of every individual in the community; its members would think themselves disgraced if any Persee were to receive alms or any assistance from a person of a different faith; accordingly, as soon as the children of a poor man are old enough to be betrothed, which, in conformity to the Hindoo custom, is at five or six years of age, the chief merchants subscribe a sufficient sum to portion the child; in cases of sickness, they support the individual or the family, and maintain all the widows and fatherless.

The *panchait* consists both of priests and laymen; all religious ceremonies and festivals come under its cognizance, together with the care of the temples, the adjusting the almanac, and the subsistence and life of the dogs. I could not learn with certainty (says Mrs. Graham) the origin of the extreme veneration of the Persees for this animal; every morning the rich merchants employ *koolis* to go round the streets with baskets of provision for the wild dogs; and, when a Persee is dying, he will have a dog in his chamber to fix his closing eyes upon. Some believe that the dog guards the soul, at the moment of its separation from the body, from the evil spirits; others say that the veneration for the dogs is peculiar to the Indian Guebres, and that it arose from their having been saved from shipwreck in their emigration to India, by the barking of the dogs announcing their approach to the land in a dark night.

The Persees use some solemnities when they name their children, which is done at five or six months old; when the muslin shirt is put on the first time, a sacred fire is lighted, prayers are repeated, and the name is given. Since their intercourse with Europeans, they call this ceremony *christening*, because it is performed when the first or proper name is given; the second name is a patronymic; thus *Norozejee Jumsheddje*, is Norozejee the Son of Jumsheddje.

"The Persees are the richest individuals on this side of India, and most of the great merchants are partners in British commercial houses. They have generally two or three fine houses, besides those they let to the English; they keep a number of carriages and horses, which they lend willingly, not only to Europeans, but to their own poor relations, whom they always support. They often give dinners to the English gentlemen, and drink wine, particularly Madeira. The Guebre women enjoy more freedom than other oriental females, but they have not yet thought of cultivating their minds. Perhaps this is owing in great measure to the early marriages which, in compliance with the Hindoo customs, they contract: by becoming the property of their husbands in their infancy, they never think of acquiring a further share of their affection, and, with the hope of pleasing, one great incitement to mental improvement is cut off.

"The Persees are in general a handsome large people, but they have a more vulgar air than the other natives; they are extremely active and enterprising, and are liberal in their opinions, and less bigotted to their own customs, manners, and dress, than most nations. Of their hospitality and charitable dispositions, the following is an instance. During the famine that desolated India in the years 1805 and 1806, the Persee merchant Ardeser Dadee, fed five thousand poor persons for three months at his own expense, besides other liberalities to the starving people. The Persees are the chief landholders in Bombay. Almost all the houses and gardens inhabited by the Europeans are their property; and Pestengue told me that he received not less than 15,000l. a-year in rents, and that his brother received nearly as much."

The Persees, we are told, never attempt to make proselytes. The Moors, Gentoos, and Persees, notwithstanding the difference of their religions, exercise toward one another the greatest toleration and indulgence. They may be seen together, in or near the river, offering up their respective prayers, without mutual contempt or molestation. When the holy fire of the Persees is exhibited to the people, no Gentoos will either approach or touch the fire, any more than the Persees themselves. This mutual forbearance exhibits an example worthy of imitation.

PERSEPHONE, a daughter of Jupiter and Ceres, called also Proserpine. See PROSERPINE.

PERSEP'OLIS, in ancient geography, a town of Persia, formerly the capital of Farsistan, or Persia Proper; but now known only by its ruins, which have been described by many travellers, from Chardin, Niebuhr, and Francklin, to Jones, Johnson, and Ker Porter. Of old it was called *Elymais*; its present name is ISTAKAR, which see.

Persepolis may be a faithful translation of the original name of the place, but it is not the native denomination. Herodotus calls the inhabitants *Pasargadae*, which is supposed by Chardin to be derived from the native name *Fars-abad*, City of the Persians. The author of the First Book of Maccabees (vi. 1.) mentions this city, or rather its district, by the name of *Elymais*; and so does the author of Judith (i. 6.) but the earlier and almost native authority of the book of Esther (supposing that Arioch wrote that book) gives the appellation (ix. 7.) *Parshandatha*: it was situated in the province of Elam, and had in the time of Darius (Daniel ii.) Arioch for its military governor.

The ruins of this celebrated city have been described (as we have said) by so many travellers, that we are almost

almost at a loss how to make a selection. Sir Robert Ker Porter and Colonel Johnson have been its latest visitors. From the Quarterly Review of Sir Robert's work we copy the following animated passages. "In the plain of Merdasht, which is watered on the south-west by the river Bend-emir, the ancient Araxes, stands "the Throne of Jimsheed," as the natives call these immense ruins, now generally believed to have belonged to the palace of Darius, to which "the Macedonian madman" set fire in a fit of drunken revelry, and which was beyond doubt one of the most magnificent structures of the ancient world. If there is nothing in the architecture of the buildings, or in the sculptures and reliefs on the rocks, that can be compared with the exquisite specimens of Grecian art, still it is impossible to behold the remains of Persepolis without emotions of rapture and surprise. The wealth of an unbounded empire was exhausted in their construction; they were adorned with every ornament that the art of the old world could supply, and their history yet lives in the imperishable materials of which they were built.

"The palace, the face of the mountain at the foot of which it is situated, and many of the rocks in its vicinity, are ornamented with a profusion of sculpture, and afford ample evidence, as Sir John Malcolm observes, that the Persians were in the habit of describing by the graving-tool both their religious ceremonies and the principal events of their history.

"The impression made on Sir Robert Ker Porter by the first sight of these celebrated monuments was that, both en masse and in detail, they bore a strong resemblance to the architectural taste of Egypt. The artificial plain which supports the ruins of this immense citadel, (as he calls it,) is of a very irregular shape; but nothing can transcend the strength and beauty of its construction. Its steep faces are formed of dark-grey marble, cut into gigantic blocks, exquisitely polished, and, without the aid of mortar, fitted to each other with such admirable precision, that, when first completed, the platform must have appeared as part of the solid mountain itself, levelled to become a foundation for a structure, many of whose proud columns still remain erect.

"A flight of steps, situated in its *western* face, leads to the summit of the platform, and is so stupendous, and on a scale of such astonishing magnificence, as fully to prepare the mind for the corresponding forms of vastness and grandeur to be met with above. On reaching the platform, the first objects that strike the eye are the lofty sides of an enormous portal, the interior faces of whose walls are sculptured into the forms of two colossal quadrupeds, that on nearer approach were found to represent bulls. The loss of the heads deprived Sir Robert of the means of knowing whether they had one or two horns; but he thinks, from what he has seen in other symbolical animals of the same kind in Persia, that they were represented with only one. Around the necks of these bucolic sentinels (as Sir Robert classically calls them) are broad collars of roses, executed with the most critical nicety, and, in the very spirited delineations which he gives of them, he has been elaborate, even to a hair, in copying the distinguishing marks of that proud epoch of Persian sculpture. At the distance of twenty-four feet, in a direct line from the portal, once stood four magnificent columns; they were all erect in the time of Chardin, but two only now remain. At an equal distance is another portal, the inner sides of which are also sculptured; but the animals represented are of very extraordinary formations, of gigantic proportions, and monstrous appearance. They have the bodies and legs of bulls, (with enormous wings,) and the faces of men. The blind zeal of the Moslems has miserably mutilated the features; yet enough remains to exhibit a severe and majestic expression of countenance, to which a long and carefully-curved beard does not a little contribute. Sir Robert asserts that this is the only specimen known to exist in Persia where the

human and bestial form are conjoined, and he thinks that this singular hieroglyphic may with great probability be attributed to Cyrus, whose empire over the East was prophesied by Ezekiel, under a similar figure, upwards of fifty years before his accession.

"An expanse of 162 feet lies between this portal and the magnificent terrace that supports the multitude of columns, from which the spot has derived its appellation of *Cheleh minar*, or the Palace of Forty Pillars. A superb approach, consisting of a double staircase, projects considerably before the northern face of the terrace, the whole length of which is 212 feet; at each extremity, east and west, rises another range of steps; again, in the middle, projecting from it eighteen feet, appear two smaller flights, rising from the same points. The whole front of the advanced range is covered with sculpture, which Sir Robert examined with great care, distinguishing the peculiarities of every figure, and copying them as distinctly and with as much fidelity as he could.

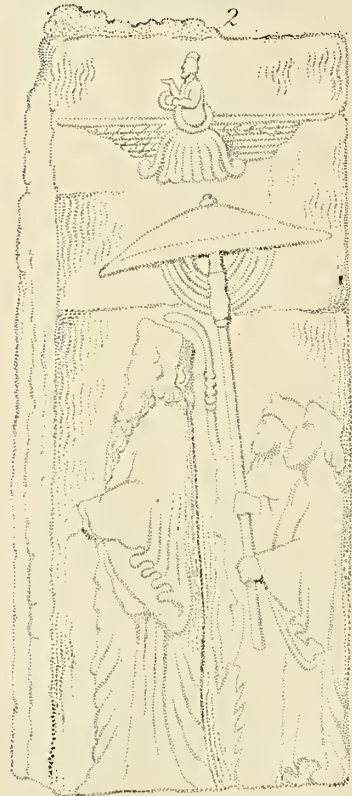
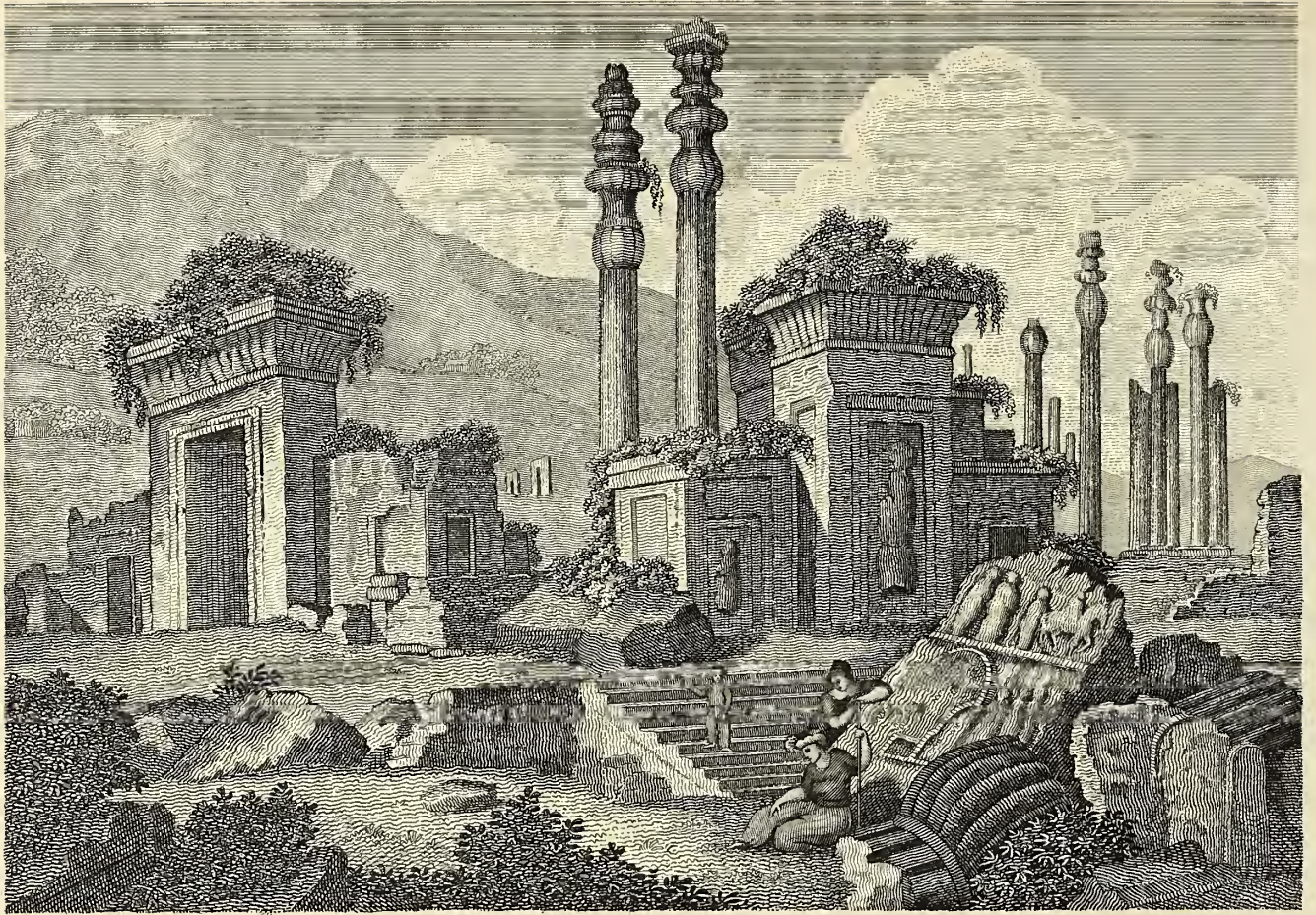
"The space immediately under the landing-place is divided into three compartments; the centre one has a plain surface; to the left are four standing figures, habited in long robes, holding a spear in an upright position in both hands; from the left shoulder hang a bow and quiver. The nicety with which the details are executed, render these sculptures particularly interesting to the historian. They mark the costume of the time and people; their progress in the form, variety, and use, of arms; and indicate with clearness the ancient method of stringing the bow, and the manner of attaching the leather cover to the quiver, to protect the feathers of the arrows from damage. All these peculiarities of archery, Sir R. Ker Porter, who says he is an old bowman himself, observed and transferred to his portfolio with great attention.

"On the right of the vacant tablet are figures only, without bows or quivers, but carrying spears, with large shields resembling Bœotian bucklers: these Sir Robert considers to have been intended to portray the royal guard. Two angular spaces on each side of the spearman are filled with duplicate representations of a fight between a lion and a bull, a most spirited and admirable performance. Sir Robert, after perplexing himself a good deal about the import of this combat, inclines to the opinion that it typifies the conquest of Cyrus over the two great empires of Assyria and Babylon. The beauty, and truth, and fire, with which these quadrupeds are executed, are above all praise; and it is remarkable, that, wherever any of the brute creation are represented amongst these relics, their limbs, muscles, and actions, are always given in a more perfect style than when the same sculptor attempts the human form; an observation that will be found to hold good with regard also to the antiquities of Egypt, Syria, and India. This consummate knowledge of the ancients in one respect, and their conspicuous ignorance in the other, our author attributes, justly enough perhaps, to the opportunities afforded by their daily sacrifices of witnessing the minute contortions and the dissections of the brute creation, and the superstition that universally prevailed against putting a hand on the human body.

"The rest of this highly-ornamented staircase is covered with figures, that, judging from their numbers, their uniform dresses, arms, and positions, are probably the representatives of the vast body-guard, the *doryphores*, who once held an actual station on this spot. The whole description of the procession that decorates the flight of steps which stretches to the east, is illustrated by drawings, executed with great spirit, and, we have no doubt, with great exactness."

As we cannot attempt to give an abstract of this elaborate portion of our subject, we must refer to the work for a conception of the marble terraces, stairs, portals, platforms, and colonnades, of Persepolis; and of the symbolical images and ornaments that enrich its superb though mutilated remains. The reader will be gratified and

PERSEPOLIS.



Ruins and Sculptures at Persepolis.

Engraved for the Encyclopædia Londinensis. 1823.

and instructed by that learned disquisition, in which the origin, signification, and uses, of the bull in oriental architecture, and its connexion with the religion of Egypt, Syria, and India, are briefly and intelligibly deduced. The remarks, however, concerning the lotos, are too generally interesting to be omitted. "Almost every one in the procession holds in his hand a figure like the lotos. This flower was full of meaning to the ancients, and occurs all over the east. Egypt, Palestine, Persia, and India, present it everywhere over their architecture, in the hands and on the heads of their sculptured figures, whether in statue or in bas-relief. We also find it in the sacred vestments and architecture of the tabernacle, and temple of the Israelites; and see it mentioned by our Saviour, as an image of peculiar beauty and glory, when comparing the works of nature with the decorations of art. It is also represented in all pictures of the salutation of Gabriel to the Virgin Mary; and, in fact, has been held in mysterious veneration by people of all nations and times. The old heraldic work of *The Theatre of Honour*, published in France about two hundred years ago, gives this curious account of the *lotos* or *lily*: 'It is the symbol of divinity, of purity, of abundance, and of a love most complete in perfection, charity, and benediction; as in Holy Scripture that mirror of chastity, Susanna, is defined *Susanna*, which signifieth the lily-flower; the chief city of the Persians bearing that name for excellency. Hence the lily's three leaves in the arms of France meaneth Piety, Justice, and Charity.' So far the general impression of a peculiar regard to this beautiful and fragrant flower; but the early Persians attached a particular sanctity to it. Water, according to their belief, was held in the next degree of reverence to fire; (see *PERSEES*;) and the white flower, which sprung from the bosom of the colder element, was considered an emblem of its purity, submissiveness, and, above all, of its fecundity, when meeting the rays of the great solar flame. These symbols, united in the lily their joint properties had produced, represented to the poetical conceptions of the East, first, the creative and regenerating attributes of the Supreme Being himself; and, secondly, the imparted powers of the great elements of earth, air, water, and fire, to act mutually on each other, so that, at the return of certain seasons, moisture should spread over the land from the clouds or the rivers, the air should dry the ground, the sun's beams fructify it, and the grateful earth, at the call of all united in the genial breath of spring, put forth her increase. Hence, as the sovereigns of the East have always been revered, according to a tradition of their being the express vicegerents of the Deity, it is not surprising to see the same emblematic flower carried in a procession to their honour, which would be found 'breathing sweet incense' amongst the symbols of an entirely religious festival." We agree with Sir Robert Porter, that our homage is due to these memorials of ages on other grounds even than those of their beauty, magnificence, or antiquity, we mean their utility: "Well might the ancients denominate sculpture an immortal art; for we find its monuments in Egypt, in Greece, in Rome, in Persia, bringing forth works to which hardly a date can be assigned; so deeply does their beginning lie in the obscurity of antiquity; while others present a clear commentary on the writings of the ancients, explaining some passages, connecting others, and often proving the doubted truth of certain recorded facts, by a happy discovery of some of these marble apparitions remaining stationary on the very spot where the substance and the action, of which they are the copy once had a purpose and abiding place."

Previous to Sir Robert's visit to Persepolis, i. e. in December 1816, a part of the bas-relievo of this magnificent building had arrived in England, having been transmitted by James Morier, esq. (who had been secretary of embassy and minister plenipotentiary to the court of Persia,) during his second voyage through Persia. Mr. Morier's account of his obtaining these precious relics is as

follows. "I went early in the morning to the ruins, which were situated about a mile from my habitation, attended by the stone-cutters. Considering the quantity of sculptured remains that had fallen from their original positions, and which were spread about the ruins in great profusion, I did not hesitate to appropriate such parts of them as seemed the most fitting to be sent to England. The most interesting part of the ruins, in point of sculptured detail, is certainly the front of the staircase, which leads to the great hall of columns; and here I found many fallen pieces, corresponding to those still erect. I caused one large stone to be turned, upon which was sculptured the busts of two large figures. It was impossible to carry away the whole block, as I had no other mode of conveyance than the backs of mules and asses; consequently, the two figures were obliged to be separated: but, unfortunately, a vein running across the upper part of the stone, the head-dress of one of the figures was broken off in the operation. The Persians do not know the use of the saw in stone-cutting; therefore my dissections were performed in a very rude manner. I was lucky to find the commencement of the arrow-headed inscription, the termination of which Le Bruyn has given in his drawings: so, if this character should ever be deciphered, we should be in possession of the whole of the inscription. I perceived the angle of a block just appearing on the surface of the ground, opposite to that part of the inscription which is now remaining, and concluded it must be the commencement of it. It may be imagined how happy I was to find, after the long toil of digging it up, that my conclusion was well founded. Both Le Bruyn and Chardin have only given one line of figures on the left of the staircase; but, as it was evident that, in order to complete the symmetry, there must have been the same number on the left as there are on the right, I hired some labourers from the surrounding villages, and made them dig. To my great delight, a second row of figures, highly preserved, was discovered; the details of whose faces, hair, dresses, arms, and general character, seemed but as the work of yesterday. The faces of all the figures to the right of the staircase are mutilated, which must be attributed to the bigotry of the first Mussulmans who invaded Persia; those of the newly-discovered figures are quite perfect, which shows that they must have been covered before the Saracen invasion: the nicety of their preservation would lead one to suppose that they had been so protected for many ages before that invasion. On comparing Le Bruyn's, Chardin's, and Niebhaur's, drawings with the sculptures, I found them in general correct in outline, but imperfect in the details of dress, arms, &c. Although the figures are in themselves ill-proportioned, inelegant, and deficient in anatomical drawing, yet they are prodigiously interesting in general character, and have not been done justice to in the works of those travellers. They furnish the best models of what were the nations that invaded Greece with Xerxes, and that were subdued by Alexander."

The annexed Plate is intended to give a general view of the ruins of Persepolis. The accompanying figures are exact copies of bas-reliefs on the insides of the jambs of the ruined portals. Fig. 1. is taken from under the portico towards the north; it represents a man contending with a lion: he seems to be stabbing him in the belly, having a sword in his left hand, and holding the forelock of the animal's mane with the right: the lion is in an erect posture, his head turned back, and one of his feet resting on the breast of the man. Fig. 2. from the southern portico, is a regal figure seated on a chair, with two figures behind him, one with the parasol, the other with the *choury*, which is a sea-horse's tail set in a gold handle, such as is used at the present time in Persia, to drive away flies. Above is the Persepolitan emblem, consisting of a winged bust with a ring.

After all, we are inclined to agree in opinion with Colonel Johnson, that these ruins are the remains of a temple, and not of a palace; and indeed the weightier

authorities of antiquity corroborate this destination. Thus Strabo, (lib. xv. p. 730.) though he calls the building *Βασιλεια*, says that Alexander destroyed it in revenge for the destruction of Grecian temples by the Persians; and Arrian tells us that Alexander seized there a treasure which had been laid up by Cyrus: now the treasures of antiquity were commonly in the temples. Diodorus Siculus, who is sometimes deficient in critical judgment, transcribes the testimony of the forged Ctesias as confidently as that of the genuine Herodotus; and, if he favours the opinion that *Parshandatha* was a royal residence, still he admits that it contained the sepulchres of the Persian kings, which would naturally be placed near a temple, and be guarded by a monastery of priests. No doubt, however, there were barracks, and a citadel, in the place of deposit for the imperial treasure. From Arrian it may be inferred, that the great Cyrus was the builder of this stupendous monument; in which case it was certainly a temple of Jehovah. Cyrus and Darius both originated among those Jewish tribes whom Shalmaneser transplanted into the cities of Media; and, when they obtained the upper hand of the idolaters, they established in Persia their hereditary worship. An edict of Cyrus for building a temple at Jerusalem to Jehovah, in which edict he recognizes Jehovah as his personal god, has been preserved by Ezra; and the *magophonia*, or slaughter of the idolatrous priests, ordered by Darius, was superintended by Daniel, Arioch, and other Jewish officers, and was anniverfarily commemorated in the temple at Jerusalem under the name of the Feast of Purim; which could not have been unless Darius also was a worshipper of Jehovah. Herodotus says, (i. 225.) that the people of Parshandatha were *Αχαμενιδαι*; and that this tribe or clan was the domineering one in Persia, and that Cyrus and Darius belonged to it. Hence it is highly probable that Herodotus wrote *Αβραχαμενιδαι*, Abrahamites, by which name all the Jewish clans would be proud to class themselves. It is not at Alexandria that the letters *βρα* would have been first dropped, but the scribes of European Greece readily corrupted barbarous names. Now, if the word *Αχαμενιδαι* be every-where rendered *Abrahamites* in Herodotus, it is not difficult to account for the ascendancy of the Jewish religion in ancient Persia; or for the patronage extended to the Jews of Jerusalem by Cyrus, Darius, and Artaxerxes; or for the curious fact that Ezra, the final collector of the Jewish canon, was, under the appellation Zerduscht or Zoroaster, as much the national saint of Persia as of Palestine. This equally important archæological inference will also become probable; that into the book of Leviticus has been grafted the entire code of the Persian empire; and that through its means may be rediscovered the jurisprudence of the first great civilized empire on earth, of whose legislation and opinions so much continues operative at the present day.

Among the arguments for considering the ruins of Parshandatha as the remains of the chief cathedral, or metropolitan temple, of the Persian empire, may be placed these circumstances, collected from Col. Johnson's narrative: 1. That the building precisely fronts the west, and is open on that side only, which is observable in other places of worship. 2. The local site, closely bounded by mountains, excludes many accommodations usually sought in the neighbourhood of palaces. 3. The single vast staircase is little worn, and is apparently adapted for the slow ascent of processions. 4. The stone-basin of water at the head of this staircase announces a place of ablution. 5. The burial-places of two kings are placed immediately behind and above the central hall of pillars, and looking into it. 6. This hall appears to have been *roofless*, the capitals of the columns being surmounted with an ornament which terminates in a point; and this was commonly the case with Persian temples. 7. Here are no contiguous ruins of smaller buildings, while all palaces attract towns around them; and monasteries affect to be complete within themselves and to stand apart.

8. The sculptures represent religious processions, apparently those connected with the proclamation of the *nouroos*, or new-year's day, at the vernal equinox.

The question, however, will probably never be set completely at rest, till we are able to decipher the inscriptions which abound here. Niebuhr seems to have represented them with great accuracy. The letters somewhat resemble nails, disposed in various directions, in which singularity they approach to what are called the *Heltingrunes* of Scandinavia; but the form and disposition seem more complex, and perhaps a clue might arise from comparing the Uchen character of Thibet. Chardin, who also observed the inscriptions on the spot, observes, that they bear no resemblance whatever to the letters used by the Gabres, in their copies of the Vendidad; whence sir William Jones inferred, that the Zend letters were a modern invention; and, in an amicable debate with a friend named Bahman, that friend insisted that the letters, to which he had alluded, and which he had often seen, were monumental characters never used in books, and intended either to conceal some religious mysteries from the vulgar, or to display the art of the sculptor, like the embellished Cufic and Nigari on several Arabian and Indian monuments. With regard to these inscriptions, sir W. Jones suggests, that it may be reasonably doubted, whether they contain a system of letters which any nation ever adopted: in five of them, the letters, which are separated by points, may be reduced to forty, or at least he could distinguish no more essentially different; and they all seem to be regular variations and compositions of a straight line and an angular figure like the head of a javelin, or a leaf (to use the language of botanists) "hearted and lanced." Many of the Runic letters appear to have been formed of similar elements; and it has been observed that the writing at Persepolis bears a strong resemblance to that which the Irish call "Ogham," (which see). The word "Agam" in Sanscrit means mysterious knowledge; but sir William Jones dares not affirm that the two words had a common origin; and he only means to suggest, that, if the characters in question be really alphabetical, they were probably secret and sacerdotal, or a mere cipher, perhaps, of which the priests only had the key. In all the other inscriptions of the same sort, the characters are too complex, and the variations of them too numerous, to admit of an opinion that they could be symbols of articulate sounds; for even the Nigari system, which has more distinct letters than any known alphabet, consists only of forty-nine simple characters, two of which are mere substitutions, and four of little use in Sanscrit or in any other language; while the more complicated figures, exhibited by Niebuhr, must be as numerous at least as the Chinese keys, which are the signs of *ideas* only, and some of which resemble the old Persian letters at Persepolis. The Danish traveller was convinced from his own observations, that they were written from the left hand, like all the characters used by Hindoo nations. Sir William Jones concludes with observing, that the square Chaldaic letters, a few of which are found in the Persian ruins, appear to have been originally the same with the Devanagari, before the latter were enclosed, as they are now seen, in angular frames. See Sir W. Jones's Sixth Discourse in vol. ii. of Asiatic Researches; or in his Works, vol. iii. Morier's Second Journey through Persia, between the years 1810 and 1816. Colonel Johnson's Journey from India to England, through Persia, &c. in 1817. Sir Robert Ker Porter's Travels in Georgia, Persia, &c. 1817—20. Monthly Mag. for July 1818. Monthly Rev. May 1820. Quarterly Review.

PERSES, or PERSEUS, the last king of MACEDON. See that article, vol. xiv. p. 36, 7.

PERSEVERANCE, *J.* [Fr. *perseverantia*, Lat. This word was once accented on the second syllable.] Persistence in any design or attempt; steadiness in pursuits; constancy in progress. It is applied alike to good and ill.

—Wait

—Wait the seasons of providence with patience and *perseverance* in the duties of our calling, what difficulties soever we may encounter. *L'Estrange*.—Patience and *perseverance* overcome the greatest difficulties. *Richardson*.

The king-becoming graces,
Bounty, *perseverance*, mercy, lowliness. *Shakespeare*.

Continuance in a state of grace.—We place the grace of God in the throne, to rule and reign in the whole work of conversion, *perseverance*, and salvation. *Hammond*.

PERSEVE'RANT, *adj.* [Fr. *perseverans*, Lat.] Perfiting; constant.—How early was he [Job] and *perseverant* to look after his revelling children's exorbitances! to offer sacrifices for them, and sanctifie them! *Bp. Prideaux's Euchologia*.—What obedience do we yield to the whole law of our God? If that be entire, hearty, universal, constant, *perseverant*, and truly conscientious, we have whereof to rejoice. *Bp. Hall's Rem.*

PERSEVE'RANTLY, *adv.* With constancy.—That I may love thee strongly, purely, perfectly, *perseverantly*. *Spiritual Conquest*, 1651.

To PERSEVE'RE, *v. n.* [*persevero*, Lat. *perseverer*, Fr.] To persist in an attempt; not to give over; not to quit the design.—To *persevere* in any evil course, makes you unhappy in this life, and will certainly throw you into everlasting torments in the next. *Wake's Prep. for Death*.

Thrice happy, if they know
Their happiness, and *persevere* upright! *Milton's P. L.*
Thus beginning, thus we *persevere*;
Our passions yet continue what they were. *Dryden*.

This word was anciently accented, less properly, on the second syllable:

But my rude music, which was wont to please
Some dainty ears, cannot with any skill
The dreadful tempest of her wrath appease,
Nor move the dolphin from her stubborn will;
But in her pride she doth *persevere* still. *Spenser*.

And hence it was sometimes written without the final *e*:
And, though in vain thy love thou do *persever*,
Yet all in vain do thou adore her ever. *Britain's Ida*.

PERSEVE'RINGLY, *adv.* With perseverance.—The holy angels have constantly and *perseveringly* glorified him. *Bp. Bull*.

PER'SEUS, in mythology, the son of Jupiter and Danaë. Danaë, according to the fable, was the daughter of Acrisius, who, having learned from the oracle, that at a future time his grandson would bereave him of his life and crown, shut her up in a tower of brass, and declined attention to every proposal of marriage for her. In the mean time, Prætus his brother, being desperately in love with his niece, by means of money corrupted the fidelity of the keepers of the princess, and having gained access to her through the roof of the prison, made her the mother of Perseus. This fable has been comprised by Ovid (*Met.* 1. 6.) in a single verse; "Persea quem pluvio Danaë conceperat auro;" and those who have written the history of this adventure, wishing to palliate the disgrace which might be entailed upon the royal family, reported, that Jupiter, enamoured of Danaë, had transformed himself into a shower of gold: and this was the more probable, as Prætus, if we may believe Vossius, (*Dē Orig. Idol.*) assumed the surname of Jupiter. Pausanias mentions the tower, or rather apartment of brass, in which Danaë had been shut up, and assures us that it subsisted till the time of Perilaus, the tyrant of Argos, who demolished it; adding, that even in his time some remains were still to be seen of the subterraneous palace, of which Danaë's chamber formed a part. Such is the story of Perseus's birth, which, considering all the circumstances attending it, is not improbable.

When the princess was delivered of Perseus, Acrisius ordered her to be exposed upon the sea, with her child, in a mean barge, which, after long conflict with the winds

and waves, stopped near the little island of Seriphus, one of the Cyclades, in the Ægean Sea. Polydectes, king of the island, hospitably received the mother and child, and took great care of the education of the young prince. But afterwards falling in love with Danaë, and fearing the resentment of Perseus, advancing to maturity, he sought a pretext for dismissing him. Under a pretence of wooing one of the Grecian princesses, he determined to make a magnificent feast for the celebration of the nuptials, and actually invited the princes of the neighbouring isles, each of whom was to bring with him a present of the best things which his country supplied. Perseus was in the number of the invited, and the more particularly so, as Polydectes knew that he could not receive from him the present which he expected from all the rest. Nevertheless Perseus, who wished not to appear inferior to the others in magnificence, told the king that as he could not give him a present immediately, he would bring him the head of Medusa, the only one of the Gorgons who was subject to mortality. The offer was doubly agreeable to Polydectes, as it would remove Perseus from Seriphos, and, on account of its seeming impossibility, the attempt might perhaps end in his ruin. But the innocence of Perseus was patronized by the gods. Pluto lent him his helmet, which had the wonderful power of making its bearer invisible; Minerva gave him her buckler, which was as resplendent as glass; and he received from Mercury wings and the talaria, with a short dagger made of diamonds, and called *herpè*. According to some it was from Vulcan, and not from Mercury, that he received the *herpè*, which was in form like a scythe. With these arms Perseus began his expedition, and traversed the air, conducted by Minerva. He went to the Graia, the sisters of the Gorgons, who, according to the poets, had wings like the Gorgons, but only one eye and one tooth between them all, of which they made use, each in her turn. They were three in number, according to Æschylus and Apollodorus; or only two, according to Ovid and Hesiod. With Pluto's helmet, which rendered him invisible, Perseus was enabled to steal their eye and their tooth while they were asleep; and he returned them only when they had informed him where their sisters, the Gorgons, resided.

When he had received every necessary information, Perseus flew to the habitation of the Gorgons, which was situate beyond the Western Ocean, according to Hesiod and Apollodorus; or in Libya, according to Ovid and Lucan; or in the deserts of Asiatic Scythia, according to Æschylus. He found these monsters asleep; and, as he knew that, if he fixed his eyes upon them, he should be instantly changed into a stone, he continually looked on his shield, which reflected all the objects as clearly as the best of glasses. He approached them, and, with a courage which Minerva supported, he cut off Medusa's head at one blow. The noise awoke the two immortal sisters; but Pluto's helmet rendered Perseus invisible, and the attempts of the Gorgons to revenge Medusa's death proved fruitless; the conqueror made his way through the air, and from the blood which dropped from Medusa's head sprang all those innumerable serpents which have ever since infested the sandy deserts of Libya. Chrysaor, also, with his golden sword, sprung from these drops of blood, as well as the horse Pegasus, which immediately flew through the air, and stopped on mount Helicon, where he became the favourite of the Muses.

Mean time Perseus had continued his journey across the deserts of Libya; but the approach of night obliged him to alight in the territories of Atlas, king of Mauritania. He went to the monarch's palace, where he hoped to find a kind reception by announcing himself as the son of Jupiter, but in this he was disappointed. Atlas recollected that, according to an ancient oracle, his gardens were to be robbed of their fruit by one of the sons of Jupiter; and therefore he not only refused Perseus the hospitality he demanded, but he even offered violence to his person.

Perseus,

Perseus, finding himself inferior to his powerful enemy, showed him Medusa's head, and instantly Atlas was changed into a large mountain which bore the same name in the deserts of Africa.

On the morrow Perseus continued his flight; and, as he passed across the territories of Libya, he discovered, on the coasts of Æthiopia, the naked Andromeda, exposed to a sea-monster. He was struck at the sight, and offered her father Cepheus to deliver her from instant death if he might obtain her in marriage as a reward of his labours. Cepheus consented; and immediately Perseus, raising himself in the air, flew towards the monster, which was advancing to devour Andromeda, and plunged his dagger in his right shoulder, and destroyed him. This happy event was attended with the greatest rejoicings. Perseus raised three altars, to Mercury, Jupiter, and Pallas; and, after he had offered the sacrifice of a calf, a bullock, and a heifer, the nuptials were celebrated with the greatest festivity. The universal joy, however, was soon disturbed. Phineas, Andromeda's uncle, entered the palace with a number of armed men, and attempted to carry away the bride, whom he had courted and admired long before the arrival of Perseus. The father and mother of Andromeda interfered, but in vain; a bloody battle ensued, and Perseus must have fallen a victim to the rage of Phineas, had not he defended himself at last with the same arms which proved fatal to Atlas. He showed the Gorgon's head to his adversaries, and they were instantly turned to stone, each in the posture and attitude in which he then stood. The friends of Cepheus, and such as supported Perseus, shared not the fate of Phineas, as the hero had previously warned them of the power of Medusa's head, and of the services which he received from it.

Soon after this memorable adventure, Perseus retired to Seriphos, at the very moment that his mother, Danaë, fled to the altar of Minerva, to avoid the pursuit of Polydectes, who attempted to offer her violence. Dictys, who had saved her from the sea, and who, as some say, was the brother of Polydectes, defended her against the attempts of her enemies; and therefore Perseus, sensible of his merit and of his humanity, placed him on the throne of Seriphos, after he had with Medusa's head turned into stones the wicked Polydectes, and the officers who were the associates of his guilt. He afterwards restored to Mercury his talaria and his wings, to Pluto his helmet, to Vulcan his sword, and to Minerva her shield; but, as he was more particularly indebted to the goddesses of wisdom for her assistance and protection, he placed the Gorgon's head on her shield, or rather, according to the more received opinion, on her ægis.

After he had finished these celebrated exploits, Perseus expressed a wish to return to his native country, and accordingly he embarked for the Peloponnesus, with his mother and Andromeda. When he reached the Peloponnesian coasts, he was informed that Teutamias, king of Larissa, was then celebrating funeral games in honour of his father. This intelligence drew him to Larissa to signalize himself in throwing the quoit, of which, according to some, he was the inventor. But here he was attended by an evil fate, and had the misfortune to kill a man with a quoit which he had thrown in the air. This was no other than his grandfather Acrisius, who, on the first intelligence that his grandson had reached the Peloponnesus, fled from his kingdom of Argos to the court of his friend and ally Teutamias, to prevent the fulfilling of the oracle which had obliged him to treat his daughter with so much barbarity. Some suppose with Pausanias, that Acrisius had gone to Larissa to be reconciled to his grandson, whose fame had been spread in every city in Greece; and Ovid maintains that the grandfather was under the strongest obligations to his son-in-law, and through him he had been restored to his kingdom, from which he had been forcibly driven by the sons of his brother Proetus.

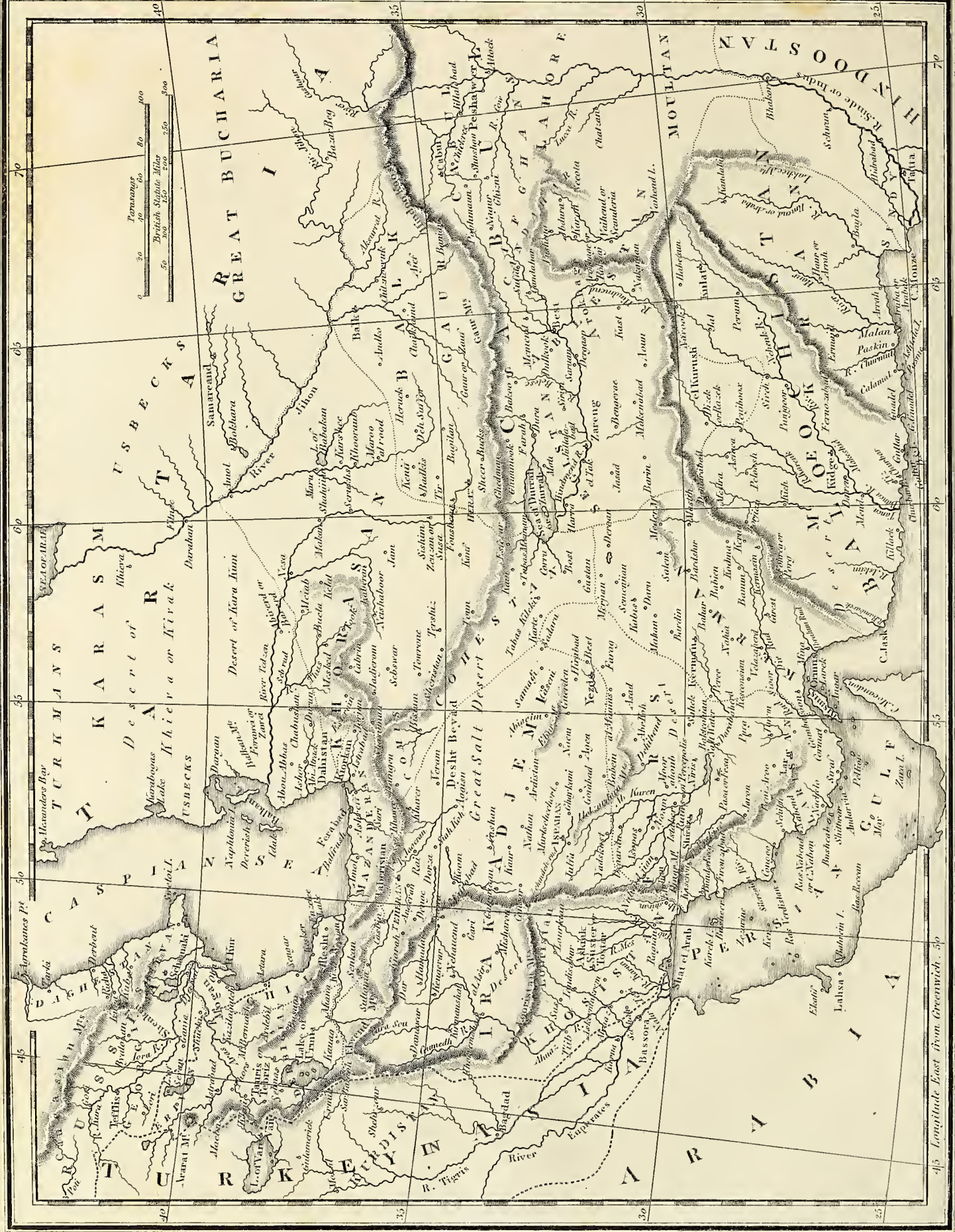
This unfortunate murder greatly depressed the spirits of

Perseus: by the death of Acrisius he was entitled to the throne of Argos; but he refused to reign there; and, to remove himself from a place which reminded him of the parricide he had unfortunately committed, he exchanged his kingdom for that of Tirynthus, and the maritime coast of Argolis, where Megapenthes, the son of Proetus, then reigned. When he had finally settled in this part of the Peloponnesus, he determined to lay the foundations of a new city, which he made the capital of his dominions, and which he called *Mycenæ*, because the pommel of his sword, called by the Greeks *myces*, had fallen there. Perseus had by Andromeda, Alceus, Sthenelus, Nestor, Electryon, and Gorgophone.

As our hero in his lifetime had been a patron of learning, and built an academy on mount Helicon; and as he was farther distinguished by his glorious exploits; he was advanced to heaven in the panegyrics made to his honour, and after his death became a demigod. Of this prince and all his wife's family, were also formed the constellations called Cassiopeia, Perseus, and Andromeda: and the very monster, which he was said to have killed, was placed in the heavens, where it formed the sign of the Whale. Pausanias says, this prince was worshipped as a hero at Argos, and still more in the isle of Seriphus and at Athens, where he had a temple, in which was an altar consecrated to Dictys and Clymene, who were reckoned his preservers. This Dictys was the brother of Polydectes; and he, together with his wife Clymene, had the care of his education by the king's order, when he was driven by the waves into the island of Seriphus. If we may place any dependance on the history of the fabulous ages, Perseus lived about 100 or 120 years before the Trojan war; he therefore preceded Bellerophon several years, since the latter lived only 40 or 45 years at most before the destruction of Troy.

PER'SEUS, in astronomy, a constellation of the northern hemisphere; whose stars, in Ptolemy's and Tycho's Catalogue, are 29; in Hevelius's, 46; and in the Britanic Catalogue, 59.

PER'SHORE, or PEARSHORE, an ancient market-town in Worcestershire, nine miles from Worcester, thirty-five from Birmingham, and 102 from London. It is a neat old town, on the north side of the Avon, near its junction with the river Bow, being a considerable thoroughfare in the lower road from Worcester to London. It consists of two parochial divisions; viz. the Vicarage of St. Andrew, and the Chapelry of Holy Cross. The road from London to Worcester passing through it, has occasioned a considerable increase in its size and population. Pershore is a town of great antiquity, and is said to have derived its name from the number of *pear-trees* which grew in its vicinity, and from its position on the *shore*, or bank, of a river. According to bishop Tanner, Oswald, one of the nephews of Ethelred king of Mercia, founded a monastery here in 686; but William of Malmshury asserts that Egelward, duke of Dorset, in the reign of Edgar, was the first founder. Gough, in his additions to Camden's Britannia, accounts for the discrepancy, by stating, that it was so considerably enlarged and increased in its endowments by Egelward, that he was considered a new founder. It consisted at first of secular clerks, then monks, who were dismissed by king Edgar in 984, from which time it became an abbey of Benedictine monks, dedicated at first to the Virgin and the apostles Peter and Paul, but afterwards to St. Edburga. Belonging to the abbey was a large church, called the Holy Cross, 280 feet in length, and 120 broad. Of the abbey itself there are but few vestiges; but the church has been modernized, repaired, and used for parochial purposes. It has a lofty square tower, and contains several antique monuments. The church and convent, being originally built of wood, were several times destroyed by fire: on St. Urban's day, in the year 1223, and again in 1287, when an accidental conflagration reduced not only the abbey to ashes, but also consumed the greatest part of the



PERSIA.

Engraved and Published by Wm. H. Miller, at No. 10, St. Paul's Churchyard, Strand.

town. In ancient times, the principal approach to the abbey was through Lice-street, a Saxon appellation derived from the corpses for interment being carried along that street. A small part of the gateway, on the north side, is still in existence; near it was the chapel of St. Edburga, the eighth daughter of king Edward the Elder, who reigned about the year 900. Pershore has two churches at present: that of the Holy Cross, above mentioned; and All Saints, which is small, but kept in neat order, and has a square tower. The parish is extensive, and contains several manors and chapelries. The town is principally situated in one street, about three-quarters of a mile in length, and has many respectable houses. It formerly sent members to parliament; but none have been returned since the 23d year of Edward I. Its chief manufacture is for stockings. Market-day, Thursday; fairs, Easter Tuesday, June 26, first Monday in August, and the Tuesday before the 1st of November. According to the census of 1811, the number of houses was 408, containing 1910 inhabitants.

In the neighbourhood of the town are several villages of minor importance.—Defford is a chapelry to Pershore, eight miles in circuit; wherein are some salt springs. Near it is Coppins-court, which formerly had a magnificent edifice, now razed.—Strensham is south-west of Pershore, not far from the influx of the Avon into the Severn. Here is an hospital for six poor widows, and a charity-

school. This parish contains 2000 acres; and was the birth place of Samuel Butler, author of Hudibras. The church has several fine monuments of the Ruffel family.—Wolborough or Wadborough, is three miles north-west of Pershore, where the abbots of that monastery had a park.—Walcot is about two miles north-east.—Stowton is to the north-west.—Breedon is a healthy pleasant village near Pershore; the parish, dedicated to St. Giles, contains three chapelries, viz. Norton, Mitton, and Cutfdean; and three hamlets, viz. Westmancot, Kelmesham, and Hardwick; it is one of the most valuable rectories in the diocese of Worcester. Here was formerly a monastery. The porch and west end of the church are Saxon edifices, said to have been built by the grandfather of King Offa. To the north-east of it is a hill, on which is a Roman encampment, with a double ditch; and it boasts one of the finest prospects in the county; on the top is a lofty summer-house, from which may be viewed the cities of Worcester and Gloucester; Cheltenham, &c.—At Wycton, near Wych, according to Tanner, a priory of canons of the order of St. Augustine was founded by Peter de Corbizon, alias Studley, in the parish-church of St. Peter, about the latter end of the reign of Henry I. It was afterwards removed to Studley in Warwickshire; and, excepting the parish-church, no traces of any ecclesiastical establishment remain. *Beauties of England and Wales*, vol. xv. *Wilkes's British Directory*, vol. v.

P E R S I A .

PER'SIA, a most ancient and celebrated empire of Asia, the limits of which have been various at different periods. Its ancient name was Elam, or Elymais; and its inhabitants were denominated Elamites, as the descendants of Elam, the son of Shem; and under this appellation they formed, about the time of Abraham, in the 18th or 19th century B. C. a powerful state. The name of Persia is derived from the oriental term *Pares*, which, originating with the province Pars or Fars, at length comprehended the whole mighty empire. It has been also sometimes called *Achæmenia*, from the name of Achemenes, one of its ancient kings; but more commonly by the natives, and also the more intelligent Mussulmans, IRAN, under which denomination were included all the wide regions to the south and west of the Oxus or Gihon; and the countries beyond that river subject to Persia were, in ancient times, denominated *Aniran*.

Persia extended; according to the geography of Ptolemy, between Media towards the north, and the *Sinus Persicus*, or Persian Gulf, on the south; it was separated from Babylonia by Susiana; and on the west was Carmania. In settling the largest boundaries between which it lies, sir William Jones directs us to begin with the source of the Euphrates, and thence descend to its mouth in the Persian Gulf, including in our line some considerable districts and towns on both sides the river; then coasting Persia, properly so named, and other Iranian provinces, we come to the delta of the Sindhu, or Indus; whence ascending to the mountains of Cashgar, we discover its fountains, and those of the Iaihun, down which we are conducted to the Caspian, which formerly perhaps it entered, though it loses itself now in the sands and lakes of Khwarezm; we next are led from the sea of Khorzar, by the banks of the Cur, or Cyrus, and along the Caucasian ridges, to the shore of the Euxine, and thence, by the several Grecian seas, to the point whence we took our departure, at no considerable distance from the Mediterranean. We cannot but include the Lower Asia within this outline, because it was unquestionably a part of the Persian, if not of the old Assyrian, empire. Thus, says our author, we may look on Iran as the noblest island, (for so the Greeks and the Arabs would have called

it,) or at least the noblest peninsula, on this habitable globe. The limits assigned by nature to Persia, and which naturally subsisted in the reign of Artaxerxes, the founder of the house of Sassan, are the Sea of Oman, or Persian Gulf, and Indian Ocean, to the south; the Indus and Oxus, to the east and north-east; the Caspian Sea, and Mount Caucasus, to the north; and the rivers Tigris and Euphrates to the west; which boundaries comprehend many extensive provinces; and several kingdoms.

The present extent of Persia, according to the statement of Pinkerton, is as follows. From the mountains and deserts, which, with the river Araba, constitute the eastern frontier towards Hindoostan, Persia extends more than 1200 miles in length, to the western mountains of Elwend, and other limits of Asiatic Turkey. From south to north, from the deserts of the Indian Sea, in all ages left to the Ichthyophagi, or wild tribes of Arabs who live on fish, to the other deserts near the sea of Aral, are about 1000 British miles. The dominion of the present king is restricted to the provinces of Fars and Irak, Lar, Chusistan, part of Curdistan, Adjerbijan, Ghilan, Mazanderram, the western parts of Chorasan, with the cities of Meshed, Nishapour, and Turshish, and the western division of Kerman, including the capital of that province. By a treaty with Russia, signed Oct. 12, 1813, Persia ceded to Russia the government of Karabag, Gannshin, Scheliin, Schirwan, Derbent, Kubin, Baka, Talischin, and the whole of Daglufstan; and renounced all claims to Georgia, with the province of Shuragil upon Imaretta, Guria, Mingrelia, and Abelcaise. By this treaty, the line of boundaries between the two empires commences from the plain of Adineh Bazar, and runs direct though the Sahara, or Desert of Moghan, to the west of Yediboluk on the river Araxes, and then on the uppermost northern bank of that river, until its junction at the Kapaneh chai, at the back of the hill of Megri. From the right bank of the Kapaneh chai, the boundaries of Karabag and Nakhjuwan are marked by a line drawn on the summits of the mountains of Pembeg and Aligez. The line then continues from the top of the Pembeg mountains to the angle of the boundary of Shuragil, then over the snowy mountains, and, passing through Aked, runs along the

limits of Shuragil and between the village of Miferi, until it reaches the river Arpachai.

This empire, or kingdom, is one of those which possess the double interest of ancient and modern celebrity. Situated near, if not actually embracing, the cradle of the human race, Persia was, according to the concurrent testimony of tradition and history, at an early period of the world a powerful empire. The ineffectual struggles of its despotic rulers to enslave the independent republics of Greece, and its rapid subjugation by the Macedonian conqueror, occupy a very prominent place in the annals of antiquity: while its reduction by the disciples of Mahomet, the many subsequent invasions of barbarous marauders, its frequent hostilities with Turkey, and the commercial relations which long subsisted between Persia and some of the European States, have in more recent ages rendered it an object of curiosity and attention. Little, however, was done, till near the close of the seventeenth century, towards making the western world acquainted with a country, with the name of which all that is most attractive, elegant, and tender, in oriental literature, romance, and poetry, is intimately associated. The work of the accurate Chardin then removed much of the profound obscurity in which the character and manners of the Persians were enveloped. That writer continued to be the only authority on those subjects till the commencement of the present century; since which the assiduity bestowed by our countrymen on the study of the language and letters of Persia, our frequent intercourse with that country, the repeated embassies sent to its sovereign, and the travels, researches, and labours, of Ouseley, Malcolm, Morier, Kinnier, Scott Waring, and Ker Porter, have furnished nearly as complete notions respecting the government, laws, manners, customs, and character, of the people of this empire, as we possess relative to those of any European nation. The reader will naturally conclude, that, in the compilation of this article, the valuable sources of information enumerated above have not been neglected. But we confess ourselves also very greatly indebted, particularly for correct engravings of costume and character, to a work published at Paris in 1814, in five small volumes, entitled "LA PERSE; ou, Tableau de l'Histoire, du Gouvernement, de la Religion, de la Littérature, etc. de cet Empire; des Mœurs et Coutumes de ses Habitans. Par Am. Jourdain. Ouvrage orné de Gravures faites d'après des Peintures Perjanes."

GENERAL HISTORY.

FROM THE EARLIEST RECORDS TO THE SUBJUGATION OF THE EMPIRE BY ALEXANDER THE GREAT.

The foundation of the kingdom of Iran, or Persia, dates back beyond the historic ages of Asia, and consequently of the whole world. Though we cannot fix with any degree of certainty the period of the establishment of the four fire-worshipping dynasties anterior to the invasion of the Mussulmans, still it seems indubitable, from documents recently discovered in various Persian historians, that those dynasties were preceded by several others. Notwithstanding the obscurity in which this subject is enveloped, there is every reason to suppose, that under these most ancient dynasties the Persians maintained a close intercourse with the inhabitants of Upper Hindoostan, or even sent a colony to that country: for it would appear that the Persians and Hindoos then had the same political system, professed the same religion, and spoke the same language. Hence, doubtless, arise the numerous coincidences that are to be found between the *Zend*, or ancient Persian language, and the *Sanskrit*, the sacred language of the Brahmins.

According to the Persians, the appellation of *Iran* is as ancient as the reign of Feridoun, one of their earliest monarchs. This great prince, whose empire had no other bounds than the globe, divided his dominion among his three sons, Salem, Touran, and Iradj. To the first he allotted Asia Minor, Africa, and Europe; to the second,

the countries lying beyond the Djihoun; to the third, who was his favourite, the space comprised between the Djihoun and the Euphrates, the Indian Ocean, and the Caspian Sea. These different kingdoms were named after their princes; and Persia was called *Iran*, either after Iradj, who was also named Iran, or after his mother Irandokt. The countries beyond the Oxus received the denomination of *Touran*. Such is the origin of the names of Iran and Touran which so frequently occur in oriental authors. This partition bears a striking resemblance to that of Noah, who divided the earth between his three sons, Shem, Ham, and Japhet.

Whatever hand the imagination or the national vanity of the Persians may have had in this etymology, so much at least is certain, that the term Iran is of very high antiquity: it occurs in the Sassanian inscriptions on the monuments of Nakhee Roustam, in the sacred books of the Persees, where it is sometimes written *Euraneh*, and is probably the *Elam* of the Bible, a name which seems to designate Persia.

Herodotus calls its inhabitants *Cephenes*; and in very ancient times the people are said to have called themselves *Artei*, and the country where they dwelt *Artea*. In the books of Daniel, Esdras, &c. it is called by the names of *Pars*, *Pharas*, or *Fars*, whence the modern name of *Persia*; but whence those names have been derived, is now uncertain.

That Persia was originally peopled by Elam the son of Shem, has been very generally admitted; but the truth is, that of the ancient history of this distinguished empire very little is perfectly known. For this ignorance, which at first seems strange, satisfactory reasons may easily be assigned; of which the principal are the superficial knowledge of the Greeks and Jews, and the loss of Persian archives or historical compositions. "That the Grecian writers before Xenophon had no acquaintance with Persia, and that their accounts of it are wholly fabulous, is a paradox too extravagant to be seriously mentioned; but (says sir William Jones) their connexion with it in war or peace had been generally confined to bordering kingdoms under feudatory princes; and the first Persian emperor, whose life and character they seem to have known with tolerable accuracy, was the great Cyrus." Our learned author, however, is so far from considering Cyrus as the first Persian monarch, that he thinks it evident a powerful monarchy had subsisted in Iran for ages before the accession of that hero; that this monarchy was called the *Mahebedian* dynasty; and that it was in fact the oldest monarchy in the world. The evidence upon which he rests this opinion, is the work of a Mahometan traveller, compiled from the books of such Persians as fled from their country upon the innovation in religion made by Zoroaster: and if these books, of which a few still remain, be genuine, and the Mahometan a faithful compiler, facts of which sir William has not the smallest doubt, the evidence is certainly sufficient to bear the superstructure which he has raised upon it.

If the Persian monarchy was thus ancient, it is natural to suppose that Persia, or *Iran*, was the original seat of the human race, whence colonies were sent out, or emigrated of themselves, to people the rest of the habitable globe. This supposition is actually made by our ingenious author, who strongly confirms it by remarks on the most ancient language of Persia, which he shows to have been the parent of the Sanscrit, as well as of the Greek, Latin, and Gothic. He therefore holds, as a proposition firmly established, "that *Iran*, or Persia in its largest sense, was the true centre of population, of knowledge, of languages, and of arts; which instead of travelling westward only, as it has been fancifully supposed, or eastward, as might with equal reason have been asserted, were expanded in all directions to all the regions of the world." He thinks it is from good authority that the Saxon Chronicle brings the first inhabitants of Britain from Armenia; that the Goths have been concluded to

come

come from Persia; and that both the Irish and old Britons have been supposed to have proceeded from the borders of the Caspian: for all these places were comprehended within the ancient Iran.

Of this first Persian monarchy we have no historical accounts; and must therefore, after having thus mentioned it, descend at once to the era of Cyrus. This prince is celebrated both by sacred and profane historians; but the latter are at no small variance concerning his birth and accession to the throne. According to Herodotus, Astyages, the last king of the Medes, being warned in a dream, that the son who was to be born of his daughter Mandane should one day be lord of Asia, resolved to marry her, not to a Mede, but to a Persian. Accordingly he chose for her husband one Cambyfes, a man of a peaceable disposition, and of no very high station. However, about a year after they were married, Astyages was frightened by another dream, which made him resolve to dispatch the infant as soon as it should be born. Hereupon the king sent for his daughter, and put her under confinement, where she was soon after delivered of a son. The infant was committed to the care of one Harpagus, with strict orders to destroy it in what manner he thought proper. But he, having acquainted his wife with the command he had received, by her advice gave it to a shepherd, desiring him to let it perish by exposing it. But the shepherd, out of compassion, exposed a still-born child which his wife happened to be then delivered of, and brought up the son of Mandane as his own, giving him the name of Cyrus.

When the young prince had attained the age of ten years, as he was one day at play with other children of the same age, he was chosen king by his companions; and having, in virtue of that dignity, divided them into several orders and classes, the son of Artembares, a lord of eminent dignity among the Medes, refused to obey his orders; whereupon Cyrus caused him to be seized, and whipped very severely. The boy ran crying to his father; and he immediately hastened to the king's palace, loudly complaining of the affront his son had received from the son of a slave, and intreating Astyages to revenge, by some exemplary punishment, the indignity offered to him and his family. Astyages, commanding both the herdsman and his son to be brought before him, asked the latter, how he, who was the son of so mean a man, had dared to abuse the son of one of the chief lords of the kingdom? Cyrus replied, that he had done no more than he had a right to do; for the boys of the neighbourhood having chosen him king, because they thought him most worthy of that dignity, and performed what he, vested with that character, had commanded, the son of Artembares alone had slighted his orders, and for his disobedience had suffered the punishment he deserved. In the course of this conversation, Astyages, happening to recollect that his grandson, whom he had ordered to be destroyed, would have been about the same age with Cyrus, began to question the shepherd concerning his supposed son, and at last obtained from him a confession of the whole truth.

Astyages, having now discovered Cyrus to be his grandson, sent for Harpagus, who also confessed that he had not seen Mandane's son destroyed, but had given him to the shepherd; at which Astyages was so much incensed, that, having invited Harpagus to an entertainment, he caused him to be served with the flesh of his own son. When he had done, the king asked him whether he liked his victuals; and Harpagus answering, that he had never tasted any thing more delicious, the officers appointed for that purpose brought in a basket, containing the head, hands, and feet, of his son, desiring him to uncover the basket, and take what he liked best. He did as they desired, and beheld the mangled remains of his only child without betraying the least concern, so great was the command which he had over his passions. The king then asked him, whether he knew with what kind of meat he had been entertained. Harpagus replied, that he knew

very well, and was always pleased with what his sovereign thought fit to ordain; and, having thus replied, with a surprising temper, he collected the mangled parts of his innocent son, and went home.

Astyages, having thus vented his rage on Harpagus, began next to consult what he should do with Cyrus. The magi, however, eased him of his fears with regard to him, by assuring him, that, as the boy had been once chosen king by his companions, the dream had been already verified, and that Cyrus never would reign in any other sense. The king, being well pleased with this answer called Cyrus, and, owing how much he had been wanting in the affection which he ought to have had towards him, desired him to prepare for a journey into Persia, where he would find his father and mother in circumstances very different from those of the poor shepherd and his wife with whom he had hitherto lived. Cyrus, on his arrival at his father's house, was received with the greatest joy. When he grew up, he soon became popular on account of his extraordinary parts; till at last his friendship was courted by Harpagus, who had never forgot the cruel treatment he received from Astyages. By his means a conspiracy was formed against Astyages; who, being overthrown in two successive engagements, was taken prisoner, and confined for life.

The account given by Xenophon of the rise of Cyrus is much more consonant to Scripture; for he tells us, that Babylon was conquered by the united forces of the Medes and Persians. According to him, Cyrus was the son of Cambyfes king of the Medes, and Mandane the daughter of Astyages king of Persia. He was born a year after his uncle, Cyaxares, the brother of Mandane. He lived till the age of twelve with his parents in Persia, being educated after the manner of the country, and inured to fatigues and military exercises. At this age he was taken to the court of Astyages, where he resided four years; when the revolt of the Medes and Persians from the Babylonians happened, and which ended in the destruction of the Babylonish empire, as related under the article BABYLON, vol. ii. p. 595.

While Cyrus was employed in the Babylonish war, before he attacked the metropolis itself, he reduced all the nations of Asia Minor. The most formidable of these were the Lydians, whose king Cræsus assembled a very numerous army, composed of all the other nations in that part of Asia, as well as of Egyptians, Greeks, and Thracians. Cyrus, being informed of these vast preparations, augmented his forces to 196,000 men, and with them advanced against the enemy, who were assembled near the river Pactolus. After long marches, he came up with them at Thymbra, not far from Sardis, the capital of Lydia. Besides the horse and foot, which amounted to 196,000, as already observed, Cyrus had 300 chariots armed with scythes, each chariot drawn by four horses abreast, covered with trappings that were proof against all sorts of missile weapons: he had likewise a great number of chariots of a larger size, upon each of which was placed a tower about eighteen or twenty feet high, and in each tower were lodged twenty archers. These towers were drawn by sixteen oxen yoked abreast. There was moreover a considerable number of camels, each mounted by two Arabian archers, the one looking towards the head, and the other towards the hinder part, of the camel. The army of Cræsus consisted of 420,000 men. The Egyptians, who alone were 120,000 in number, being the main strength of the army, were placed in the centre. Both armies were drawn up in an immense plain, which gave room for the extending of the wings on either side; and the design of Cræsus, upon which alone he founded his hopes of victory, was to surround and hem in the enemy's army.

When the two armies were in sight of each other, Cræsus, observing how much his front exceeded that of Cyrus, made the centre halt, but commanded the two wings to advance, with a design to enclose the Persian army, and begin the attack on both sides at once. When

the two detached bodies of the Lydian forces were sufficiently extended, Cræsus gave the signal to the main body, which marched up to the front of the Persian army, while the two wings attacked them in flank; so that Cyrus's army was hemmed in on all sides, and, as Xenophon expresses it, was inclosed like a small square drawn within a great one. This motion, however, did not at all alarm the Persian commander; but, giving his troops the signal to face about, he attacked in flank those forces that were going to fall upon his rear so vigorously, that he put them into great disorder. At the same time a squadron of camels was made to advance against the enemy's other wing, which consisted mostly of cavalry. The horses were so frightened at the approach of these animals, that most of them threw their riders, and trod them under foot; which occasioned great confusion. Then Artageses, an officer of great valour and experience, at the head of a small body of horse, charged them so briskly, that they could never afterwards rally; and at the same time the chariots, armed with scythes, being driven in among them, they were entirely routed. Both the enemy's wings being thus put to flight, Cyrus commanded his chief favourite Abradates to fall upon the centre with the large chariots above mentioned. The first ranks, consisting mostly of Lydians, not being able to stand so violent a charge, immediately gave way; but the Egyptians, being covered with their bucklers, and marching so close that the chariots had not room to penetrate their ranks, a great slaughter of the Persians ensued. Abradates himself was killed, his chariot overturned, and the greatest part of his men were cut in pieces. Upon his death, the Egyptians, advancing boldly, obliged the Persian infantry to give way, and drove them back quite to their engines. There they met with a new shower of darts and javelins from their machines; and, at the same time the Persian rear, advancing sword in hand, obliged their spearmen and archers to return to the charge. In the mean time Cyrus, having put to flight both the horse and foot on the left of the Egyptians, pushed on to the centre, where he had the misfortune to find his Persians again giving ground; and judging that the only way to stop the Egyptians, who were pursuing them, would be to attack them in the rear, he did so; and at the same time the Persian cavalry coming up to his assistance, the fight was renewed with great slaughter on both sides. Cyrus himself was in great danger; for, his horse being killed under him, he fell among the midst of his enemies; but the Persians, alarmed at the danger of their general, threw themselves headlong on their opponents, rescued him, and made a terrible slaughter; till at last Cyrus, admiring the valour of the Egyptians, offered them honourable conditions; letting them know, at the same time, that all their allies had abandoned them. They accepted the terms offered them; and, having agreed with Cyrus that they should not be obliged to carry arms against Cræsus, they engaged in the service of the conqueror, and continued faithful to him ever after.

The next morning Cyrus advanced towards Sardis, and Cræsus marched out to oppose him at the head of the Lydians only; for his allies had all abandoned him. Their strength consisted mostly in cavalry; which Cyrus being well apprized of, he ordered his camels to advance; by whom the horses were so frightened, that they became quite ungovernable. However, the Lydians dismounted, and for some time made a vigorous resistance on foot; but were at last driven into the city, which was taken two days after: and thus the Lydian empire was totally destroyed. See the article LYDIA, vol. xiii.

After the conquest of Sardis, Cyrus turned his arms against Babylon itself, which he reduced in the manner related under that article. Having settled the civil government of the conquered kingdoms, Cyrus took a review of all his forces, which he found to consist of 600,000 foot, 120,000 horse, and 2000 chariots armed with scythes. With these he extended his dominion all over

the nations to the confines of Ethiopia, and to the Red Sea; after which he continued to reign peaceably over his vast empire till his death, which happened about 529 before Christ.

The opposite accounts given by Herodotus and Xenophon of the death of CYRUS, (as noticed under his article, vol. v. p. 549.) has generally been regarded as one of the most extraordinary discrepancies to be met with in history; it has been urged as a proof of the slender credit due to the celebrated writers of antiquity; and it seems, indeed, to shake the very foundation of historic testimony. Herodotus, as is well known, represents that great conqueror as defeated and slain in an invasion of the country of the Massagetæ, a warlike nation of Scythia, bordering on the Persian empire; while Xenophon affirms, that he died peaceably in his palace in Persia, surrounded by his family and friends. This is the account almost universally preferred by modern writers. Bossuet thought it better, as he says, "to follow Xenophon, with St. Jerome, than Ctesias, a fabulous author, or even Herodotus himself, as more coherent and conformable to Scripture." Dean Prideaux asserts, and M. Rollin repeats, "that the account of Xenophon is much the more probable, it being by no means likely that so wise a man as Cyrus, and so advanced in years, should engage in so rash an undertaking." (Connection, vol. i. p. 210.) The authors of the Universal History concur in this sentiment; and Mitford, in his elaborate History of Greece, "doubts whether the strange story told by Herodotus was even heard of in Greece so late as the age of Æschylus;" quoting, in confirmation of this opinion, a passage from "The Persians," of that tragedian, and put by him into the mouth of the ghost of Darius:

—"Cyrus next, by Fortune graced,
Adorn'd the throne, and blest'd his grateful friends
With peace. He to his mighty monarchy
Join'd Lydia and the Phrygians. To his power
Ionia bent reluctant. But the gods
With victory his gentle virtues crown'd. *Potter.*

This passage, Mr. M. flatters himself, "though unnoticed by modern writers, adds considerable weight to Xenophon's more probable account."

On the other hand, the learned Freret declares "the conformity of Xenophon to Scripture to be wholly imaginary;" adding, what is equally true, though less obvious, "that the Anabasis is at variance with the Cyropædia; confirming the relation of Herodotus and Ctesias, as to the conquest of Media by the Persians." The Cyropædia of Xenophon, says the Abbé Millot, "is evidently the work of a philosopher, rather than an historian; a sort of moral and political romance." (Elem. vol. i. p. 110.) Voltaire compares it to the Telemaque of Fenelon; but, being confessedly blended with truth, it bears a nearer resemblance to the Belisarius of Marmontel. "Cyrus ille a Xenophonte, (says Cicero,) non ad historiarum fidem scriptus, sed ad effigiem justi Imperii."

Beloe, the translator of Herodotus, upon whom it seemed peculiarly incumbent to vindicate the credit of his author, has contented himself with transcribing on this subject a short and futile note from his French predecessor, Larcher, merely stating the difference between Herodotus and Xenophon; adding, "that Strabo inclines to the opinion of the latter, but till the passage is produced this may be doubted." (Beloe's Herod. vol. i. p. 235.) Dr. Gillies, the rival and liberal historian of Greece, entirely dissents, however, on this point, from Mitford, Bossuet, and St. Jerome; and has the courage to declare "that the plain relation of facts by Herodotus, is to be preferred to the moral embellishments of Xenophon;" (vol. i. p. 313.) In fact, the question will scarcely endure a serious discussion. Herodotus, who was occasionally deceived in his remote and recondite researches, but who never meant to deceive, and whose testimony is equal to that of any historian, where his means of information were

were adequate and accessible, was born less than half a century after the death of Cyrus: he fought with eagerness information on this subject at Babylon; and he affirms, that he gave that account of the end of Cyrus which seemed most consistent with probability, though there were many other and different ones; meaning to refer to the concomitant circumstances of this catastrophe, and not to the uncontroverted fact of his being killed in battle, to which he repeatedly alludes, and of which he never intimates the shadow of a doubt. The next authority, in point of time and weight, is that of Ctesias, who lived in the court of Cyrus the Younger, and afterwards in that of Artaxerxes Mnemon; a fabulous author, unquestionably, when treating of fabulous times, but not when speaking of such an event under such circumstances. Ctesias, far from aggravating an event which he would naturally be rather tempted to palliate, cautiously relates that Cyrus the Great died of the wounds he received in a great battle fought on the side of Hyrcania. Diodorus Siculus, and Justin, the excellent epitomiser of Trogus Pompeius, and also the Jewish historian Josephus, in his work on Jewish Antiquities, recite the same story with immaterial variations. To these testimonies, supported by the uniform credence of antiquity, can the romance of Xenophon be gravely and singly opposed? Plutarch and Arrian indeed say, that the tomb of Cyrus was shown to Alexander; and, no doubt, Cyrus was said to be buried at Pasargada, though the Scythians boasted that his body was found by them among the slain; and this was the account which appeared to Herodotus most probable. Cyrus was, from his youth, inured to scenes of blood and slaughter. His passion for war resembled that of other conquerors; and, had he been the vanquisher of the Scythians, no one would have talked of the rashness of the expedition.

In the time of Cyrus, the Persian empire extended from the river Indus to the Ægean Sea. On the north it was bounded by the Euxine and Caspian Seas, and on the south by Ethiopia and Arabia. That monarch kept his residence for the seven cold months at Babylon, by reason of the warmth of that climate; three months in the spring he spent at Susa, and two at Ecbatana during the heat of summer. On his death-bed he appointed his son Cambyfes to succeed him in the empire; and to his other son, Smerdis, he gave several considerable governments.

The new monarch immediately set about the conquest of EGYPT; which he accomplished in the manner related in the history of that country, vol. vi. p. 296. Having reduced Egypt, Cambyfes next resolved to turn his arms against the Carthaginians, Hammonians, and Ethiopians. But he was obliged to drop the first of these enterprises, because the Phœnicians refused to supply him with ships against the Carthaginians, who were a Phœnician colony. However, he sent ambassadors into Ethiopia with a design to get intelligence of the state and strength of the country. But the Ethiopian monarch, being well apprized of the errand on which they came, treated them with great contempt. In return for the presents sent him by Cambyfes, he sent his own bow; and advised the Persians to make war upon the Ethiopians when they could bend such a strong bow as easily as he did, and to thank the gods that the Ethiopians had no ambition to extend their dominions beyond their own country. Cambyfes was no sooner informed of this answer by his ambassadors, than he flew into a violent passion; and ordered his army immediately to begin their march, without considering that they were neither furnished with provisions nor any other necessary. When he arrived at Thebes in Upper Egypt, he detached 50,000 men, with orders to destroy the temple of Jupiter Ammon: but all these perished in the desert; not a single person either arriving at the oracle, or returning to Thebes. The rest of the army, led by Cambyfes himself, experienced incredible hardships; for, being unprovided with any necessaries, they had not

marched a fifth part of the way when they were obliged to kill and eat their beasts of burthen. When these failed, the soldiers fed on grass and roots, as long as any could be found; and at last were reduced to the dreadful necessity of eating one another; every tenth man, on whom the lot fell, being condemned to serve as food for his companions. The king, however, obstinately persisted in his design; till, being apprehensive of the danger he himself was in, he retreated to Thebes; after having lost the greatest part of his army.

Cambyfes was a man of a very cruel and suspicious temper, of which he gave many instances; and the following proved indirectly the cause of his death. We have already observed that the king of Ethiopia sent his bow in return for the presents brought to him by the ambassadors of Cambyfes. The only man in the Persian army who could bend this bow was Smerdis, the king's brother; and this instance of his personal strength so alarmed the tyrant, that, without any crime alleged, he caused him to be murdered. This gave occasion to one Smerdis, a magian, who greatly resembled the other Smerdis, to assume the name of the deceased prince, and to raise a rebellion against Cambyfes, who was generally hated for his cruelty; and this he could the more easily do, as the chief management of affairs had been committed to this Smerdis during the king's absence. Cambyfes, on receiving the news of this revolt, immediately ordered his army to march, in order to suppress it; but, as he was mounting his horse, his sword, slipping out of its scabbard, wounded him in the thigh. On this accident, he asked the name of the city where he was; and being told that it was Ecbatana, he said in the presence of all his attendants, "Fate has decreed that Cambyfes the son of Cyrus shall die in this place." For, having consulted the oracle of Butus, which was very famous in that country, he was told that he should die at Ecbatana. This he had always understood of Ecbatana in Media, and had therefore resolved to avoid it. Being now, however, convinced that his end approached, he assembled the chief Persian lords who served in the army, and, having told them that his brother was certainly dead, he exhorted them never to submit to the impostor, or suffer the sovereignty again to pass from the Persians to the Medes, to which nation Smerdis belonged, but to use their utmost endeavours to place one of their own blood on the throne. The king lived but a few days after this; and the assembly, supposing that he had spoken only out of hatred to his brother, quietly submitted to the impostor, who was thus for a time established on the throne. Indeed, from his conduct during the short time which he enjoyed the kingdom, he appears to have been not at all undeserving of a crown. He began with granting to all his subjects an exemption from taxes and military service for three years, and treated all of them in the most beneficent manner. To secure himself on the throne the more effectually, he married Atossa the daughter of Cyrus; thinking that, in case of a discovery, he might hold the empire by her title. She had before been married to her brother Cambyfes, on a decision of the Magi, "that a king of Persia might do as he pleased;" and, by virtue of this decision, Smerdis also married her. The extreme caution of Smerdis, however, promoted the discovery of his imposture. He had married all his predecessor's wives, among whom was one Phedyma, the daughter of Otanes a Persian nobleman of the first rank. Otanes, who suspected that the king was not Smerdis the son of Cyrus, sent a trusty messenger to his daughter, desiring to know whether he was so or not; but Phedyma, having never seen this Smerdis, could not give any answer. Her father then desired her to inquire of Atossa, who could not but know her own brother. However, he was again disappointed; for Phedyma acquainted him that all the king's wives were lodged in distinct and separate apartments, without being allowed to see each other. This greatly increased the suspicions

of Otanes; upon which he sent his daughter a third message, desiring her, the next time she should be admitted to the king's bed, to take an opportunity of feeling whether he had ears or not: for Cyrus had formerly caused the ears of Smerdis the Magian to be cut off for some crime of which he had been guilty; so that, if the king had ears, she might then be assured that he was Smerdis the son of Cyrus. The event showed that the suspicions of Otanes were just; and, Phedyma having acquainted her father that the king had no ears, a conspiracy was immediately formed against him.

While the conspirators were debating about the proper means of carrying their designs into execution, Darius the son of Hytaspes happening to arrive at Susa where his father was governor, they all agreed to make him privy to their design. He told them, at their first meeting, that he thought nobody in the empire but himself had known that Smerdis the son of Cyrus was dead, and the throne usurped by one of the magi; that he had come with a design to kill the usurper, without imparting his design to any one, that the glory of such an action might be entirely his own. But, since others were apprised of the imposture, he insisted that the usurper should be dispatched without delay. Otanes, on the other hand, was for putting off the enterprise till some better opportunity offered; but Darius protested, that if they did not make the attempt that very day, he would prevent any one from accusing him, by disclosing the whole matter to the impostor himself.

In the mean time, Smerdis and his brother had by great promises prevailed on Prexaspes (the executioner of the true Smerdis) to bind himself by an oath not to discover the fraud they had put on the Persians, and even to make a public speech, declaring that the present king of Persia was really the son of Cyrus. At the time appointed, he began his discourse with the genealogy of Cyrus, putting his hearers in mind of the great favours the nation had received from that prince. After having extolled Cyrus and his family, to the great astonishment of all present, he confessed the whole transaction with regard to the death of Smerdis; telling the people, that the apprehensions of the danger he must inevitably run by publishing the imposture had constrained him to conceal it so long; but now, not being able any longer to act such a dishonourable part, he acknowledged that he had been compelled by Cambyfes to put his brother to death with his own hand, and that the person who possessed the throne was Smerdis the Magian. He then begged pardon of the gods and men for the crime he had committed; and, fulfilling many imprecations against the Persians if they failed to recover the sovereignty, he threw himself headlong from the top of the tower on which he stood, and died on the spot.

In the mean time the conspirators, who were advancing towards the palace, were informed of what had happened; and Otanes was again for deferring the execution of their enterprise; but, Darius insisting upon the danger of delay, they proceeded boldly to the palace; and being admitted by the guards, who did not suspect them, they killed both the usurper and his brother; after which they exposed their heads to the people, and declared the whole imposture. The Persians at this were so enraged, that they fell on the whole sect, and killed every one of the Magi they could meet with; and, had not the slaughter been stopped by night, not one of the order would have been left alive. The day on which this slaughter happened was afterwards celebrated by the Persians with the greatest solemnity, and called by the name of *Magophonia*, or "the slaughter of the Magi." On that festival the Magi durst not appear abroad, but were obliged to shut themselves up in their houses. Smerdis the Magian reigned only eight months.

When the tumult was a little subsided, the conspirators, who were seven in number, met together in order to elect a new king, or to determine what form of government

they should next introduce. Otanes was for a republic; but, being overruled by the rest, he declared, that, as he was determined not to be a king, neither would he be ruled by one; and therefore insisted that he and his family should ever afterwards remain free from subjection to the royal power. This was not only granted, but it was further agreed by the other six, that whoever was chosen should every year present Otanes with a Median vest, a mark of great distinction among the Persians, because he had been the chief author of the enterprise. They further agreed to meet at a certain place next morning at sunrise on horseback, and that he whose horse first neighed should be king. This being overheard by Oebores, who had the care of Darius's horses, he led a mare over-night to the place, and brought his master's horse to her. The next morning, the horse, remembering the place, immediately neighed for the mare; and the five lords, dismounting, saluted Darius as their king.

Darius Hytaspes was elected king of Persia in the year 522 B.C. Immediately after his accession, he promoted the other six conspirators to the first employments in the kingdom, married the two daughters of Cyrus, Atossa and Artystona, Parmys the daughter of the true Smerdis, and Phedyma the daughter of Otanes, who had detected the imposture of the Magian. He then divided the whole empire into twenty satrapies or governments, and appointed a governor over each division, ordering them to pay him an annual tribute. The inhabitants of Colchis, with some others, were enjoined only to make annual presents, and the Arabians to furnish every year such a quantity of frankincense as equalled the weight of 1000 talents. Thus Darius received the yearly tribute of 14,560 Eubœic talents, upwards of 260,000l. sterling.

Under Darius, the building of the temple of Jerusalem, which had been obstructed by Cambyfes and Smerdis, went on successfully, and the Jewish state was entirely restored. The most remarkable of Darius's other transactions were his expeditions against Babylon; against Scythia, India, and Greece. The expedition against Babylon took place in the year 517 B.C. when the people, unable to bear the oppression of the Persians, and likewise discontented because the seat of government was removed from their city to Susa in Persia, took the opportunity of the troubles which happened in the reigns of Cambyfes and Smerdis, to store their city with all kinds of provisions sufficient to serve them for many years; after which they broke out into an open rebellion, and this quickly brought upon them Darius with all his forces. The Babylonians, perceiving themselves shut up by so numerous an army, turned all their thoughts towards the supporting of a long siege, which they imagined would tire out the king's troops. To prevent the consumption of their provisions, they took the most barbarous and cruel resolution that ever was put in execution by any nation. They agreed among themselves to get rid of all unnecessary mouths; and therefore, gathering together all the old men, women, and children, they strangled them without distinction; every one being allowed only to keep the wife he liked best, and a maid-servant to do the work of the house. The siege continued for a year and eight months; nor was there any likelihood of its being ended, when Zopyrus, one of Darius's chief commanders, put him in possession of it by the following stratagem. He cut off his nose and ears, and, having mangled his body with stripes in a most cruel manner, he fled to the Babylonians thus disfigured, pretending that he had been so treated by Darius for advising him to raise the siege. Being intrusted with the command of some forces, he cut off several parties of the Persian army, whom Darius thus sacrificed in order to raise the character of Zopyrus the higher among the Babylonians. In this manner he so much established his credit, that at last he was made commander in chief of all the Babylonish forces, and the guard of the city committed entirely to his care; and no sooner was this done than he delivered it up to Darius, who, to prevent, their

their rebelling a second time, beat down the walls of that metropolis to the height of fifty cubits. Three thousand of the most active in the rebellion, were impaled; the rest pardoned. As they had destroyed most of their women, the neighbouring nations were commanded to furnish them with wives, and 50,000 women were sent to that city, by which means it was prevented from being depopulated. Zopyrus was rewarded with the highest honours, and had the whole revenues of Babylon bestowed on him for life.

After the reduction of Babylon, Darius undertook a Scythian expedition, directed against those nations which lie between the Danube and the Tanais. His pretext for this war was, to revenge the calamities which these nations had brought upon Asia about 120 years before, when they invaded and subdued Media; keeping it in subjection for the space of twenty-eight years. In this expedition he was attended by an army of 700,000 men. With these he marched to the Thracian Bosphorus; which having passed on a bridge of boats, he reduced all Thrace. From Thrace he advanced to the Danube, where he had appointed his fleet to meet him. This river he passed on another bridge of boats, and entered Scythia. His enemies, however, were too wise to oppose such a formidable power, in the open field; and therefore retired before him, wasting the country as they went along, till at last the king, sensible of the danger he was in, resolved to give over the enterprise and return home. In order to do so with safety, he lighted a great number of fires in the night-time, and decamped; leaving behind him the old men and the sick, who fell into the hands of their enemies. The Scythians, perceiving that Darius was gone, detached a considerable body to the bridge over the Danube; and, as they were well acquainted with the roads, they got thither before the Persians. The Scythians had sent expresses before-hand to persuade the Ionians, whom Darius had left to guard the bridge, to break it down and retire to their own country; and this they pressed the more earnestly, that, as the time prescribed to Darius was now expired, they were at liberty to return home without breaking their word, or being wanting in their duty. Miltiades, prince of the Chersonesus of Thrace, was for embracing so favourable an opportunity of cutting off Darius's retreat, and shaking off the Persian yoke at once: all the other commanders agreed with him, except Hyllæus prince of Miletus; who represented to the Ionian chiefs, that their power was connected with that of Darius, since it was under his protection that each of them was lord in his own city; and that the cities of Ionia would not fail to depose them and recover their liberty, if the Persian power should sink or decline. This speech made a deep impression on the rest, and it was at last determined that they should wait for Darius; and, in order to deceive the Scythians, they began to break down the bridge, but advised them to return back and defeat Darius. They did so, but missed him; and he, having thus safely escaped so great a danger, immediately re-passed the Bosphorus, and took up his winter-quarters at Sardis, leaving Megabyzus, one of his chief generals, to complete the conquest of Thrace.

The king, having sufficiently refreshed his troops, who had suffered extremely in the Scythian expedition, began to think of extending his dominions eastward. With this view, he caused a fleet to be built and equipped at Caspatyrus, a city on the river Indus. The command of this fleet he gave to one Scylax, a Grecian of Caryandia, a city of Caria, who was well versed in maritime affairs. Him he ordered to sail down the current, and make the best discoveries he could of the countries lying on either side of the river, till he arrived at the Southern Ocean; from whence he was to steer his course westward, and that way return to Persia. Scylax, having exactly observed his instructions, and sailed down the river Indus, entered the Red Sea by the straits of Babelmandel, and, on the thirtieth month from his first setting out, landed at the same

place from which Necho king of Egypt formerly sent out the Phœnicians who circumnavigated Africa. From thence Scylax returned to Susa, where he gave a full account of his discoveries; upon which Darius, marching into India at the head of a powerful army, reduced that large country, and made it a province of the Persian empire, drawing from thence an annual tribute of 360 talents of gold.

Soon after the expedition of Darius against India, happened the revolt of the Ionians, which gave occasion to his expedition into Greece; an account of which is given under the articles ATTICA, GREECE, SPARTA, &c. The ill success which attended him here, however, was so far from making him drop the enterprise, that it only made him the more intent on reducing the Grecians; and he resolved to head his army in person, having attributed his former bad success to the inexperience of his generals. But, while he was employed in making the necessary preparations for this purpose, he received intelligence that the Egyptians had revolted, so that he was obliged to make preparations for reducing them also; and, before this could be done, the king died, after having reigned thirty-six years, leaving the throne to his son Xerxes.

This prince ascended the throne of Persia in the year 485 B. C. and his first enterprise was to reduce the Egyptians; which he effectually did, bringing them into a worse state of slavery than they ever had experienced before. After this he resolved on an expedition into Greece; the unfortunate event of which is related under the article ATTICA, vol. ii. p. 508, 9. By his misfortunes in the Grecian expedition, he became at last so dispirited, that he thenceforth abandoned all thoughts of war and conquests; but growing tyrannical, and oppressing his subjects, he was murdered in his bed, in the year 464 B. C. and twenty-first of his reign; and was succeeded by his third son Artaxerxes, surnamed Longimanus on account of the great length of his arms.

This prince is named *Ahasuerus* in Scripture, and is the same who married Esther, and during the whole of his reign showed the greatest kindness to the Jewish nation. In the beginning of his reign he was opposed by Hytaspes, the second son of Xerxes, whom however he overcame, though not without considerable difficulty. After this he applied himself to the settlement of the affairs of government, and reformed many abuses which had crept in; and then, being fully established on the throne, he appointed feasts and rejoicings to be made for 180 days in the city of Susa; at one of which he resolved to divorce his queen for disobedience; and afterwards married Esther, as we find it recorded in the sacred writings.

In the fifth year of the reign of Artaxerxes, the Egyptians revolted anew, and, being assisted by the Athenians, held out for six years; but were again obliged to submit, and continued in subjection during the whole of his reign. Nothing else remarkable happened during the life of Artaxerxes Longimanus, who died in the forty-first year of his reign; and was succeeded by Xerxes II. the only son he had by his queen, though by his concubines he had seventeen. Xerxes, having drunk immoderately at an entertainment immediately after his accession, retired to a chamber in order to refresh himself with sleep; but here he was murdered by Sogdianus, the son of Artaxerxes by one of his concubines, after he had reigned only forty-five days.

Sogdianus was scarcely seated on the throne when he put to death Bagorazus, the most faithful of all his father's eunuchs; by which, and the murder of his sovereign, he became generally odious. Upon this, sensible of the dangerous situation in which he was, he sent for one of his brothers named Ochus, whom he suspected, with a design to murder him the moment he arrived. Ochus, however, understanding his design, put off, by several pretences, his coming, till he had drawn together a powerful army, with which he advanced to the confines of Persia. Here he openly declared, that his design was to revenge his brother's death; which brought over to him many of the nobility.

nobility and governors of provinces, by whom he was immediately proclaimed king. Sogdianus, seeing himself thus deserted, contrary to the advice of all his friends, came to an accommodation with Ochus; who no sooner had him in his power than he caused him to be suffocated among ashes; a punishment invented on purpose for him.

Ochus, being firmly settled on the throne by the death of Sogdianus, changed his name to Darius; and is by historians commonly called *Darius Nothus*, or the Bastard. But Arsites, another of the brothers, seeing in what manner Sogdianus had got the better of Xerxes, and been afterwards driven out by Ochus, began to entertain thoughts of treating him in the same manner. He was not, however, so successful; for, being defeated in an engagement, he surrendered himself in hopes of mercy, but was immediately put to death by suffocation in ashes. Several other persons were executed: but these severities did not procure him the repose which he expected; for his whole reign was disturbed with violent commotions in various parts of the empire. One of the most dangerous was raised by Pisuthna governor of Lydia; but he, being deserted by his Greek mercenaries, was at last overcome, and put to death: however, his son Amorgus continued to infect the maritime provinces of Asia Minor for two years; till he also was taken prisoner by Tissaphernes, the new governor of Lydia, who put him to death. Other insurrections quickly followed this: but the greatest misfortune which befel Darius Nothus during the whole course of his reign was the revolt of the Egyptians, who could not be reduced. Before his death, he invested Cyrus, his youngest son, with the supreme government of all the provinces of Asia Minor. This was done through the persuasion of his mother Parysatis, who had an absolute sway over her husband; and she procured this command for him, that he might thereby be enabled to contend for the kingdom after his father's death. She even insisted that the king should declare him heir to the crown before he died; but this he could not by any means be induced to do. He died in the year 405 B.C. and was succeeded by his son Artaxerxes, by the Greeks surnamed *Mnemon* on account of his extraordinary memory.

The most remarkable transaction which happened during the reign of this prince was the revolt of his brother Cyrus, commonly called Cyrus the Younger. But the history of this fruitless expedition has been related under GREECE, vol. viii. p. 897, 8. and the article *ATICA* there referred to.

The war with Cyrus was scarcely ended, when another broke out with the Lacedemonians, on the following account. Tissaphernes, being appointed to succeed Cyrus in all his power, to which was added all which he himself possessed formerly, began to oppress the Greek cities in Asia in a most cruel manner. On this they sent ambassadors to Sparta, desiring the assistance of that powerful republic. The Spartans, having ended their long war with the Athenians, willingly laid hold of the present opportunity of breaking again with the Persians, and therefore sent against them an army under the command of Thimbro, who, being strengthened by the forces which returned under Xenophon, took the field against Tissaphernes. This war continued for several years; (see the article GREECE, vol. viii. p. 899-906.) but at length the Lacedemonians were reduced to the necessity of accepting such terms of peace as they could procure. The terms were—that all the Greek cities in Asia should be subject to the king of Persia, as also the islands of Cyprus and Clazomene; that the islands of Scyros, Lemnos, and Imbros, should be restored to the Athenians; and all the cities of Greece, whether small or great, should be declared free; and by the same treaty, Artaxerxes engaged to join those who accepted the terms he proposed, and to assist them to the utmost of his power against such as should reject them. This is called the Peace of Antalcidas; B.C.

387.

The Grecian war being ended, Artaxerxes turned his

arms against the Cadusians, a warlike race, who inhabited a mountainous tract between the Euxine and Caspian Seas. He accordingly (B.C. 384.) marched in person against them, at the head of 20,000 horse and 300,000 foot; but, the sterility of the country proving inimical to the subsistence of so numerous an army, they were soon compelled to feed upon the beasts of burden; and even these became so scarce, that an ass's head was valued at sixty drachmas. In this dreadful emergency Teribazus, who was at that time in disgrace, and followed the court as a prisoner, contrived a stratagem, which rescued the Persians from impending ruin. Understanding that the Cadusians had two kings, who were encamped apart, and had conceived a jealousy of each other's power, he prevailed on Artaxerxes to enter into treaty with them, and to entrust him with the management. Accordingly, he went in person to one of the kings, and sent his son to the other, assuring each that the other had sent a private embassy to the Persian camp, and advising him to make his peace as soon as possible, that the terms might be more advantageous. These artful negotiations were crowned with success; and Teribazus, on his return to Susa, was reinstated in his former honours.

Artaxerxes, having drawn some powerful auxiliaries from Greece, and exerted himself to compose the domestic troubles of that country, resolved to chastise the Egyptians, who had long before shaken off the Persian yoke. Accordingly, the forces were assembled at Ace, since called *Ptolemais*, where, upon a general review, the army was found to consist of 200,000 Persians under Pharnabazus, and 20,000 Greeks under the command of Iphicrates. The naval armament was also proportionate, for it consisted of 300 galleys, besides an incredible number of vessels laden with provisions. The war was intended to commence with the siege of Pelusium; and both the fleet and army began to move at the same time, that they might act in concert as occasion required.

Whilst the Persians were employed in making these arrangements, Nectanebis, king of Egypt, received intelligence of all their designs, and took such measures for the defence of Pelusium, that the approach to it was soon rendered impracticable by sea and land. Instead, therefore, of making the descent which had first been projected, the invaders failed to the Mendesian mouth of the Nile, where they landed their troops with little difficulty, reduced the fortress that defended it, and put the Egyptian garrison to the sword. Iphicrates then proposed to re-embark without loss of time, and attack Memphis, the capital, before the Egyptians could recover from their consternation; but, the main body of the army not being come up, Pharnabazus refused to undertake any thing before their arrival. The valiant Greek, exasperated at the thought of losing so favourable an opportunity, earnestly requested permission to attempt the place with the mercenaries who were under his command; but Pharnabazus obstinately withheld his consent, and thus gave the Egyptians time to provide effectually for the preservation of their liberty. Pharnabazus, perceiving his error too late, endeavoured to excuse the ill success of the expedition by throwing the blame on Iphicrates; and he, with more justice, recriminated upon Pharnabazus; but, as the latter might be reasonably expected to obtain the greatest favour at court, Iphicrates prudently hired a vessel, and retired to Athens.

About twelve years after this unsuccessful invasion, Artaxerxes sent another army against the Egyptians; but this proved equally unfortunate with the former, and Egypt still retained its independence.

The last years of the reign of Artaxerxes were greatly disturbed by dissensions in his family. He had a hundred and fifteen sons by his concubines; and three by his queen, viz. Darius, Ariaspes, and Ochus. He permitted Darius, his elder son, to assume the regal title and wear the tiara even in his life-time: but these honours were so far from satisfying the young prince's ambition, that he entered into a conspiracy with Teribazus against his father's

ther's

ther's life, and fixed a day for the perpetration of his unnatural design. His ingratitude, however, was timely discovered, and received its just reward. After the execution of Darius and his associates, the Persian court was again rent into factions: three of the princes, viz. Ariaspes, Ochus, and Arfames, becoming competitors for the succession. Ochus, prompted by a restless ambition, soon contrived the destruction of his two rivals; practising so effectually on the credulity of Ariaspes, that he poisoned himself to elude the imaginary resentment of the king; and causing Arfames to be assassinated by the son of Teribazus. These acts of cruelty overwhelmed Artaxerxes with such insupportable grief, as terminated his mortal existence, in the 94th year of his age and the 46th of his reign, B. C. 359.

Ochus, conscious of the veneration in which his father's justice and clemency were held throughout the whole empire, and apprehensive of the ill consequences that might result from an avowal of his accession while the people's minds were enflamed by the recent murder of their princes, prevailed on the officers of the household to conceal the king's death, and craftily assumed the administration of government in the name of Artaxerxes. Having continued this practice near ten months, and caused himself, as by his father's order, to be proclaimed king in all parts of the empire, he at length published the death of Artaxerxes, and publicly ascended the throne. The proclamation of the old king's death was immediately followed by an insurrection in several of the provinces, which diverted more than half the imperial revenues into different channels, and threatened the existing government with annihilation; but, the leaders of the confederacy disagreeing among themselves, the rebellion terminated without any effusion of blood, and Ochus was firmly established on the throne.

This monster of cruelty was no sooner possessed of absolute authority, when he began to fill his capital and the whole empire with carnage and misery. He caused Ocha, his own sister and mother-in-law, to be buried alive; shut up one of his uncles, with a hundred of his sons and grandsons, in a court of the palace, where they were massacred by a body of archers; and put all the branches of the royal family to death, without any regard to age, sex, or proximity of blood. Similar barbarities were exercised on all who afforded him the slightest pretence of anger; and the richest blood of Persia was frequently shed by the hands of the executioner.

Whilst the nobles groaned beneath this insupportable tyranny, and the commonalty shrunk with horror from the name of their sanguinary monarch, a laudable spirit of indignation began to appear in some of the provinces, and the smothered flames of discontent again broke out into open rebellion. Ochus, hearing that Artabazus, governor of one of the Asiatic provinces, had revolted, and engaged the assistance of Chares, an Athenian commander, sent an army of 70,000 men to quell the insurrection, but they were cut to pieces by the Athenian forces; and the king found it expedient to send a threatening message to Athens, in order to deliver himself from the opposition of the valiant Chares. Artabazus then procured a supply of 5000 men from the Thebans, and with this reinforcement gained two signal victories over the king's forces: but Ochus contrived to buy off the new allies, and Artabazus was compelled to seek an asylum in Macedonia.

This revolt was scarcely quelled, when the Sidonians and other natives of Phœnicia resolutely armed themselves against their oppressor, and, with the assistance of four thousand Greek mercenaries, chased the Persians out of their territories: the Cypriots also joined with the Phœnicians and Egyptians in the same confederacy, and the rebellion began to wear a formidable appearance. By reason, however, of the dissensions of the rebels among themselves, all of them were reduced, one after another; and among the rest, the Sidonians, finding themselves be-

trayed, burnt themselves to the number of 40,000, together with their wives and children.

Ochus, having quelled these insurgents, immediately set himself about reducing Egypt, and for this purpose procured a reinforcement of 10,000 mercenaries from Greece. On his march, he lost a great number of his men drowned in the lake Serbonis, which lies between Phœnicia and Egypt, extending about thirty miles in length. When the south wind blows, the whole surface of this lake is covered with sand, in such a manner that no one can distinguish it from the firm land. Several parties of Ochus's army were lost in it for want of proper guides; and it is said that whole armies have sometimes perished in the same place. When he arrived in Egypt, he detached three bodies to invade the country in different parts; each being commanded by a Persian and a Greek general: the first was led by Lachares the Theban, and Rosaces, governor of Lydia and Ionia; the second by Nicotratus the Theban, and Aristazanes; the third by Mentor the Rhodian, and Bagoas an eunuch. The main body of the army he kept with himself, and encamped near Pelusium, with the design to watch the progress of the war there. The event was successful, as we have related under the article EGYPT; and Ochus, having reduced the whole country, dismantled their strong holds, plundered the temples, and returned to Babylon, loaded with booty. See vol. vi. p. 297, 8.

The king, having ended this war with such success, conferred very high rewards on his mercenaries and others who had distinguished themselves. To Mentor the Rhodian he gave presents to a great value; appointing him also governor of all the coasts of Asia, and committing to his care the whole management of the war which he was still carrying on against some provinces that had revolted in the beginning of his reign; and all these, either by stratagem or by force, he at last reduced; restoring the king's authority in all these places.

Ochus now, finding himself free from all troubles, gave his attention to nothing but his pleasures, leaving the administration of affairs entirely to Bagoas the eunuch, and to Mentor. These two agreed to share the power between them; in consequence of which, the former had the provinces of Upper Asia, and the latter all the rest. Bagoas, being by birth an Egyptian, had a great zeal for the religion of his country; and endeavoured, on the conquest of Egypt, to influence the king in favour of the Egyptian ceremonies; but, in spite of all his endeavours, Ochus not only refused to comply, but killed the sacred bull, the emblem of the Egyptian god Apis, plundered the temples, and carried away their sacred records. This Bagoas supposed to be the highest guilt which a human creature could commit, and therefore poisoned his master and benefactor in the twenty-first year of his reign. Nor did his revenge stop here; for he kept the king's body, causing another to be buried in its stead; and, because the king had caused his attendants to eat the flesh of Apis, Bagoas cut his body in pieces, and gave it so mangled to be devoured by cats, making handles for swords of his bones. He then placed Arses, the youngest of the deceased king's sons, on the throne, that he might the more easily preserve the whole power to himself.

Arses had not long assumed the insignia of royalty before he was well apprised of the eunuch's wicked practices; but, whilst he was concerting measures to bring him to condign punishment, Bagoas effected his destruction, with that of his whole family, in the second year of his reign, B. C. 336.

Bagoas, having thus preserved his own life by the murder of another king, bestowed the imperial diadem on Darius Codomannus, a descendant of Darius Notlus, who was at that time governor of Armenia. Codomannus was the son of Arfames and Silygambis; but, in the reign of Ochus, he was only an *astanda*, or person employed in carrying dispatches to the governors of provinces;

having, however, valiantly engaged and vanquished, in single combat, a champion of the Cadusians, he was rewarded with the government of Armenia. This king had not, however, long enjoyed the sovereignty, when the ambitious eunuch determined to remove him, and with this design provided a deleterious potion; but Darius, being apprised of his danger, turned the mischief on the head of its author, and thus established himself on the throne without farther opposition, at least as far as security from internal enemies could do so; but in a very little time his dominions were invaded, and, we may say, the same moment conquered, by Alexander the Great. The particulars of that hero's conquest are related under the article MACEDON, vol. xiv. p. 24—6. See also the article GREECE, there referred to.

Thus ended the empire of Persia, 269 years after it had been founded by Cyrus, B. C. 330. After the death of Alexander, the Persian dominions became subject to Seleucus Nicator, and continued subject to him for 62 years, when the Parthians revolted and conquered the greatest part of them. To the Parthians they continued subject for 480 years; when the sovereignty was again restored to the Persians, as related under the article PARTHIA, vol. xviii. p. 678.

FROM THE REVIVAL OF THE PERSIAN EMPIRE UNDER THE SASSANIAN DYNASTY, TO ITS SUBJUGATION BY THE MAHOMETANS.

We now enter on a portion of Asiatic history in which we are accompanied by the Greek and Latin writers, whose accounts, in most respects, agree with the Persian records: of these, as we descend, the materials become more copious, the traditions less tinged with fable, and the proofs, from inscriptions on marbles, gems, and medals lately deciphered, sufficiently convincing.

The restorer of the Persian monarchy was Artaxerxes, or Artaxares, who was not only a private person, but of spurious birth: however, he possessed great abilities. He was no sooner seated on the throne, (A. D. 220.) than he took the pompous title of King of Kings, and formed a design of restoring the empire to its ancient glory. He gave notice to the Roman governors of the provinces bordering on his dominions, that he had a just right, as the successor of Cyrus, to all Asia Minor; which he therefore commanded them immediately to quit, as well as the provinces on the frontiers of the ancient Parthian kingdom, which were already his.

The consequence of this was a war with Alexander Severus, the Roman emperor; but this prince, being but a youth, and under the tutelage of his mother, was unwilling to engage in an expensive contest; and therefore wrote to Artaxares, advising him to keep within due bounds, and not, from a vain hope of conquest, undertake any thing against a people whose arms had frequently vanquished the most warlike nations. Artaxares, however, treated the letter with contempt, and began to make such formidable preparations for the reduction of the adjacent provinces, that the emperor was at length compelled to raise an army, in order to check the augmenting power of Persia.

Artaxares, receiving intelligence of Severus's approach, selected four hundred persons of extraordinary strength and stature, and, having furnished them with sumptuous habits and fine horses, sent them to the emperor with this message: "The great king Artaxares commands the Romans and their sovereign to depart immediately from Syria and Asia Minor, and to restore to the Persians all the countries on this side the Ægean and Pontic seas, which they claim in right of lawful inheritance." This insolent demand having roused the indignation of Severus, he caused the ambassadors to be stripped of their gaudy attire, and sent them into Phrygia, where he assigned them certain lands for their subsistence. He then advanced against Artaxares, who had entered Meso-

potamia at the head of a numerous army; and an engagement ensued, in which the Romans were victorious.

Whilst the Persian retired to his own dominions, for the purpose of recruiting his forces, Severus divided his troops into three bodies, the first of which marched through Armenia, with orders to invade Media; the second passed over the marshes, to enter the Parthian territories on the other side; and the third, commanded by the emperor, designed to have advanced into the centre of Artaxares's kingdom. But concerning the event of this war there are very different accounts. It is certain, however, that, on account of his exploits against Artaxares, Severus took the titles of *Parthicus* and *Persicus*; though, it would seem, with no great reason, as the Persian monarch lost none of his dominions, and his successors were equally ready with himself to invade the Roman territories.

Artaxares, dying after a reign of twelve or fifteen years, A. D. 240, was succeeded by his son Sapor; a prince of great abilities both of body and mind, but fierce, haughty, untractable, and cruel. He was no sooner seated on the throne than he began a new war with the Romans. In the beginning he was unsuccessful: being obliged, by the young emperor Gordian, to withdraw from the Roman dominions, and was even invaded in his turn; but, in a short time, Gordian was murdered by Philip, who assumed the purple as the prize of his crime. As it was necessary for the usurper to return, he made peace with Sapor, abandoning to him the countries he had invaded. Armenia was at this time possessed as an independent state by Chosroes, whom Sapor caused to be assassinated; and then, marching into the country at the head of an irresistible force, reduced it to the condition of a province. He now, availing himself of the distracted state of the Roman empire, renewed his incursions, obliged the strong towns of Carrhæ and Nisibis to surrender, and laid siege to Edessa. Valerian the Roman emperor, who was at this time 70 years of age, marched to its relief, and the two sovereigns encountered each other in the neighbourhood of that city. The result was the defeat and captivity of Valerian, A. D. 260. Sapor then crossed the Euphrates, and advanced to Antioch, which he took by surprise, and sacked. He next passed into Cilicia, and made himself master of Tarsus; after which he laid siege to Cæsarea in Cappadocia. This populous city was bravely defended by the governor, Demosthenes, but was at length betrayed into his hands, and the inhabitants were treated with great cruelty.

The tide of success was first turned by the Roman general Balistus, who, collecting the remains of the vanquished troops, harassed Sapor's army, and obliged him to retire towards the Euphrates. Odenatus the Palmyrene, whose embassy to Sapor had been treated with the utmost insolence, then appeared as the foe of the Persians, and after various successes, in which he carried off the king's treasures and concubines, drove him across the river. In the mean time Sapor tarnished the glory of his success against Valerian by his ungenerous and inhuman conduct towards his unfortunate captive, whom he carried about with him as a spectacle, and is said to have used as a footstool when he mounted his horse; and, when the dethroned emperor sunk under the weight of his calamities, his stuffed skin was placed as a trophy in the most conspicuous temple of Persia. Gibbon supposes that the tale of these indignities has been exaggerated by national animosity; but the unfeeling and arrogant character of Sapor renders it not improbable. Odenatus afterwards twice advanced as far as Ctesiphon, and reduced to his obedience all the countries between Palmyra and the Tigris. After his death, his widow, the celebrated Zenobia, maintained her independence against the Persian arms, but sunk under those of the Roman emperor Aurelian.

Sapor, amidst much variety of fortune, continued to aggrandise

grandise himself at the expense of the neighbouring barbarous sovereigns, till death closed his career A. D. 272, after a reign of about 31 years.

Hormisdas, his son, who succeeded him, appears to have been a prince of a pacific disposition. It was during his reign that the Palmyrenians incurred the displeasure of Aurelian, by asserting their right of creating emperors, and investing one Antiochus with the royal purple. But, as Hormisdas prudently refused to interfere, he escaped the Roman vengeance, and died in peace, after possessing the government one year and ten days.

Of Varanes, who next ascended the throne, we have no satisfactory account, except that he enjoyed the regal dignity for the space of three years without receiving any disturbance from the Romans, or attempting to extend the limits of his empire.

Varanes II. meditated an invasion of the Roman provinces on his first accession (A. D. 277.) but the approach of the emperor Probus induced him to abandon his design, and sue for peace. Some time after he began to think of recovering some of the provinces which had been wrested from his ancestors; but this intention was also frustrated by domestic troubles, and the exertions of Carus, successor to Probus, who entered Mesopotamia, and, surmounting all opposition, advanced beyond Ctesiphon, as if he designed the entire reduction of that province. However, the Persians were delivered from their fears by the death of Carus, and the retreat of the Roman army. Varanes now improved the absence of the enemy, by applying himself to the fortification of his frontiers; but, on his again attempting an invasion of the neighbouring provinces, Dioclesian marched a numerous body of troops into Armenia, and effectually terrified him from the execution of his project. Soon after this transaction the Persian monarch died, A. D. 294, after an unfortunate reign of seventeen years.

Varanes III. is honoured, by historians, with the epithet of *Segansaa*, or King of the Segans; but the occurrences of his reign are passed over in silence, and, at the expiration of four months, he was succeeded by Narses, a prince of great abilities and resolution.

The distracted state of the Roman empire presented a fair opportunity for the recovery of all those provinces which originally belonged to the Persians. Narses accordingly led a numerous army into Mesopotamia, and reduced several places of importance; but his progress was soon checked by Galerius, who advanced against him with a considerable body of forces, defeated him in two engagements, and followed him to the centre of his own kingdom. The Persian, however, acted with such circumspection, and kept so strict an eye upon his pursuers, that he at length retrieved his credit by a successful attack, and effectually revenged his recent losses. Galerius, having with much difficulty prevailed on Dioclesian to trust him with the command of another army, hastened to expiate his disgrace, by the destruction of Narses; and the Persian king assembled a numerous body of chosen cavalry to maintain his conquests. When the armies came within sight of each other, Galerius made a disposition for beating up his enemy's quarters; and this plan was executed so successfully, that the Persians were entirely routed: the royal treasures, baggage, papers, &c. fell into the hands of Galerius; the queen, concubines, and other relatives of the king, were taken prisoners; and Narses himself was compelled to flee, with a small remnant of his troops, to the adjacent mountains. Overwhelmed with grief at this sad reverse of fortune, and conscious of his inability to raise a fresh army, the vanquished prince was compelled to purchase a dishonourable peace; whilst his concubines, sisters, and other persons of quality, were doomed to grace a Roman triumph. These heavy calamities occasioned the death of Narses, in the seventh year of his reign.

Hormisdas II. next succeeded to the government, which he enjoyed about seven years and five months;

but none of his actions were sufficiently interesting to claim the attention of posterity.

Sapor II. posthumous son of Hormisdas II. was born in 310. He had the singular fortune of being declared king before his birth; for, at his father's death, when the ambition of the princes of royal blood was excited by the want of an heir apparent, the Magi ventured to assert not only the pregnancy of the widow but that she had conceived a son; and the satraps in consequence paid homage to their unborn sovereign. During the minority of Sapor, his capital was plundered by Thair, an Arabian prince, who carried away the king's aunt; but this insult was revenged by him as soon as he came to the age of maturity, and Thair and his people fell beneath his arms. The moderate use he made of this victory caused him to be acknowledged by the Arabs the protector of their nation. The instigation of the Magi induced Sapor to become a persecutor of his Christian subjects, whom those jealous rivals rendered suspected to him (probably not without reason) as being more attached to the emperor Constantine than to himself.

It was Sapor's early wish to recover from the Romans the provinces they possessed beyond the Tigris; and, for the purpose of gaining information of the military strength of the empire, he sent a solemn embassy to Constantinople under pretext of renewing the peace between the two nations. This was amicably received by Constantine, who returned a letter, in which he pleaded with the Persian king in favour of the Christians; and it is affirmed that his admonitions were effectual in obtaining better treatment for them. Sapor, however, gave such indications of his intention to make good his claims upon the provinces that once were a part of the Persian dominions, that Constantine is said to have been preparing for an expedition into the East when death put a period to his designs. Immediately upon this event, Sapor broke into the Roman border, laid siege to Nisibis, and made himself master of several important fortresses in Mesopotamia. The death of Tiridates in Armenia deprived the Romans of a firm ally, and eventually rendered that country dependent upon Persia. In a long series of actions on the Roman and Persian borders, between Constantius and Sapor, the arms of the latter had generally the advantage, as the numerous Persian cavalry could perform all their evolutions without impediment in the plains of Mesopotamia. At the battle of Singara, however, in 348, the Romans put the Persians to flight, and took possession of their camp, a son of Sapor's being made prisoner in the pursuit, and inhumanly massacred; but in the end the Persians rallied and repulsed the Romans with great slaughter. Nine victories in the field were claimed by Sapor; but he was unable by his utmost efforts, in three different attempts, to make himself master of the strong city of Nisibis (formerly conquered by Sapor I.) which was defended with insuperable constancy by its Christian inhabitants. With the usual contempt of human life, the Persian monarch urged the third siege amidst dreadful losses, till he was called away by an invasion of his eastern provinces by the Massagetæ. Against these barbarians he fought with success, and in the meantime he attempted to negotiate a peace with the Roman emperor; but his claims were so high, that no treaty could be agreed upon. The subsequent civil wars in the Roman empire gave Sapor an advantageous opportunity of again passing the boundaries; and in 359 he crossed the Tigris with a mighty host, and laid siege to Amida. This place, after a vigorous defence, was carried by storm, and all its remaining inhabitants were massacred, or sent into slavery. The capture of Singara and Bezabde followed, and Constantius himself advanced to stop the progress of the Persians; but nothing memorable occurred during the rest of the campaign.

Sapor was principally employed in securing his conquests, till the accession of Julian to the empire. The martial reputation that prince had acquired induced the Persian

Persian monarch to make overtures to him for a treaty of peace; but Julian, who had inflamed his ambitious spirit with ideas of the glory to be derived from oriental conquest, rejected his proposal, and declared his intention of speedily visiting the Persian capital at the head of an army. Accordingly he took every precaution that might contribute to the success of his project, and marched into the dominions of Sapor, who contented himself with acting on the defensive against so formidable an enemy. The emperor, having taken some fortresses by assault, and obtained admission into others by the treachery of their governors, came at length to Ctesiphon, which had been the bulwark of the Parthian empire. Here he met with a vigorous resistance from the garrison; and was so repeatedly harassed by skirmishes, that he at length resolved to raise the siege, and remove to the Tigris, on which he had a fleet of transports laden with provision. At this juncture a Persian nobleman repaired to his camp, on pretence of ill treatment, and assured him that his present intention would prove highly prejudicial to his affairs and reputation; whereas, if he would consent to quit the side of the river, burn his fleet, and march through an open road, into which he (the Persian) would conduct him, his difficulties would soon be terminated, and he might be justly styled the conqueror of the Persians. Notwithstanding the glaring absurdity of this proposal, and the repeated remonstrances of the Roman generals, Julian commanded his troops to furnish themselves with twenty days' provision, and caused the fleet to be set on fire. When the evil was past remedy, he began to listen to his friends, who loudly exclaimed that he was betrayed, and ordered the Persian nobleman, with his servants, to be put to the torture. This order was executed upon the servants, who boldly avowed the deceit, and exulted in the safety of their master, who had made his escape. Julian, however, obstinately resolved to take the road which had been pointed out by his enemies, and thus led his forces into the most imminent danger; for, after they had proceeded about four days, they found themselves skirted by the whole force of Persia; and having struggled for some time with the united inconveniences of intense heat, want of provision, and scarcity of water, they were suddenly attacked by the greater part of the Persian cavalry, who fought with extraordinary resolution, and continued the combat till Julian was mortally wounded. This event threw the Romans into consternation; and Sapor, improving the opportunity, obtained an honourable and advantageous peace of the new emperor Jovian, who had no other way of extricating himself from his difficulties than by accepting the terms of accommodation which Sapor offered. These were, the restitution to the Persian empire of the five contested provinces, and the strong city of Nisibis, which had proved impregnable to its arms. Sapor faithfully performed on his part the conditions by which the safe retreat of the Romans was secured; and the termination of this alarming invasion proved the most glorious event of his reign.

Having now obtained a respite from the toils of war, Sapor applied his thoughts to the settling the bounds of his empire toward Tartary and India. This plan served to exercise his soldiers for some time; but, on the death of the emperor Jovian, he made an irruption into Armenia, slew Arfaces king of that country, and reduced a considerable territory under his authority; yet on the approach of Arinthias, he was compelled to abandon his important conquests. However, being intently fixed on the aggrandisement of the Persian dominions, he remained in arms, and transferred the imperial residence to Ctesiphon, that he might be at hand to improve every opportunity. His future actions, however, being passed over in silence by historians, we can only observe, that he ended his days early in the reign of Gratian, (A. D. 380.) after having swayed the Persian sceptre seventy years, with great variety of fortune.

This restless and ambitious monarch was succeeded by

a prince called Artaxerxes, of whom the European historians merely observe, that he lived in amity with the Romans, and enjoyed the regal dignity without disturbance for the space of four years. Varanes IV. succeeded. He also maintained the peace with the Romans; and governed his dominions quietly for eleven years.

A. D. 401.—Iddigertes or Yezdegerd, a prince deservedly celebrated for his virtuous disposition, was contemporary with the emperor Arcadius who, at his death, entrusted him with the care of his son Theodosius II. and the Roman empire. The attention which Iddigertes paid to his pupil's improvement, and the zeal which he evinced on his behalf, laid the foundation of a friendship between the two empires; and delivered the Christian subjects of Persia from many inconveniences; for Marathas, a Mesopotamian bishop, being sent with other ambassadors from Theodosius, exerted himself so successfully to remove the prejudices of Iddigertes, that he was fully convinced of the loyalty of a people whom he had hitherto considered as heretical rebels. Some time after, the king was afflicted with a mental derangement, upon which Marathas, with the bishop of Persia, joined in solemn prayer to God for his recovery. Their petitions were soon answered, to the joy of the court; and the professors of the Christian faith were afterward treated with great indulgence. Iddigertes enjoyed the regal dignity twenty-one years, and was succeeded by his son.

A. D. 421.—Varanes V. seems to have ascended the throne with sentiments favorable to the Christians; but an occurrence soon took place which converted his friendship into the most implacable enmity, and produced a long series of calamities to the church. Abdas, the Persian bishop, having, in an unwarrantable fit of zeal, burnt one of the fire-temples to the ground, Varanes expostulated with him in private, and advised him to rebuild it. This, however, he peremptorily refused; and the Magi raised so dreadful a clamour among the populace, that the king was compelled to sacrifice the offender and all the Christian churches to their resentment. A cruel persecution ensued, upon the pretence that all who differed in religious principles from the sovereign were disloyal to the government; persons of distinction were deprived of their dignities and estates; the meaner sort were delivered into the hands of the exasperated Magi: and many were doomed to die in the most exquisite torments; but the barbarians were disappointed in the hope of making converts; and the glorious doctrines of Christianity received new lustre from the exemplary conduct and unshaken fortitude of expiring martyrs.

Theodosius was no sooner apprised of these proceedings, than he determined to avenge the cause of the persecuted Christians; and Varanes, hearing of this intention, made suitable preparations for the defence of his dominions. Having nominated Narses general of his troops, the king of Persia sent him to the frontiers, where he expected a numerous army; but, before they could arrive at the place of rendezvous, the Roman general Ardaburius had marched through Armenia, and begun to waste the province of Azazene with fire and sword. Narses immediately hastened thither to repel the invaders; but, finding his strength unequal to his design, he prudently retreated, and made an incursion into Mesopotamia, which compelled the Romans to abandon Azazene. Narses, however, was disappointed in his expectation; for Ardaburius, instead of offering him battle, blocked up the Persian fortresses of Nisibis. Resolved therefore to provoke him to an engagement, Narses sent a herald to avow his desire of taking the field; but Ardaburius wisely replied, that the Romans fought where they pleased, and not when an enemy requested it for his own advantage.

Meanwhile the Saracens, having been prevailed on to espouse the cause of Persia, passed the Euphrates, and broke like a torrent into the Roman provinces; but their rapacity rendered them so odious, that the inhabitants unanimously rose in arms, and, with the assistance of the Roman

Roman forces, cut to pieces a hundred thousand men; a disaster which compelled the remainder to flee precipitately to their own country. Varanes, being apprised of this defeat, and hearing at the same time that the fortrefs of Nisibis was closely invested, resolved to take the field in person, and accordingly marched at the head of a prodigious army toward the enemy, who immediately raised the siege and retired. However, on his return to his capital, the Romans, recovering their spirit, repulsed the Saracens a second time, and defeated the Persian troops with great slaughter.

Notwithstanding his repeated losses, the Persian monarch continued the war, and found means, by his military skill, to make even victory disadvantageous to the enemy: for, by granting his armies constant supplies, attending strictly to the preservation of his magazines, and keeping a court on the frontiers, he sustained the spirits of his troops; while the Romans were necessitated to act upon the defensive, and found it difficult to obtain timely succours. In this situation of affairs, Theodosius condescended to enter into a treaty; and Varanes, being again defeated with considerable loss, agreed to conclude a peace, and to put a period to the persecution of the Christians. The re-establishment of Christianity in Persia, may, however, be more properly attributed to the following circumstance. When the Romans penetrated into the province of Azazene, at the commencement of the war, seven thousand Persians were brought prisoners to the city of Amida, where they were soon reduced to extreme indigence. Acaes the Christian bishop of Amida, having assembled his clergy, represented to them in the most moving terms the deplorable condition of these prisoners, and used such forcible arguments on their behalf, that the clergy unanimously agreed to sell their consecrated vessels for the relief of the sufferers. Having reduced this plan to execution, they maintained the seven thousand Persians till the termination of the war, and then sent them home with money in their pockets; an instance of unfeigned charity which so astonished Varanes, that he immediately invited the benevolent prelate to court, and granted the Christians many important favours at his request. After this accommodation, the Persian monarch enjoyed an uninterrupted peace for the remainder of his life: and died, in full possession of his people's love, after he had swayed the sceptre twenty years.

A. D. 442.—Varanes VI. was next invested with the diadem; but the Greek historians make no farther mention of him, than to observe that he was contemporary with Theodosius II. and his successor Martianus, and that he enjoyed the government seventeen years and four months.

Peroses, his son and successor, a prince of a restless and turbulent spirit, was highly incensed against the Euthalites, or White Huns, who disturbed the commencement of his reign by several predatory incursions. To rid himself of these troublesome neighbours, he assembled a powerful army, and marched in person toward Gonza, their capital, hoping to put a speedy period to the war by a general engagement; but the Euthalites, having drawn him so far into their territories as to cut off the possibility of a retreat, convinced him of his error, and obliged him to swear that he would never more invade them. The ill success of this expedition, however, did not crush the design of Peroses, but merely induced him to take more prudent measures, and supply his troops with a greater stock of provision. When, therefore, he had settled his domestic concerns, appointed his son Cavades regent of the kingdom, and assembled his forces, he marched a second time toward the northern frontiers; but the Euthalites, having concealed their warriors behind certain mountains, rushed unexpectedly on his army, slew or took captive most of the soldiers of whom it was composed, and put Peroses himself to death, after he had worn the Persian diadem about twenty years.

When the news of this disaster was brought to Persia,

the nobles, being unwilling to trust their sceptre in the hands of so young a man as Cavades, bestowed the supreme authority on his uncle Valens, a prince of a virtuous and compassionate disposition, who used his utmost exertions for the space of four years to redress the grievances of his country, and at the expiration of that time fell a victim to the oppressive cares of government.

A. D. 486.—Cavades had no sooner ascended the throne than he took such vigilant measures against the Euthalites, who had overrun the greatest part of the kingdom, and exacted a tribute from their late sovereign, that their spirit was soon broken, and they were eventually compelled to do homage to him as their lawful king. Having effected this design, he undertook to alter the constitution of his kingdom, depriving the nobility of all their ancient privileges, and rejecting the advice of counsellors even in the most momentous transactions. As his enterprising genius impelled him to break through every restraint, he soon became an object of terror to his subjects; and at length the promulgation of an infamous edict, which seemed dictated by a spirit of insanity, determined the chief nobles of the realm to shake off their insufferable yoke. Accordingly they deposed Cavades, after he had reigned eleven years, and bestowed the crown on Zambades, a near relative of Peroses.

The conduct and abilities of the new king reflected the highest credit on the choice of his nobles, and promised the happiest effects to the empire at large; for he was equally just and compassionate, zealous for the rights of the crown, and solicitous for the welfare of the subject. But, whilst he was sedulously employed in redressing those evils which had arisen from the ill conduct of his predecessor, and restoring the affairs of government to their ancient order, Cavades found means to escape from prison, and, with the assistance of the king of the Euthalites, repossessed himself of the throne. The principal authors of the late revolution were then sentenced to death; and the unfortunate Zambades, after suffering the loss of his eyes, was thrown into close confinement.

Cavades had no sooner recovered the diadem, than he found himself pressed for the payment of a loan which he had received from the Euthalites. In this exigence he applied to the emperor Anastasius, requesting him to advance the money upon interest; but, his solicitation proving ineffectual, he made a sudden irruption into Armenia, laid the inhabitants under heavy contributions, and, after an obstinate resistance, reduced the important fortrefs of Amida. Upon the first intelligence of this invasion, the emperor sent a numerous army to the frontiers, in order to repel the Persians; but Cavades attacked them with such impetuosity, that Ariobindus, one of the Roman generals, shamefully abandoned his camp, and fled to an adjacent city; and another powerful division, commanded by Harpatius, who had cut off eight hundred Euthalites, were surpris'd unexpectedly, and slaughtered with scarcely any resistance.

Whilst Cavades was thus employed against the Romans, his attention was diverted by a formidable invasion of the Huns, which compelled him to march his forces immediately toward the northern provinces. The enemy prudently resolved to improve his absence, and accordingly laid siege to Amida, which obstinately resisted for some time, but was at length compelled to capitulate. Soon after this event a truce for seven years was concluded, and hostages were given on both sides for its due observance.

Justinian, having succeeded to the empire of the East, caused all the frontiers towards Persia to be surveyed, and ordered his commanders on the border of Mesopotamia to fortify Mindone, the nearest place in the Roman territories to Nisibis. The Persians, who regarded this work with an eye of jealousy, took an opportunity of attacking the labourers, with the troops who were appointed to protect them, and, having slaughtered the

Greatest part of them, demolished the building. This occasioned a new war, which was carried on for some time with different success; but, as neither party gained any considerable advantage, a second truce was proposed, and the hostile armies were mutually withdrawn.

Meanwhile the king of Persia, exhausted by the toils of war, and oppressed with many bodily infirmities, sent for Mebodes, his confidential minister, and expressed an earnest desire of leaving the crown to his third son Chosroes, whose warlike and ambitious disposition seemed better adapted to the affairs of government than that of his elder brothers. He then gave him his will, with a solemn injunction to use his utmost efforts for its execution; and shortly after died, A. D. 531, in the forty-fifth year of his reign. Upon the demise of Cavades, the elder prince Caoses assumed the regal title; but, a solemn assembly being convened, and the will of the late monarch produced, his claim was set aside, and Chosroes was immediately placed on the throne.

Chosroes, or Khosrou, who was afterwards celebrated throughout the east by the name of *Nushirvan*, or the Magnanimous, was no sooner confirmed king, than the emperor Justinian sent an embassy, consisting of Rufinus and several other persons of distinction, to compliment him on his accession, and to make proposals of peace. Chosroes received the ambassadors with every mark of respect, and readily agreed to the offered pacification, on condition that he should receive a certain sum of money; that the pretensions of the Romans and Persians should be finally settled; all places taken on either side restored; and this peace declared to be *perpetual*. Rufinus returned to Constantinople for instructions, and soon after arrived with the ratification of the peace.

The Persian nobility, perceiving that Chosroes possessed the same disposition which had disturbed the peace of the empire at the accession of Cavades, resolved to provide for their own safety by transferring the sceptre into the hands of a more tractable prince. Accordingly they formed a conspiracy for placing his second brother's son, Cavades the Younger, on the throne, proposing, however, to vest the regal authority in Zames as his tutor and protector; for Zames, the brother of Chosroes, having the misfortune to be blind of one eye, was, by the laws of Persia, incapable of wearing the crown. But, whilst they were making suitable preparations for the execution of their project, Chosroes was apprised of his danger, and caused all the conspirators to be put to death except young Cavades, who had the good fortune to escape the present danger, and afterward found an agreeable asylum at the court of Justinian. Another act of feverity which he thought necessary for the peace of his kingdom, was the execution of Mazdak, the head of a new sect, who preached a community of property and of women, and whose delusions had obtained great sway over the mind of Cavades. He next removed such governors of provinces as during his father's reign had made themselves obnoxious to the people; and for the better administration of justice, he divided his dominions into four great vicinships, those of Assyria, Media, Persia, and Bactriana.

The late peace proving beneficial to Persia, Chosroes faithfully observed it for some time: but on receiving a message from Vitiges, king of the Goths, relative to the dangerous augmentation of Justinian's power, he began to meditate fresh hostilities; and a subsequent embassy from the Arsacidæ, or petty princes of Armenia, fixed his determination. Accordingly, having assembled a formidable army, he marched, early in the spring of the year 540, toward the provinces of Syria and Cilicia; reduced Sura, a place of considerable strength on the banks of the Euphrates; levied heavy contributions on the adjacent country; and advanced by rapid marches to Antioch, which, after a bloody conflict, was added to his other conquests.

Whilst his army remained in the vicinage of this city,

he received an embassy from Justinian, who expostulated with him on the injustice of his conduct in violating the late treaty, and at the same time expressed a wish for an accommodation. Chosroes received the ambassadors with every mark of respect; listened attentively to their remonstrances; and answered them with language and gestures so well calculated to excite the passions, that they were totally confounded, and openly confessed that his eloquence was to be dreaded rather than his arms. However, as they hesitated to comply with his unreasonable demands, he reduced the city of Antioch to ashes, and took such measures for extorting new contributions, that the Romans were actually alarmed at his progress, and the Persians became intoxicated with success. After reducing several places of importance, the Persian monarch invested Dara, a rich and populous city, which he was very desirous of possessing; but, finding that the garrison were resolved to defend themselves to the last extremity, and perceiving the discontent which prevailed in his army, on account of fatigue and the advanced state of the season, he determined to abandon the siege, and return to his own dominions.

Soon after his return, Chosroes received an embassy from Gubazes, prince of the Lazi, complaining that Justinian had caused a new city to be built on the coast of the Euxine Sea, and fortified by a Roman garrison, for the express purpose of enslaving a people who had hitherto enjoyed the blessings of liberty without molestation. The king immediately resolved to espouse the cause of the Lazi, and accordingly led his forces into Colchis, where Gubazes met him, and, joining his army with a powerful reinforcement, accompanied him to Petra, which was immediately evacuated by the Romans.

Whilst the sword of Chosroes was bathed in the blood of his enemies, and his coffers were abundantly replenished with the spoils of conquered cities, the Roman general, Belisarius, led a numerous army against Nisibis, but was soon compelled to raise the siege. To console himself for this misfortune, he ravaged a few inconsiderable places, and, having carried off some spoil, sent a message to Constantinople, importing that he had triumphed over the Persians, though in reality his expedition was rather honourable than advantageous.

Early in the ensuing spring Chosroes marched his forces into Comagene, intending to advance into Palestine, and plunder the city of Jerusalem; but, finding himself opposed by Belisarius, and dreading the effects of a pestilence, which had recently passed from Egypt into those parts of the Roman territories, he retired hastily toward the northern provinces, where he recruited his army for the purpose of invading Armenia. Justinian, however, being apprised of his design, ordered his officers to assemble a numerous body of troops on that side, and Chosroes relinquished his projected attempt.

Next year the Persian monarch led his army against the city of Edeffa, which he had already besieged without success, but which he now determined to destroy. However, the citizens made so vigorous a defence, that he found his design impracticable, and was soon compelled to retire into his own territories, where he held a conference with the Roman ambassadors, and drew them into an insidious treaty, which was, in fact, more destructive to their master than open war.

Shortly after this event, he formed the design of transporting his new subjects, the Lazi, who were zealous Christians, from their own country of Colchis into the centre of Persia, having been persuaded by the Magi that their difference of religion would render them unruly and discontented beneath his government. To accomplish this intention, he deemed it requisite to build a navy in the port of Petra, which might guard the coasts, and prevent any intercourse with the inhabitants of the Roman provinces; but, whilst he was making the needful preparations, Gubazes, king of the Lazi, besought the protection of Justinian, and, with the assistance of a
Roman

Roman army, compelled the Persians to shut themselves up in Petra, which was immediately invested on one side by Gubazes, and on the other by the Romans. Chofroes, receiving intelligence of this transaction, commanded Mermeroes, one of his most experienced officers to hasten with a suitable force to the relief of Petra. Mermeroes accordingly set out for Colchis, at the head of a numerous army; and, having carried the straits of Chisurae, which the Romans had left too slenderly guarded, advanced directly to the city, where he found the garrison reduced to the most pitiable condition, nine hundred men only remaining out of five thousand, and the dead bodies being piled up against the walls of the citadel, that the enemy might not be acquainted with so fatal a loss. The walls being now broken in many parts, and the whole place in a manner dilapidated, the Romans regarded the approach of Mermeroes as nothing more than a slight reprieve; however, he contrived to reinforce the garrison, and put the citadel in a better state of defence. Having effected this purpose, the Persian general marched toward Iberia, in expectation of procuring an ample supply of provisions for his army. Here he encamped, with a rapid river behind him, supposing the situation extremely secure; but Gubazes, having devised a method of crossing the stream, came upon him unexpectedly, and, together with the Romans, made a dreadful slaughter. Mermeroes, however, repaired the mistake by his future caution, and, during the remainder of his life, preserved the superiority of the Persian arms; but his successor, Nachoraganus, acted with so little prudence, that, after a long and expensive war, Chofroes was compelled to conclude a peace with the emperor. Gubazes having been treacherously assassinated during the hostilities, his subjects were deprived of their liberties, and Nachoraganus was condemned to be slayed alive for his ill conduct.

During these transactions in the western parts of his empire, Chofroes and his son Hormouz, or Hormisdas, were also busily engaged in military operations on the eastern borders. The Euthalites were expelled from their usurpations on the Persian frontier; and the great khan of the Turks, who had burst like a torrent into the midst of Persia, was defeated by Hormouz, and obliged to retire with precipitation. Chofroes concluded his hostility with the khan by a treaty, and the marriage of his daughter. He moreover subdued the Hyrcanian rebels, conquered the provinces of Cabul and Zablestan on the Indus, and received ambassadors from the greatest potentates of the East, at his splendid palace of Madain, or Ctesiphon, one of the wonders of that part of the world. In the midst of his prosperity he had the mortification of seeing one of his sons in rebellion, by name Nushizad, the son of a Christian captive. This prince's attachment to his mother's religion had caused his father, who dreaded religious disputes in his empire, to keep him in a mild confinement. From this the prince had escaped, and, drawing together an army, raised the standard of rebellion; but in an engagement with the general sent against him by his father, he lost his life.

Chofroes, after his successful expedition to India, marched to the opposite quarter of his wide dominions, and entered Arabia Felix, in which country he dispossessed many usurpers of their illegal power, restored the ancient lords, and used the people with such kindness that he obtained from them the title of *al Mulek*, or the Just.

Towards the close of Justinian's reign, Chofroes was attacked with a dangerous disease, from which he sought relief from the physicians of Constantinople, whose aid he borrowed of the emperor. This friendly intercourse, however, did not prevent the renewal of hostilities between the two empires soon after the accession of Justin, in which that emperor appears to have been the aggressor. Chofroes, then in a very advanced age, took the field, and reduced and sacked the principal cities of Mesopota-

mia and Syria; after a spirited resistance, he made himself master of the strong fortresses of Dara, which he garrisoned. These losses caused the imperial court to solicit for an accommodation, and at length, after the receipt of an expostulatory letter from the empress Sophia, Chofroes consented to a truce for three years, excepting only the province of Armenia, which had first occasioned the war.

Early next spring the Persian monarch prepared to enter Arminia, designing to penetrate into Cappadocia, to reduce Caesarea, and such other cities as he deemed worthy of notice. Tiberius, who had now succeeded to the empire, sent an embassy to dissuade him from this expedition, and to make proposals for a durable peace; but Chofroes refused to admit the ambassadors to his presence, haughtily observing, they might follow him to Caesarea, where he should find leisure to attend to their proposals. This rough behaviour so irritated the Romans, that they resolved to give him battle, having assembled a powerful army, in case they should be compelled to enter upon hostilities. Chofroes, hearing of their determination, regarded it as a proof of their rashness, and quickened his march, as if desirous of the engagement; but when he perceived the excellent discipline of his opponents, and the admirable disposition of their cavalry, he heaved a deep sigh, and seemed much affected. Curtius, a Scythian, having commenced the attack on the left wing of the army, the adverse forces immediately joined in close engagement, and disputed the victory with intrepid gallantry, but at length the Romans were victorious; and the Persians, having lost the sacred fire, and the royal treasures, retired, overwhelmed with shame and confusion.

Next evening Chofroes received intelligence that his enemies were divided into separate encampments; upon which he sallied out against one of them at midnight, routed them with great slaughter, and, having set a village on fire behind their camp, marched with all possible expedition toward the Euphrates, that he might cross over into his own dominions. However, the Roman general pursued him with such celerity, that he was reduced to the necessity of passing the river on an elephant, and had the mortification to see many of his bravest soldiers perish in the general confusion. After this occurrence, the Romans took up their winter-quarters in the Persian provinces; and Chofroes was so deeply affected by his ill success, that, on his arrival at Seleucia, he sickened and died, after he had held the reins of government forty-eight years, A. D. 579.

Chofroes possessed many of those qualities which confer splendour on a despotic sovereign, and in some measure justify the high veneration with which his memory is to this day regarded in the East. His love of justice was proverbial, though it was a justice which did not exclude acts of cruelty and ingratitude towards those who incurred his suspicion or thwarted his will. He was a munificent encourager of the useful and ornamental arts, and paid great attention to the instruction of his subjects. He founded academies for literature and the sciences, and caused translations to be made into the Persian of the most celebrated writers of Greece and India. He himself obtained the reputation of proficiency in moral and philosophical studies; and a report of this kind which reached Greece obtained him a visit from seven sages who adhered to the religion and philosophy of antiquity. They were disappointed in their wild expectation of seeing the republic of Plato realised in the court of an eastern despot, and returned to their own country; but Chofroes deserved pure praise for the generosity with which he insisted, in a treaty with Justinian, upon their exemption from the penal laws enacted against the remaining professors of paganism. The oriental historians, who delight to dwell on the glories of the reign of Nushirvan, ascribe to him the completion of the great wall of Jagouge and Magouge, commencing

mencing at Derbeet, and running, like the Chinese wall, from mountain to mountain, so as to secure the Persian frontiers from northern invaders.

Chosroes was succeeded by his son Hormisdas III. whose cruel and obstinate disposition was but ill adapted to soothe the public troubles, or heal the wounds of his empire. A ridiculous curiosity relative to future events, a haughty forbidding carriage, and an impolitic mode of conduct toward foreign princes, were prominent traits in his character, and continually involved both himself and his subjects in the most serious embarrassments. His faith in the assertions of some old diviners caused him to regard the generality of his subjects as discontented and rebellious race; and his contumelious treatment of the ambassadors whom Tiberius sent to compliment him on his accession, occasioned a new war, which in the end proved very disadvantageous to both parties.

The first military operations were not of great consequence; but, when Philippicus arrived on the frontiers with a powerful army from Constantinople, the Persians were obliged to leave the open country to the invader's mercy, and consult their own safety by fleeing to the mountains. Philippicus accordingly gratified his troops with the plunder of all the places that fell into his hands; but, his thirst of pillage having drawn him too far into the country, he was reduced to the utmost extremity for want of water; a circumstance which induced him to put all his prisoners to the sword, except the children who were designed for slaves; but they died in the march, and thus escaped the miseries which they must otherwise have endured.

In the early part of this unpopular reign, the Turks made an inroad into Persia. This brought into action the talents of the celebrated Bahram, or Varamus, surnamed Giubin, a man descended from the ancient princes of Rei or Rages. From his youth he had served in the army of the late king. His gigantic size, fierce countenance, and signal valour, raised him to command in the reign of Nushirvan, and at length acquired him the government of Media, and superintendance of the royal palace. When Persia, therefore, was invaded by the great khan of the Turks, Bahram was sent for by Hormisdas to oppose him. Bahram took only 12,000 select soldiers; and, marching with equal celerity and secrecy, he fell unexpectedly upon the khan's numerous host, and defeated it with great slaughter, killing the khan himself, and taking all the rich treasures of his camp. His tyrannical master, though rejoiced at this deliverance, became jealous of his general's success, and gave ear to those who insinuated that he had kept the most valuable of the spoils to himself. Soon after, Bahram received orders to cross the river Araxes, and to attack the Roman territories on that side. This command was executed with all possible expedition, and Bahram had done incredible mischief to the enemy before they could assemble an army sufficient to take the field. At length, however, Romanus offered battle; and the Persian, relying on his own valour, eagerly embraced the proposal; but, his good fortune abandoning him at this juncture, his cavalry was totally defeated, and the utmost skill required to elude a general slaughter by retreat. Hormisdas, being apprised of this misfortune, was imprudent enough to insult him by the present of a wheel, a distaff, and a suit of woman's apparel. Bahram showed himself to the troops in this dress; and so inflamed their passions by the ignominy inflicted on the whole army in his person, that they unanimously joined him in a revolt against their king, and inspired him with the thought of effecting a general revolution. Upon the first intimation of this design, he received many assurances of assistance; the garrison of Nisibis openly declared for him; even the king's army began to exhibit signs of disaffection; and the inhabitants of all the royal cities shook off their allegiance; and the popular tumults continued to augment. But, in the mean time, Hormisdas met with another enemy in the person of Bindoes, his brother-in-law, who had been loaded with chains for a

slight offence, but was now liberated by the insurgents, who seized upon the king, and committed him to the same dungeon.

Hormisdas was publicly tried, and sentenced to be deposed. When he heard, moreover, that his son Chosroes was nominated his successor, he sent a message from his dungeon, requesting the liberty of speaking before an assembly of the nobles. This petition being granted, he made a very long and pathetic speech, in which he deplored his own misfortunes, inveighed bitterly against the authors of the rebellion, and earnestly entreated that Chosroes might not be permitted to ascend the vacant throne, as his vicious and turbulent nature would inevitably overwhelm the empire with misery and confusion. He recommended his younger son to the notice of his auditors, as a virtuous and ingenuous prince; and concluded with recapitulating the services he had himself rendered the Persians, by reducing many provinces, and compelling the neighbouring barbarians to pay them a regular tribute. At the end of this address, Bindoes stood up, and, in a long insulting answer, wrought so powerfully on the passions of the assembly, that they unanimously rejected the counsel of Hormisdas; caused the prince, whom he had recommended to their favour, to be cut in pieces; exercised a similar cruelty on his ill-fated mother; and ordered the eyes of the deposed monarch to be put out with a hot iron, that no turn of fortune might ever restore him to his former dignity. Such was the tragical termination of this reign, after it had continued twenty-one years. A. D. 592.

These objects of popular resentment being removed, Chosroes II. or Kosrou Parviz, ascended the throne, amidst the acclamations of the people, who celebrated his accession with every demonstration of joy, and made vows for his prosperity. For some time he treated his father with great lenity, sending him a daily allowance of food from his own table, granting him many amusements, and ordering him proper attendance; but, on the unhappy prince reproaching him with cruelty and unnatural baseness, he caused him to be beaten with cudgels till he expired. Having, by this diabolical act, delivered himself from the voice of upbraiding, and supposing himself sufficiently established in the kingdom, he gave splendid entertainments to his nobility, distributed the royal treasures with unexampled profuseness among the lower orders, and commanded all the prisons in his dominions to be thrown open, that the fame of his liberality might ensure the affection of his subjects.

Some historians represent Bahram as having produced this revolution; but it is certain, that, while Chosroes was taking measures for the security of his crown, Bahram advanced with his troops with the view of deposing him, and seizing the crown for himself. A bloody engagement ensued, in which Chosroes was defeated, and compelled to abandon his palace, and seek his safety in a precipitate flight. Bahram then entered the city of Ctesiphon with all imaginable pomp, and, after exercising the utmost severity on those who had evinced any affection for the royal family, invited the grandees of the kingdom to several sumptuous entertainments, and affected the greatest humanity, beneficence, and condescension; but, on his assuming the royal ornaments at a solemn festival, the sparks of discontent were blown into an open flame, and the nobles, pursuant to the advice of Bindoes, attacked the palace in the dead of the night. This attempt, however, was frustrated by the gallant defence of Bahram and his attendants, who, after a sanguinary conflict, slew most of the assailants, except Bindoes and a few of his friends, who fled towards Media for the purpose of raising forces for Chosroes.

Elated with this success, and impatient to assume the regal title, Bahram now sent an embassy to Constantinople, soliciting the friendship of the emperor Mauritius; but, Chosroes having already conciliated the emperor's esteem by a letter, in which he pathetically intreated his assistance

ance against a revolted people, the ambassadors were dismissed without any answer; and such formidable preparations were made against Bahram, that the Persians, ever ready to change, gradually went to serve under the banners of their lawful prince; so that Chosroes, having defeated the army of Bahram, and taken six thousand prisoners, re-ascended the throne. In order to express his sense of the obligation conferred on him by the Romans, the reinstated monarch sent a golden cross, enriched with precious stones, to the church of Sergius the martyr; married a Christian woman, on whom he bestowed the title of queen, in opposition to the laws of his country; and professed such friendship toward the Christians, that many supposed he intended to change his religion, though, in the course of a few years, he gave the most convincing proofs of an irreconcilable aversion to the true faith.

When he found himself firmly established in the supreme dignity, he laid aside all the foreign customs, which he had adopted to ingratiate himself with the Romans, and assumed the state and behaviour of a Persian monarch, as if he had never tasted the cup of adversity. He treated all who had any share in the favour or administration of Bahram with unparalleled severity; and, by restoring the ancient Persian constitution, rendered himself so terrible to his neighbours, that a barbarous prince, with whom Bahram had taken shelter, caused his guest to be poisoned, that himself might elude the vengeance of Chosroes. The renown of Bahram, however, still lives among the Persians, and some excellent laws are dated from his short reign.

During the life of his benefactor Maurice, Chosroes maintained peace and friendship with the Roman empire; but, when that prince had been murdered by Phocas, Chosroes made use of the pretext of revenging his death, to invade, in 605, the imperial territories. Accordingly, he assembled a powerful army, and made all the necessary preparations for entering the Roman frontiers, though Phocas used his utmost exertions to appease him by large presents, and more considerable promises. His first campaign was rather unsuccessful, the adverse troops making a gallant resistance; but, on the death of their general, he obtained a decisive victory, and laid all the frontiers under contribution. He then pursued his advantage with such unremitting assiduity, that, in the space of nine years, he plundered the provinces of Syria, Mesopotamia, Phœnicia, Armenia, Cappadocia, Galatia, Paphlagonia, and all the country as far as Chalcedon; he ravaged Judea, and pillaged the city of Jerusalem. To the ruin of this last city he was urged by the religious hatred of the Magi; and numbers of the Jews gladly joined him to retaliate the injuries they had received from their Christian masters. Many of the monuments of superstitious veneration for the holy place were destroyed, the true cross was carried away, and 90,000 Christians are said to have been massacred in Judea.

In the campaign of 618, Chosroes penetrated into and subdued Egypt, pushed his conquests to the frontiers of Ethiopia, and fixed the western limits of his empire in the vicinity of Tripoli. In the following year he pressed the Constantinopolitan empire still closer, extended his arms to the Thracian Bosphorus and the coasts of Pontus, and took the cities of Ancyra and Chalcedon. His power and greatness were now at their summit; and the description of the splendours of his favourite residence of Artemita, or Dastagerd, beyond the Tigris, has exercised all the exaggerating faculties of oriental pens. The recorded numbers of his elephants, his camels, his horses, and mules, his guards, and his concubines, with his subterraneous vaults in which were deposited his magazines of treasure and precious commodities, do not, perhaps, exceed the bounds of credibility; but the 40,000 silver columns that supported the roof, and the thousand globes of gold hung in the dome to imitate the planets and constellations, too much resemble the fictions of the Arabian Nights. It is no wonder that a mind, which appears to

have been originally haughty and tyrannical, was unable to preserve moderation under such a state of prosperity. The emperor Heraclius in vain by suppliant messages endeavoured to avert his hostility, and obtain peace for his almost ruined empire. To an embassy of this kind brought by officers of the highest distinction, and conducted by Sain the Persian general, Chosroes replied, "I will hearken to no terms from the Roman emperor, till he with all his subjects have renounced his crucified God, and embraced the worship of the Sun, the great deity of the Persians;" and he inhumanly caused Sain to be flayed alive for his presumption, and imprisoned the ambassadors. He afterwards, however, consented to accept of a heavy and ignominious tribute as the price of peace, and Heraclius subscribed the imposed terms. But that emperor in the mean time was preparing to recover his losses by force of arms. The latent qualities of a hero seemed to have been roused in him by distress. He conducted several campaigns with the greatest courage and skill; penetrated into the centre of the Persian dominions, and recalled the monarch from his conquests to the defence of all that was dearest to him. The palace of Dastagerd was pillaged and burnt; and the battle of Nineveh, in 627, rendered Chosroes a trembling fugitive. Regardless of the sufferings of his subjects, his pride would not submit to ask of Heraclius that peace which he still might have obtained on reasonable conditions. At length, weakened both in body and mind, he resolved to resign his crown to his favourite son Merdaza. But his eldest son Siroes, joined by a faction of nobles, prevented this disposition by a previous seizure of the sovereignty. Chosroes was stopped in his flight, eighteen of his sons were massacred before his face, and he himself was thrown into a dungeon, where he expired on the fifth day, after suffering (as it is asserted) every kind of barbarity at the command of his inhuman son. This event took place A. D. 628.

Siroes, having ascended the throne of Persia, concluded a treaty of perpetual peace with Heraclius; gave Zacharias, patriarch of Jerusalem, and all the Roman captives, their liberty; and sent back the wood which was supposed to have been part of the cross on which the Messiah suffered, and which had been carried in triumph, by Chosroes, from Jerusalem into Persia; but Siroes did not long enjoy the advantages resulting from the union between the two empires, as he was murdered by one of his generals after he had worn the crown about twelve months.

His son, Ardeser, was next invested with the government, but he was assassinated in the seventh month of his reign by Sarbas, commander in chief of the Persian forces; who, presuming on the affection of the soldiery, seized the diadem for himself. A civil war, however, was immediately kindled, which crushed the ambitious projects of the usurper, and elevated to the throne Ispigertes II. or Yezdegerd as he is called by the Arabian and Persian historians, grandson of Chosroes II.

This prince, the last of the Persian kings of the line of Artaxares and of the Sassanian dynasty, ascended the throne in 632, at which time commenced the Yezdegerdian æra, still observed by those who profess the religion of Zoroaster. Yezdegerd was contemporary with Omar, the second caliph after Mahomet; and his reign, though it lasted twenty years, is little more than a detail of battles between the Persians and the Arabs, or Saracens. He was scarcely seated on the throne, when he found himself attacked by a powerful army of Saracens under the command of one Sad, who invaded the country through Chaldaea. The Persian general took all imaginable pains to harass the Arabs on their march; and, having an army superior to them in numbers, employed them continually in skirmishes; which were sometimes favourable to him, and sometimes otherwise. But Sad, perceiving that this lingering war would destroy his army, determined to halt forward, and force on a general engagement. The

Persians declined this for a long time; but at length, finding a convenient plain where all their forces might act, they drew up in order of battle; and resolved to wait for the Arabs. Sad, having disposed his men in the best order he could, attacked the Persians with the utmost fury. The battle lasted three days and three nights; the Persians retiring continually from one post to another, till at last they were entirely defeated; and thus the capital city, and the greatest part of the dominions of Persia, fell into the hands of the Arabs. The conquerors seized the treasures of the king; which were so vast, that according to a Mahometan tradition, their prophet gave the Saracen army a miraculous view of those treasures before the engagement, in order to encourage them to fight.

After the loss of this battle, Yezdegerd retired into Chorasan, where he maintained himself as king, having under his subjection two other provinces, named Kerman and Segestan. But, after he had reigned in this limited manner for nineteen years, one of the governors of the few towns he had left betrayed it, and called in the Turks. This place was called Merou, seated on the river Gihon, or Oxus. Yezdegerd immediately marched against the rebels and their allies. The Persians were defeated; and the unfortunate monarch, having with much difficulty reached the river, found there a little boat, and a fisherman, to whom it belonged. The king offered him a bracelet of precious stones; but the fellow, equally brutal and stupid, told him that his fare was five farthings, and that he would neither take more nor less. While they disputed, a party of the rebel horse came up, and, knowing Yezdegerd, killed him. This was in the year 652.

Yezdegerd left behind him a son named Firouz, and a daughter named Dara. The latter espoused Bostenay, whom the rabbinical writers have dignified with the title of the "head of the captivity;" and who, in fact, was the prince of the Jews settled in Chaldea. As for Firouz, he still preserved a little principality; and, when he died, left a daughter named Mah Afrid, who married Walid the son of the caliph Abdalmalek, by whom she had a son named Yezid, who became caliph, and consequently sovereign of Persia; and, so far was this prince from thinking himself above claiming the title derived from his mother, that he constantly styled himself "the son of Khofrou king of Persia, the descendant of the caliph Maroan, and among whose ancestors on the side of the mother were the Roman emperor and the khacan."

Although a few petty chiefs maintained their religion and authority for many years after the death of Yezdegerd, the empire of Persia, which had maintained a second, or renewed, existence for 430 years, was transferred, by this catastrophe, to the victorious Mahometans.

We shall conclude this section with some particulars of the manners and religion of the ancient Persians, which could not conveniently be introduced before without breaking the thread of the history.

The Persian monarchs were not only absolute in their administration, but the obedience of their subjects resulted from the most enthusiastic veneration; and the homage they constantly received was little short of divine honours. None were permitted to enter the royal palace without express permission, nor to approach the seat of majesty without prostrating themselves on the ground. While they remained in the presence, they were obliged to hold their hands within their sleeves; a ceremony for the neglect of which, Mitreus and Autofaces were put to death, under the reign of Cyrus the Younger. The unbounded respect paid to the kings of Persia by their vassals is instanced by Herodotus, who says that, Xerxes being once in great danger by sea, many of his attendants strove who should first leap overboard to lighten the vessel, and sacrifice themselves for the preservation of their prince. They all, in fact, regarded the king's wrath as equally dreadful with the anger of the gods; and, on the least intimation given by him, would at any time become their own executioners.

The crown of Persia was hereditary, and generally bestowed on the eldest of the deceased king's legitimate children. When the reigning prince undertook a long journey, or any perilous expedition, he named the heir apparent previously to the commencement of his march, that no contest might arise respecting the succession. The ceremony of coronation was performed by the priests, in the temple of the goddess of war at Pafargada; where the new monarch used to clothe himself with the garment which Cyrus, the founder of the Persian empire, had worn before his elevation to the throne. Being thus attired, he ate some figs, with a small quantity of turpentine, and drank a cupfull of sour milk; and the solemnity concluded with his receiving the tiara or crown from one of the grandees, in whose family that prerogative was hereditary. The king's birth-day was always celebrated with the utmost pomp and magnificence; and his death was bewailed by shutting up the tribunals of justice, and extinguishing those fires which were universally worshipped as household gods.

The royal residence was, according to the seasons, seven months at Babylon, three at Susa, and two at Ecbatana. But Persepolis, at last, became the ordinary seat of the court. The king's palace was extremely magnificent, and furnished with utensils of inestimable value. The roofs and sides of the apartments were entirely covered with ivory, silver, gold, or amber. The throne was of fine gold, supported by four pillars, richly adorned with precious stones. The royal bed was likewise of gold; and two coffers were placed by it, the one containing five thousand and the other three thousand talents. Herodotus mentions a vine of gold, presented to Darius by Pythius, a Lydian, of which the body and branches were enriched with jewels of great value, and the clusters of grapes, which hung over the king's head as he sat on the throne, were all composed of precious stones. Adjoining the palace were five gardens, planted with the most beautiful trees and flowers; and extensive parks, stocked with all kinds of game for the king's diversion.

With respect to luxury, most of the Persian monarchs were so dissolved in pleasures, that they minded little besides the gratification of their sensual appetites. They drank no water but that of the river Choaspes, which was always carried about with them in silver vessels; no wine was brought to their tables but the Calybonian, made at Damascus in Syria; and no bread was set before them but what was baked from the wheat of Assos in Phrygia. The magnificence of their public feasts exceeded that of almost every other nation; and the most costly viands that could possibly be procured from the surrounding nations were constantly collected for the entertainment of their guests. Athenæus informs us, that among the prisoners taken by Parmenio at Damascus there were no fewer than 277 cooks, of whom twenty-nine provided the dishes, seventeen ministered water, seventy took care of the wine, forty were engaged in the preparation of sweet ointment, and fifty-six were employed in providing the garlands usually worn at the Persian banquets. During the repast, the company were entertained with vocal and instrumental music, and three hundred women of the most melodious voices constantly attended to divert their royal master in his hours of relaxation. It was but seldom, however, that the king admitted any persons to his table except his consort and mother; as it was thought in some measure a degradation of their majesty to appear subject to the same necessities with their guests. This ambition of appearing above the level of other mortals also confined them within the precincts of their palaces, and debarred them from the pleasures attendant on the more salubrious recreations. Tully informs us, that the revenues of whole provinces were lavished on the attire of their favourite concubines, one city being compelled to supply them with ornaments for their hair, another for their necks, &c. and Socrates mentions an ambassador, who, being sent into Persia, spent a whole day before

he reached the boundaries of a territory called the Queen's Head-dress, and another day in travelling through a country which was styled the Queen's Girdle.

The king's children, particularly the eldest, were committed, soon after their birth, to the care of certain eunuchs. At the age of seven years they were instructed in riding and hunting; and at the age of fourteen they were placed under the discipline of four learned tutors, the first of whom was to teach them prudence, the second justice, the third temperance, and the fourth fortitude.

The king's ordinary guard consisted of 15,000 men, who constantly attended his person, and were denominated the *king's relations*, and 10,000 choice horsemen, who attended him in all his expeditions, and were called *immortal*. These guards received no pay, but they were abundantly supplied with all the necessaries of life.

The Persian kings frequently heard causes both criminal and civil; and were generally very tender in respect of the administration of justice. After listening attentively to the merits of a cause, they took several days to reflect upon it, and to advise with their most learned judges before they pronounced sentence. When they sat on a trial of life and death, they considered, not only the crime of which the prisoner stood impeached, but all the actions of his life; and, accordingly as his crimes or virtues preponderated, they condemned or acquitted him.

The royal revenues of Persia, according to Herodotus, amounted to somewhat more than sixteen millions sterling: but this sum was, in later ages, greatly augmented by taxes drawn from Egypt, Syria, and several provinces of Europe.

The ancient Persians are said to have paid more particular regard to the education of their children than any other nation. A son was never admitted to the presence of his father till he had arrived at the age of five years, lest, if he should die before that period, his parent might be too heavily afflicted by his loss. At five years old, the children of reputable Persians were entrusted to the care of learned masters, who carefully implanted in their opening minds an aversion to every species of vice, and allured them rather by example than precept to the practice of all the moral virtues. Every parent had the power of life and death over his own children; but the exercise of this prerogative was only allowable for capital offences, or the repetition of great crimes.

No nation was ever more ready to adopt foreign customs than the Persians. They had no sooner vanquished the Medes than they assumed their dress. After the subjugation of Egypt, they used the Egyptian armour; and, as soon as they became acquainted with the Greeks, they imitated them in the worst of vices. They were indulged, by their laws, with a plurality of wives, besides as many concubines as they could conveniently maintain: and a numerous progeny was regarded as the greatest blessing which heaven itself could bestow upon mortals.

The punishments inflicted upon criminals were various. Those convicted of high treason were condemned to have the right hand struck off, and then to suffer decapitation; a sentence which Artaxerxes caused to be executed on the dead body of his brother Cyrus; and those who had terminated the existence of a fellow-creature by poison, were pressed to death between two large stones; which punishment was inflicted upon a woman called Gigis, for having conspired with Parysatis to poison queen Statira. But the most severe punishment known in Persia was the inhuman one of fastening the culprit between two boats in such a manner that he was unable to move, though his head, hands, and feet, were left uncovered. His face, exposed to the rays of the sun, was smeared with honey, which invited innumerable swarms of flies and wasps to torment him; while the worms that bred in his excrements devoured his entrails; and the executioners compelled him, by thrusting sharp iron instruments into his eyes, to receive nourishment, for the express purpose of

prolonging his excruciating agonies. Plutarch affirms, that Mithridates, whom Artaxerxes condemned to this punishment for pretending to have killed his brother Cyrus, lived under this complication of torments seventeen days; and that, when the uppermost boat was taken off, at his death, his body exhibited a spectacle too shocking for description.

The contempt of riches frequently expressed by the ancient Persians serves to show that they were entire strangers to trade and commerce, as objects of gain. Previously to the conquest of Lydia, they had no money, nor any clothing but the skins of beasts; but, after the reduction of Lydia, they seem to have applied themselves to trade and navigation, in order to barter such articles as they could easily spare for those commodities which their country wanted. Their learning appears to have been very inconsiderable to the time of Zoroaster, who is thought to have flourished under the reign of Darius Hystaspes, and was the most famous philosopher and mathematician of the age in which he lived.

Anciently, the Persians were all trained to military exercise, but more particularly to the use of the bow; whence the *bow of Elam* is mentioned, by the prophet Jeremiah, and the *quiver of Elam* by Isaiah, as weapons peculiar to this nation. Their armour consisted of a tiara, or head-piece of great strength and thickness; a coat of mail, wrought in likenesses of scales, and embellished with sleeves of various colours; and a wicker shield or target. Over this they wore great coats of purple; but the king's was white, by which he was known, and frequently singled out by the enemy. It was accounted disreputable among the grandees of this nation to appear in public but on horseback: hence the Persians strove to emulate each other in the richness of their caparisons, their very horses, as Dionysius expresses it, champing the purest gold: and they sometimes entered the field of battle in splendid chariots, drawn by four, six, or even eight, horses.

The magnificence of their expeditions may be learned from Herodotus, who gives the following description of the march of Xerxes's army. "The baggage, carried by servants on beasts of burthen, appeared in front, and was followed by a body of troops, consisting of men of all nations miscellaneously arranged; next advanced a thousand horsemen, and the like number of spearmen, with their spears pointing downward, preceding ten beautiful horses, caparisoned with sumptuous furniture, and consecrated to Jupiter. After these came the chariot of Jupiter, drawn by eight white horses, a conductor on foot holding the reins. The king immediately followed in a chariot drawn by Nisean horses, and attended by a thousand chosen spearmen. After these came a body of cavalry, consisting of a thousand chosen Persians, and they were followed by ten thousand Persian foot, of whom one thousand were armed with javelins, embellished with pomegranates of gold; and nine thousand had pomegranates of silver. The rest of the forces then advanced promiscuously, and closed the grand procession."

When they designed to make war upon any nation, they sent heralds to demand of them earth and water, thereby commanding them to acknowledge the king of Persia as sovereign lord of their country. In time of action, the king animated his forces by his presence and exhortations; and the signal, which was given by sound of trumpets, was always followed by an universal shout of the army. Those who died on the field were accounted peculiarly happy; and such as abandoned their posts, or evinced a cowardly disposition, were condemned to exemplary punishments. They never fought in the night, marched before sun-rise, nor used any stratagem independent of their own valour; whence Ammianus Marcellinus observes, "they deemed it base and unfair to steal a victory."

Previously to their taking the field, the forces passed in review before the king, or commander in chief, each man throwing an arrow into a basket. These were sealed up

up with the royal signet till the end of the campaign, when the soldiers again passed muster, every one taking an arrow out of the same basket. The remaining arrows were then counted; and thus the Persians ascertained the number of their dead.

With respect to their *religion*, the Persians are supposed to have been originally instructed in the worship of the true God by their progenitor Elam; and to have been recovered from certain heretical opinions by the patriarch Abraham, in whose time the oriental nations were overpowered with a false religion, commonly known by the name of Zabiism. If, however, this was the case, a second corruption must have ensued, and engaged the people in superstitious acts of reverence to the celestial bodies, and in other practices incompatible with the true faith.

The splendour of their religion, however, was never so far obscured as to admit any degree of comparison between it and the worship of the neighbouring heathen nations, for, while they abandoned themselves to the most absurd idolatry, and multiplied their representations of numerous deities, the Persians zealously adored one all-wise and omnipotent God, whom they held to be infinite and omnipresent: so that they abhorred the idea of representing him by images, or of circumscribing his presence within the narrow bounds of temples. The worship of Venus was indeed introduced in the decline of the ancient Persian empire; but it was boldly reprobated by the Magi, who remained firm to this article of their creed, "There is one God;" a principle which they carefully transmitted to their posterity.

The greatest religious objection to which the Persians have rendered themselves liable, results from their veneration of the sun and of fire; and from those symbolical representations, called Mithraic figures, which adorned certain caves, after the time of the learned Zoroaster. But, from the enquiries and researches of various impartial and literary men, it appears that even these things were formerly misrepresented. As to their peculiar respect for the Sun, it is founded on their belief that he is the noblest creature of the Almighty, and the immediate seat or throne of the Holy One; and with regard to their veneration for the element of fire, they avow that they have chosen it as the purest symbol of the Divine Nature. A declaration which must gain some degree of credit, if we take a retrospective view of certain events and customs in the *Jewish* history, such as the revelation of God to Moses in the *burning bush*; the pillar of *fire* which preceded the Israelitish host in their removal from Egypt; and the *never-dying fire* that was kept on the altar of burnt offerings at Jerusalem. As to the figures of the sun, the planets, and other heavenly bodies, which ornamented some of their retreats, they served only as mathematical symbols for preserving the true system of the universe among the Persians, though they were afterwards introduced into other nations as objects of idolatrous worship.

Though fire was deemed the symbol of divinity among the Persians, the other elements were also highly honoured by them; inasmuch that they suffered the bodies of their deceased friends to be devoured by birds and beasts of prey, to avoid polluting the *earth* or infecting the *air*; and they universally believed, that whoever wilfully polluted *water*, with the bones of dead creatures or other abominations, deserved punishment of the most dreadful kind both in this world and in the next. This attachment to purity, and especial regard to water, seems justified by the Mosaic precepts for corporal purification, and by the great advantage of preserving cleanliness in a climate so hot as that of Persia.

Their priests, who have been branded, by the prejudiced or misinformed, with the name of *fire-priests*, were in reality entitled to the appellation of *priests of the Almighty*, for they read every day certain public prayers, and performed other sacerdotal offices, exclusive of their attention to the sacred fire. They never confessed their

offences to any but the most High, nor besought a remission of them from any except him, though they inclined to perform those devotional acts before fire or before the sun, as a symbol of the Deity, and a witness of their actions. In like manner the Israelites confessed their sins to God in the temple while the sacred fire flamed on their altar; so that the religious practice of the Persians seems to have been in a great measure free from idolatry, though it was strongly tinged with superstition.

In the most ancient times the Persians were destitute of temples, but erected altars, for the preservation of their sacred fires, on the tops of mountains and other solitary places. At length Zoroaster persuaded them, for the sake of convenience, to build, over each, a *pyreum*, or fire-temple. This, however, had no relation to Mythra, or the Sun, towards whom they could better testify their respect in the open air; neither did it militate against their favourite principle, that the Lord of the universe should not be enclosed within walls; for the pyreum was not designed to circumscribe what they esteemed an *image* of the Deity, but only the *symbol* of his purity, or the *shadow* of his nature.

After the conquest of Persia by the Saracens, the religion of Persia became that of Mahomet, of the sect of Ali. The only remnant of fire-worshippers, or Zoroastrians, are perhaps the *PERSEES*. See that article, p. 648.

The ancient Persians did not measure the subdivisions of their months by weeks, but gave a particular name to every day in the month, and to every month in the year, which they adopted from certain angels, supposed to preside over, and to influence, all the actions of those periods, committed by Omnipotence to their care. The presidents of the months were regarded as a superior class to the rulers of the days. It was considered as a high disrespect to address to one angel the prayer proper to the day of another. The first month of the Persian year commenced, from high antiquity, at the vernal equinox, and was formerly named, together with its angel, *Fire*: but the sultan Jalaluddin, about the end of the eleventh century, reformed the Persian computation of time, and transposed the places of the months in the calendar.

Farwardin (March) is so named from an angel supposed to be treasurer of Paradise. On the first of this month, called *nouroos*, or new-year's day, began the principal festival among the Persians, which lasted six days. On the eve of the new year, a young man of elegant figure, personating the new year, was stationed at the door of the royal bed-chamber, which he entered, without ceremony, the moment the sun appeared above the horizon. The king immediately addressing him, said "What art thou? Whence dost thou come? Whither dost thou go? What is thy name? Wherefore dost thou approach? What dost thou bring?" To which he answered; "I am the fortunate and the blessed: I am sent hither by God, and bring with me the new year." Then sitting down, another appeared with a large silver dish, in which were wheat, barley, pease, vetches, sesamé, and rice, (seven ears and nine grains of each,) with a lump of sugar, and two new-coined pieces of gold, which, as an offering, were placed before the king. Then entered the prime minister, the general of the forces, the lord high treasurer, and the superintendent of war: after whom followed the nobles and people, according to their dignity and respective classes. A large loaf, made of the above-mentioned grains, being then presented to the king; after eating part of it, he offered some to those who were around him, saying "This is the new day, of the new month, of the new year, of new time; when all things consistent with time must be renewed." With these words, he gave robes of honour to his officers.

On the first of the six days of this festival, the king was wholly engaged with the welfare of his people, and the means of rendering them happy. The second he devoted to the astrologers and other learned men; the third to his priests and to his counsellors; the fourth to the princes

princes of the blood and the grandees; the fifth to the children of the royal family; and the sixth to his subjects generally, receiving on that day the presents which they were accustomed to make him.

Such were the ceremonies of the Persian new year, at court. At the autumnal equinox they were not wholly unlike, though somewhat differently conducted. The angel of the month *Mihir* (September) was supposed to be the intelligence which regulated the Sun, and to preside over love and friendship. On the 16th, being this angel's particular day, began one of their greatest festivals called *Mihrgan*. The king on the first day of this festival, after anointing himself with the oil of *ban*, (as did all his subjects who could procure it,) dressed in a superb robe of many colours, his head adorned with the royal *taj*, (diadem,) on which was a splendid figure of the Sun, seated himself on his throne; when the high-priest, entering alone, with a large silver dish, filled with sugar, peaches, quinces, apples, citrons, pomegranates, the jubbe, the lote, a bunch of white grapes, and seven myrtle berries, muttered over them a prayer, and presented them to the king, who ate of them all; after which the nobility and others, approaching according to their rank, followed the sovereign's example; when a variety of robes and other rich furniture, from the royal wardrobes, were distributed amongst them in proportion to their degree. On this day it was esteemed fortunate to wear or name children; and, if a son was then born to the king, he was immediately, with great solemnity, consecrated high priest of the Sun.

Murdad, (July.) This angel was one of the reputed guardians of trees, herbs, fruits, and seeds. *Murdad*, amongst other attributes, is supposed to be the presiding angel of Winter; but that must, apparently, have been when his month (now July) corresponded with November, for the same reason that the ridiculous parade of *Kusah nishin* (the procession of *Kusah*), mentioned to have been celebrated in the month Azur, must apply to it when coinciding with the vernal equinox. This festival, however whimsical it may appear to us, was solemnized in Persia, by all ranks, from the prince to the peasant. An old toothless beardless figure, representing Winter in his departure, was mounted on a mule or ass. He was generally some poor buffoon, (if one-eyed so much the better,) who, by ludicrous gesticulations afforded much mirth to the people; some sprinkling him with warm water and giving him hot victuals, whilst others were drenching him with cold; *Kusah* all the while fanning himself, and exclaiming, *Garma! garma!* O heat! heat! He had a crow in one hand, and a fan or scourge in the other; and was attended even by the family of the king, or of the governor of the city, who accompanied him on horseback through the whole of the fantastic ceremony. In this manner he paraded the streets, entering the house of every nobleman, who was obliged to give him a piece of money, if he did not wish to have his clothes bedaubed with a piece of red clay, which, dissolved in water, he carried by his side, in a little earthen vessel. He then went into every shop, the owners of which took especial care to have their money ready, for a moment's delay gave *Kusah* a right to seize all that was in them. Whatever was thus collected before the first prayers, became the property of the king, if in the metropolis, or of the governor in any other city; but from that hour until the second prayer, the receipts were reserved by *Kusah* himself, who then suddenly disappeared; for, if this representative of Winter was found in public after that time, any person might beat him with impunity.

On the same grounds, we must place in the month of *April*, another festival of a more dignified nature, which they celebrated anciently on the 8th of the month *Dajj* (December), called *khurm roz* (cheerful day); when, according to the Farhangi Jahanguiri and other authors, the king of Persia, clothed in white robes, descended from his throne, and seating himself on a white carpet, the

farapardah (or veil before the royal throne) was thrown open, and all his subjects were admitted to his presence. The husbandmen were treated with particular respect, some of their chiefs dining at the same table with their sovereign, when he addressed them in the following strain: "I am one of you; my subsistence, and that of my people, rests on the labour of your hands; the succession of the race of man depends upon the plough; without you we cannot exist; but your dependence upon me is reciprocal; we ought, therefore, to be brothers, and to live in perpetual harmony."

We cannot possibly be displeased with the attention paid by the sovereign to husbandry, or husbandmen; but we confess, that the following custom affects us still more closely. We have indeed heard, in our own country, of privileges appertaining to the ladies in leap-year, in the choice of their lovers; but it seems that in Persia every year has leap-year privilege, though restricted to one month, and to one day of that month; but then, in revenge, it extends to married women as well as to maidens; and includes husbands as well as bachelors, under its dominion. *Sapandarmuz*, (February, xiith month.) To this angel they assigned the care of the earthly globe, and also the guardianship of virtuous women; in consequence of which, the fifth, his peculiar day, was considered as highly auspicious to every circumstance relative to marriage. One of the names of this day, was *mard giran*, (taking or governing men,) founded, as they say, upon a custom which prevailed in ancient times of vesting the ladies on that day with despotic power, the husbands paying an implicit obedience to the most arbitrary commands of their wives; whilst the virgins, in their respective classes, had the singular privilege of choosing for themselves a husband from among the unmarried part of the male sex; who, they say, had too high a respect for this gallant institution to hesitate a moment in receiving their fair admirers. The pairing of the birds about this season might possibly have suggested those inducements to matrimony, as well to the west as to the east; Valentine's day, in old times, with some variation of ceremony, bearing a strong resemblance to this Persian festival. (From Wilkins's edit. of Richardson's Persian Dict.)

OF PERSIA UNDER THE MAHOMETAN DYNASTIES, TO THE PRESENT TIME.

The history of all the dynasties which we have enumerated, and those to which we are proceeding, will be found to be very nearly the same. A military leader, dissatisfied with the court, and of an enterprising genius, attaches to his standard companions of a similar character. His first successes are rewarded by an ample spoil, which generosity or policy induces him to divide. Numbers flock to his banners. Ambition and avarice are his auxiliaries; and he has only to contend against a feeble sentiment of attachment for an unknown prince, who possibly might not possess a single quality calculated to inspire it, and whose name had furnished a sanction to every species of misrule. The people remain passive spectators of the approaching contest: and the royal phantom vanishes as soon as it is attacked. The commander, who now ceases to be a rebel, commences the functions of sovereignty. Bred up in habits of business, and inured to the conflicts of active life; aware that he possesses power by a precarious tenure, he endeavours to make himself respected as well as feared: his discipline is severe; abuses in the administration are corrected, and every department of the state rigorously scrutinized. A comparison of his rule with the luxurious indolence and effeminacy of the preceding reign, is entirely to his advantage. At his death, he transmits to his successor a throne supported by the experience of its beneficial effects, and defended by an army formidable by its numbers, its discipline, and its attachment. His son, who probably fought and conquered by the side of his father, pursues the same policy, extends his dominions, enforces his regulations, and enacts

new ones, the result of experience. The kingdom becomes great and prosperous; and it is in this reign that it probably reaches the utmost elevation it is destined to attain. The third monarch of the dynasty, born to a throne, and enervated by sensual delights, retains the civil polity of his ancestors, but delegates to others the ruder task of fighting his battles. He is usually a great patron of literature, and aims at a different sort of fame. If his talents be considerable, his manners popular, and the state of the circumjacent countries favourable to tranquillity, he too is succeeded by his son, who is probably the last of the race who mounts the throne; and these Saturnian years roll round again. Such is the brief outline of an eastern dynasty, on the supposition most favourable to peace, viz. that the authority of a despot survives him long enough to regulate the succession.

Persia continued to be subject to the Arabs till the decline of the Saracen empire, when it was seized by various usurpers, till the time of Gengis Khan, who conquered it as well as almost all the rest of Asia. See the article HINDOOSTAN, vol. x. p. 17-21. After his death, which happened in the year 1226, Persia, together with the neighbouring countries, were governed by officers appointed by his successors, who reigned at Kæarakorom, in the eastern parts of Tartary, till the year 1253, when it became once more the seat of a mighty empire under Hulaku the Mogul, who in 1256 abolished the caliphate, by taking the city of BAGDAD, as related under that article, vol. ii. p. 618. After the death of Hulaku, his son Abaka succeeded to his extensive dominions; and his first care was to shut up all the avenues of his empire against the other princes of the race of Gengis Khan, who reigned in different parts of Tartary. His precautions, however, were of little avail; for in the very beginning of his reign he was invaded by Barkan Khan, of the race of Jagaty the son of Gengis Khan, from Great Bukharia, with an army of 300,000 men. Abaka was but indifferently prepared to oppose such a formidable power; but, happily for him, his antagonist died before the armies came to an engagement, upon which the invaders dispersed and returned to Tartary. In the year 1264, Armenia and Anatolia were ravaged by the Mamelukes from Egypt; but they were obliged to fly from Abaka, who thus seemed to be established in the possession of an empire almost as extensive as that of the ancient Persian kings. His tranquillity, however, was of short duration; for, in 1268, his dominions were invaded by Borak Khan, a prince likewise of the race of Jagaty, with an army of 100,000 men. He quickly reduced the province of Chorasan, where he met with little opposition, and in 1269 advanced as far as Aderbijan, where Abaka had the bulk of his forces. A bloody battle ensued; in which Abaka was victorious, and Borak obliged to fly into Tartary, with the loss of all his baggage and great part of his army. Abaka died in 1282, after a reign of seventeen years, not without suspicion of being poisoned; and was succeeded by his brother Ahmed Khan. He was the first of the family of Gengis Khan who embraced Mahometanism; but neither he nor his successors appear to have been in the least versed in the arts of government; for the Persian history, from this period, becomes only an account of insurrections, murders, rebellions, and poisonings, till the year 1335, when it split all to pieces, and was possessed by a great number of petty princes; all of whom were at perpetual war with each other till the time of Timour the Lame, or Tamerlane, who once more reduced them all under one jurisdiction. See the article MOGUL, vol. xv. p. 615.

The chief of the exploits of Tamerlane are related under HINDOOSTAN, vol. x. p. 23-32. His conquests, indeed, were so numerous and extensive, that in a work of this kind it is impossible they can be comprised in one article. This most celebrated of oriental conquerors, was born in the village of Sebzar, in the territory of Cash, forty miles to the south of Samarcand, in the year 1336. His ancestors were the hereditary chiefs of that district,

and derived their descent from a family related to the imperial throne of Gengis Khan. At the time of his birth, anarchy prevailed in that part of the east; and, after a series of domestic feuds, the khans of Cashgar, with an army of Getes, or Calmucks, invaded the kingdom of Transoxiana. In 1357, Timour, having lately lost his father, put himself at the head of his followers for the purpose of delivering his country, in which at length he succeeded; and was then, at a general diet, in 1370, seated on the throne of Zagatai, at the city of Balk; after which he repaired to Samarcand, which he made the seat of his empire. But this elevation, so far from satisfying his ambition, only opened farther prospects to it. In some succeeding years he reunited to Zagatai its former dependencies, Charizm and Candahar. He next turned his attention to the kingdom of Iran, or Persia, then divided, as we have just remarked, among several usurpers. He first reduced to submission Ibrahim prince of Shirwan. He then attacked Shah Mansour, prince of Fars, or Persia Proper, whom he defeated in a bloody battle under the walls of Shiraz, in which Mansour was slain; and the extirpation of all his male progeny secured the conquest. From Shiraz his troops advanced to the Persian gulf, and the rich city of Ormuz escaped destruction by the payment of a large contribution. Tamerlane then passed as a conqueror through the whole course of the Tigris and Euphrates from their mouth to their sources; entered Edessa, and reduced the Christians in the mountains of Georgia. He now resolved to retaliate upon the Getes their invasion of his native country; and, passing the Sihoon, he subdued the kingdom of Cashgar, and marched seven times into the heart of their territory. In his expeditions he penetrated to the distance of 480 leagues to the north-east of Samarcand, and his emirs crossed the river Irtysh into Siberia. Kipzak, or Western Tartary, was another great scene of his actions. Toctamish, a fugitive prince of that country, had been entertained in his court, and was sent back with an army which established him in the Mogul empire of the north. After a reign of ten years he turned against his benefactor, and with a mighty army entered Persia through the gates of Derbend, passed the Sihoon, burnt the palaces of Tamerlane, and obliged him to contend for his capital and empire. Toctamish was defeated, and his insult was retaliated by two invasions of Kipzak, with such mighty hosts that the wings of Tamerlane's army were thirteen miles asunder. After a march of five months through tracts in which the footsteps of man were rarely beheld, Toctamish was again encountered and routed. The pursuit carried the conqueror into the tributary provinces of Russia; and a duke of the reigning family was made captive in the ruins of Yeletz, his capital. In 1398, his insatiable ambition instigated him to the invasion of the rich country of Hindoostan, where the soubahs of the provinces were in a state of rebellion against the weak sultan Mahmood. He advanced to Dehli, overthrew the opposing army of Mahmood with its elephants, and made a triumphal entry into that capital, which he desolated with pillage and massacre. He had already made prodigious sacrifices of infidels and idolaters to his religious zeal; but, resolving still further to merit the rewards due to victors in a holy war, he advanced a hundred miles to the north-east of Dehli, passed the Ganges, and in various actions slaughtered great numbers of the Guebres, or fire-worshippers.

When on the banks of the Ganges, he was informed of great disturbances on the confines of Georgia and Anatolia, of the revolt of the Christians, and of the ambitious projects of the Turkish sultan Bajazet. He thereupon gave orders to his commanders to return in separate bodies by the routes marked out for them, distributed rich presents among them and the Indian lords who had accompanied him, and, quitting the main army, hastened back to Samarcand. After some months of repose, he proclaimed a seven-years' expedition to the western parts of Asia, granting to those who had served in India their option

option to accompany him or stay at home, but commanding all his Persian military subjects to assemble at Ispahan. He first proceeded, A.D. 1400, against the Georgian Christians, whom he reduced to the alternative of tribute or the Koran, offering however to those whom he had taken prisoners no other choice than death or abjuring their religion. On his return from this warfare he gave audience to the ambassadors of Bajazet; and some time was spent by these mighty monarchs in mutual complaints and menaces, expressed in terms of coarse provocation. At length Timour laid siege to Siwas or Sebaste, a city on the borders of Anatolia, which he took and destroyed, cruelly burning alive the Armenian garrison of 4000 men. He then invaded Syria, where Barkok, a Circassian, who had possessed the throne of Egypt some years before, had defied his power. His son Farage imitated his example, and his emirs were assembled at Aleppo to repel the hostile attack. They issued forth to the plain with a numerous and well-appointed force to engage Tamerlane, whose front was covered with a line of Indian elephants, carrying turrets filled with archers, and Greek fire. The terror they occasioned, with the rapid evolutions of the Mogul cavalry, threw the Syrians into disorder, who fled hastily to the city, which the enemy entered with them. The citadel after a short defence was surrendered, and Tamerlane became entire master of this opulent capital. While its streets were streaming with blood, and resounding with cries, the victor held a theological conference with the doctors of the law. He concluded it with saying, "You see me here, a poor, lame, decrepit, mortal; yet by my arm the Almighty has been pleased to subdue the kingdoms of Iran, Touran, and the Indies. I am not a man of blood; and God is my witness that in all my wars I have never been the aggressor, and that my enemies have always been the authors of their own calamity." At this instant, however, his soldiers were occupied in making up a certain tale of heads of the enemy, required by his peremptory orders, which, according to his custom, were afterwards piled up in columns and pyramids.

After the capture and pillage of some other places, the siege of Bagdad was entered upon. Tamerlane came before it in person, and, having entirely blockaded it, delayed an assault in expectation of a voluntary surrender. The inhabitants, however, held out in despair to the end of forty days, when a storm was ordered; and the death of some of the assailants was revenged by a massacre which produced a pyramid of 90,000 heads. The city was entirely razed, with the exception of mosques, hospitals, and colleges. The conqueror then revisited Georgia; and, having settled affairs in those parts, he declared his resolution of turning his arms against the Ottoman emperor.

Two years had passed since it had become manifest that an encounter between these powerful and ambitious sovereigns was to be expected, and the Syrian expedition of Tamerlane had given time for Bajazet to make adequate preparations for meeting the dreaded conflict. After a very sanguinary and well-disputed combat, the great contest was decided by the defeat and capture of the Turkish emperor. The battle of Angora was fought in July 1402. Concerning the treatment of the imperial captive, very different accounts are given by historians of different nations. See *BAJAZET I.* His death, however, in the next year, put him out of the reach either of the generosity or the arrogance of the conqueror.

The conquests of this Tartar now extended from the Irish and Volga to the Persian gulf, and from the Ganges to the Archipelago; and the terror of his name was felt beyond these limits. The want of shipping prevented him from crossing into Europe; but Soliman, the son of Bajazet, thought proper to soothe him by presents, and accepted a patent of investiture from him for his kingdom of Romania; and the Greek emperor submitted to pay him the same tribute which he had agreed to pay the Turkish sultan. The sultan of Egypt also, who thought himself in danger of an invasion, manifested his submission

by causing prayers to be read, and money coined, in Tamerlane's name, and sent an embassy with presents to bespeak his favour. The final conquest of Georgia, and the pacification of some disturbances which had occurred in Persia, employed the Tartar emperor for some time on his return from Turkey, and he did not arrive at Samarcand till the summer of 1404. In that capital he displayed his magnificence and power in dispensing rewards and punishments, attending to the complaints of his people, erecting palaces and temples, and giving audience to ambassadors from Egypt, Arabia, India, Tartary, Russia, and Spain. The marriage of six of his grandsons was celebrated with all the pomp of an eastern court, and the sovereign seemed happy in a temporary dereliction of his cares and his authority. But, though he had in a public assembly some time before expressed himself as satisfied with the wide limits of his empire, a project of ambition more vast than any he had hitherto entertained occupied his mind; which was no less than the conquest of China. The preparations made for this mighty enterprise were on a correspondent scale of magnitude. Two hundred thousand veteran soldiers were mustered, who were provided with ample means of conveying necessaries to serve them in their long march over the deserts which separate Samarcand from Peking. The aged emperor mounted his horse in the winter season, crossed the Sihoon on the ice, and advanced to the distance of three hundred miles from his capital, when at the camp of Otrar he was seized with a fever, which fatigue, and the imprudent use of iced water, soon rendered mortal. Aware of his condition, he summoned round him the empresses and principal emirs; and, having declared his grandson Mehemet Jehan Ghir his universal heir and successor, and exacted an oath of obedience to him, he expired on April the 1st, 1405, in the 70th year of his age, and the 35th from his elevation to the throne of Zagatai. He left fifty-three descendants, and a name still highly revered in the east; and his posterity are to this day invested with the title of the Mogul emperors, though the power and dominion have passed into other hands. Tamerlane was tall and corpulent, with a wide forehead and large head, a pleasing countenance, and fair complexion. He had broad shoulders and strong limbs; but was maimed in one hand, and lame of the right side. His eyes were full of fire; his voice was loud and commanding; his constitution hardy and vigorous; his understanding sound; and his mind firm and steadfast. In conversation he was grave and modest, and he prided himself in an attachment to truth. He delighted in reading history, and in discussing topics of science with the learned. His religion was fierce and fanatical, and he had, or affected, the superstitious reverence for omens and prophecies, fairs and astrologers, which is general in the east. He conducted his government alone, without favourites or ministers; and its spirit was absolute and uncontrolled rule. It was his boast to have introduced security and order throughout his wide dominions, and he challenged the praise of a benefactor to mankind; but no conquests have been attended with more destruction of human lives, and more desolation of flourishing cities and districts, than his were; and his ambition prompted him to extend his authority beyond the possible limits of a single government. He was not, however, a mere barbarian conqueror; but, if his code of laws can be relied upon as genuine, had enlarged ideas of the administration of a great empire. The "Institutions of Tamerlane" have been made known in Europe by two translations from a Persian version; one in English by Major Davy and Professor White, Oxford, 1783; the other in French, by M. Langles, Paris, 1787.

After the death of Tamerlane, Persia continued to be governed by his son Shah Rukh, a wife and valiant prince; but immediately after his death fell into the same confusion as before; being held by a great number of petty tyrants, till the beginning of the 16th century, when it

was conquered by Shah Ismael Sefi; of whose family we have the following account. His father was sheik Hayder, the son of sultan Juneyd, the son of sheik Ibrahim, the son of sheik Ali, the son of sheik Mufa, the son of sheik Sefi, who was the thirteenth in a direct line from Ali, the son-in-law of the prophet Mahomet. When Tamerlane returned to Persia from the defeat of Bajazet the Turkish sultan, he carried with him a great number of captives out of Caramania and Anatolia, all of whom he intended to put to death; and with this resolution he entered Ardebil, or Ardevil, a city of Aderbijan, about twenty-five miles to the east of Taurus, where he continued for some days. At this time lived in that city the sheik Sefi, above mentioned, reputed by the inhabitants to be a saint; and, as such, much revered by them. The fame of Sefi's sanctity so much moved Tamerlane, that he paid him frequent visits; and, when he was about to depart, promised to grant whatever favour he should ask. Sefi, who had been informed of Tamerlane's design to put the captives to death, requested of the conqueror that he would spare the lives of those unfortunate men. Tamerlane, desirous of obliging him, not only granted this request, but delivered them up to him to be disposed of as he thought fit; upon which the sheik furnished them with clothes and other necessaries as well as he could, and sent them home to their respective countries.

This generous action proved very beneficial to the family; for the people were so much affected with such an extraordinary instance of virtue, that they repaired in great numbers to Sefi, bringing with them considerable presents; and this so frequently, that few days passed in which he was not visited by many. These testimonies of gratitude continued to be shown to his descendants during three generations, until the time of Juneid, grandson of the sheik; when the reigning prince, being of a suspicious temper, forbade them to be continued. Juneid retired to the province of Shirwan, the sovereign of which put him to death. His son was killed in attempting to avenge him; and his two grandsons, named Ali and Ismael, were left exposed to the hatred of his enemies. The eldest of them fell a victim to their machinations: Ismael, the second, escaped, and was educated with great care in Ghilan by a sheik who had been his father's friend.

At this period, (A. D. 1500.) there were numbers of the sectaries of Ali among the Mohammedans of Asia; of these Ismael assembled about seven hundred who were attached to his family, and with them fell upon his father's murderer, slew him in battle, and took possession of his dominions. After this, he pursued his conquests; and, as his antagonists never united to oppose him, had conquered the greatest part of Persia, and reduced the city of Bagdad, by the year 1510. However, his conquests on the west side were soon stopped by the Turks; for, in 1511, he received a great defeat from Selim I. who would probably have crushed the empire of Ismael in its infancy, had not he thought the conquest of Egypt more important than that of Persia. After his defeat by Selim, Ismael never undertook any thing of consequence. He died in 1523, leaving the crown to his eldest son Tahmasp.

The new shah was a man of very limited abilities, and was therefore invaded by the Turks almost instantly on his accession to the throne. However, they were obliged to retreat by an inundation, which overflowed their camp, and which frightened them with its red colour, probably arising from the nature of the soil over which it passed. Tahmasp, however, reduced Georgia to a province of the Persian empire; that country being in his time divided among a number of petty princes, who, by reason of their divisions, were able to make little opposition. Tahmasp reigned fifty-three years. He is renowned for having been the first who desolated his own territories, to prevent the enemy from finding sustenance there. By this practice, the frontiers of Persia and Tur-

key, one of the most beautiful countries in the world, have been reduced to a desert. He was succeeded, A. D. 1575, by

Ismael II. his son, whom he had imprisoned twenty-five years; and who verified the observation, "that the reign of a prince who returns from exile, or escapes from captivity, is always cruel and sanguinary."

Mohammed, the brother and successor of Ismael, (A. D. 1577.) had spent his life in privacy, wholly devoted to religious duties. It was with the greatest difficulty that he was persuaded to assume the reins of government, and then only with the view of preventing the confusion which he was assured his refusal would inevitably occasion. The war with the Turks continued almost the whole of this reign, and was stained on both sides with acts of unnecessary cruelty. Mohammed was greatly distressed for want of sufficient forces to encounter the enemy, both in Georgia and Persia; so that at length the Othmans reduced Tauris, and built a strong fortress in the heart of that province.

Mohammed, at his death in 1584, left three sons. Hamzeh ascended the throne, and was assassinated at the instigation of his brother Ismael III. who succeeded him; but he was also conspired against by some lords of his court, who bribed his barber to cut his throat while shaving him; and the instant that the horrid act was perpetrated, the conspirators with their own hands cut the assassin to pieces, and burned his body, that no trace of the crime might exist.

Shah Abbas, surnamed the Great, was the third son of Mohammed, and was born about A. D. 1558. He was at first governor or king of Chorasan; but, on the murder of his brothers, he succeeded to the throne in 1585. One of his first actions was to put to death, partly with his own hand, his tutor Murshid, to whom he had been indebted for his life and crown, but who showed a disposition to keep him in subjection; and this bloody deed, in a barbarous and despotic country, was considered as an indication of the vigour of character, and ability for governing, which he afterwards displayed.

When he ascended the throne, Persia was divided among more than twenty princes, who had usurped their governments, and rendered themselves independent. There was also a body of troops, resembling the janizaries in Turkey, who kept all former sovereigns under control. These, as well as the leading families, were of the race of Kurchi, or Turknians; and were associated for mutual defence, so as to set the supreme authority at defiance. It was therefore the great object of Abbas to destroy all the ancient families, and reform the refractory troops; a design in the main justifiable, though he pursued it with all the perfidy and cruelty that have ever distinguished eastern policy.

Abbas began his public exploits by a warfare of three years against Abdallah, khan of the Uzbeks, who had invaded Chorasan. It terminated in the capture and death of the khan, and all his family. Abbas then visited Ispahan, with the situation of which he was so much delighted, that he made it the seat of his empire. He next undertook an expedition against the Othman Turks, from whom he re-took Tauris, and various cities and provinces in that neighbourhood; and by an act of the basest perfidy and ingratitude, he massacred all the chiefs of the Curds, who had assisted him in taking the strong town of Orumi. He next subdued the provinces of Shirwan and Ghilan, on the western coast of the Caspian Sea, and made roads through the most difficult parts of those countries. The Turks in the mean time advanced with a prodigious army to Tauris, but were driven back, after some bloody actions, by Abbas. And on a second invasion, two years afterwards, though they took Tauris, and gained several advantages, they were in the end compelled to retreat. An interval of twenty years ensued, during which Persia enjoyed tranquillity; but, at the expiration of this term, the Turks made a third irruption, in conjunction

junction with the Crim Tartars. They were, however, finally repulsed by one of the generals of the shah.

Abbas then made an expedition into Georgia. Finding his soldiers much addicted to the use of tobacco, he prohibited it, and enforced his order by causing the noses and lips of offenders to be cut off. A merchant, ignorant of the prohibition, coming into the camp with some bags of tobacco, was, by the shah's command, set upon a pile of faggots, and consumed in the midst of his merchandize.

This cruel disposition was soon after exercised in a very tragical manner on his own family. Besides a vast number of concubines, Abbas had three wives, who bore him as many sons. The elder, Sefi Mirza, had been instigated by some nobles, wearied with the father's tyranny, to join in a conspiracy against his life, and ascend the throne in his stead. Sefi, with filial duty, discovered the plot to his father; but he thereby infused an incurable suspicion into the mind of Abbas; and this was only to be removed by his death. The father proposed his son's execution to a brave old general, who at the hazard of his own life refused the deed. Another was not so scrupulous. He met the prince coming from the bath on a mule, attended only by a single page; and, seizing his bridle, bade him alight and die, in obedience to the royal pleasure. The prince exclaimed against the injustice of the sentence; but added, "Since it is God's pleasure thus to dispose of me, his will, and the king's, be done." He immediately received two stabs, and fell dead at the feet of his executioner. This act, even in Persia, occasioned a dangerous tumult of the people; and the mother of the murdered prince ran to the shah's apartments, and with bitter reproaches tore his face with her nails. Abbas bore it patiently, and was contented with vindicating his conduct, from the danger of his own life. He even felt poignant remorse. He shut himself up ten days with his eyes covered, lived a month upon spare diet, mourned a whole year, and never afterwards wore clothes which could distinguish him from those of the meanest condition. He likewise converted the place where his son was killed into a sanctuary. His bloody disposition, however, was rather irritated than softened by this disaster. He invited all the khans whom he suspected to a banquet, and caused them to die in his presence by poison; and after having, according to promise, rewarded his son's executioner by making him a khan, he obliged him to cut off his own son's head, that he might feel the wretchedness he had been instrumental in occasioning. That his grandson, of whom he was fond, might not cultivate popularity as his father had done, Abbas caused opium to be administered daily to him, in order to stupify and weaken his faculties.

Soon after the death of Sefi Mirza, the two remaining sons of Abbas were both deprived of sight by the cruel suspicions of their unnatural parent. The fate of one of these princes was (if we can credit the testimony of a cotemporary writer of our own nation) attended with circumstances of the most tragical nature. This youth, whose name was Khodah Bundah, was as much distinguished for his courage and talents as his elder brother; but he was more cautious to avoid that attention which he feared would rouse the jealousy of his father, and he not only kept flatterers at a distance, but hated to hear those just praises which his actions obtained him. This conduct only added to that fame which constituted his danger. The first act by which Abbas showed his suspicion was in ordering the tutor and attached friend of his son to be put to death. Conscious that the only crime of this officer was too great a regard for his master, the prince hastened to court, and, in giving vent to the honest indignation which the conduct of Abbas had kindled, he lost all consideration for his own safety. We are told, that he was provoked to madness, and, in the presence of his father and sovereign, drew his sword. The fatal signal for his death was given; but Abbas relented so far, as

only to deprive him of sight. Shut out from the light of day, the prince became gloomy and desperate; nothing could give him pleasure, and his life passed in venting curses and brooding over plans of vengeance against the author of his being and of his misery. He had two children; of whom the eldest, Fatima, a lovely girl, was a great favourite of her grandfather, over whose mind she had acquired the most astonishing influence. Abbas appeared miserable when little Fatima was not near him, and her voice alone could soothe him when ruffled by those violent passions to which he every day became more subject. The prince learnt, with savage delight, how essential his daughter had become to the happiness of his father; and seizing her, as she one day came to fondle upon his bosom, he in an instant deprived her of life. The astonished mother shrieked, and told him it was his darling daughter that he was destroying. Instead of attending to her, his next effort was to seize his infant son, that he might vent his fury upon him. The child was borne from him by the distracted princess, who sent immediately to inform Abbas of what had occurred. The rage and despair into which the sovereign was thrown gave a momentary joy to his son; who, glutted with his terrible vengeance, concluded the scene by swallowing a dose of poison, which in a moment terminated his miserable life.

Such were the domestic scenes which marked the latter days of Abbas; who, however, still proceeding in the career of conquest, took from the Curds the kingdom of Lar, comprising a considerable part of Fars, or Persia Proper. He also, in 1613, invaded Georgia, then shared between two princes, whom, by his deceitful policy, he detached from their mutual defensive alliance, and then, by means of various acts of perfidy, drove from their kingdoms and ruined. He secured the country by building numerous fortresses and filling them with Persians, and by transporting above 80,000 families of Georgians into different provinces of his own dominions, filling their places with Armenians and Persians. About the same time he took the city of Bagdat from the Turks, and next year repulsed the general who came to recover it. Two years afterwards, the shah's general gave a signal defeat to another Turkish army which advanced for the same purpose. This victory was so welcome to Abbas, that, going to meet his general, he dismounted, and compelled him to ride his horse, while he himself and his khans followed some paces on foot.

One of the most remarkable successes of Shah Abbas was the taking of Ormuz, in the Persian gulf, from the Portuguese; in which exploit he received great assistance from an English fleet, which thus retaliated on the Portuguese the molestation they had given to their trade. The place surrendered to the English, who delivered up the military stores and all the Mahometans to the shah's general, and in return obtained a very advantageous commercial treaty for their nation. This happened in 1622. See *ORMUS*, vol. xvii.

About the end of 1628, Shah Abbas, being at his favourite palace of Ferebad in Mazanderan, fell sick; and, perceiving the disease to be dangerous, he sent for four of the chief men of his council, and declared his grandson Sain Mirza, the son of Sefi, his successor. He commanded his death to be kept concealed till the succession was secured; and for this purpose directed that his body should be daily exposed in the hall of justice in a chair of state for six weeks, with the eyes open, and the back to the hangings, behind which an aga was to stand, who with a string should make a motion with the arm by way of answer to questions proposed from the other end of the hall. By this ridiculous farce his death was kept a secret for six weeks. In order to conceal the real place of his funeral from his subjects, probably through fear of violation of his remains, he ordered his obsequies to be celebrated in three places at the same time. It is probable that he was buried at none of them; but at Cufa,

near the sepulchre of Ali. He died in the seventyeth year of his age, after a reign of forty-three years over Persia, and fifty over Chorasan. Shah Abbas had a fine face, of which the most remarkable features were a high nose, and a keen and piercing eye. He wore no beard, but had large mustachios, or whiskers. In his stature he was rather low; but must have been uncommonly robust and active, as he was throughout life celebrated for the power of bearing fatigue, and to the last indulged in his favourite amusement of hunting.

By the Persians, who are accustomed to perfidy and cruelty, the memory of Shah Abbas is held in great veneration; and it is certain that he was in many respects an useful sovereign to his country. By destroying the power of the independent khans, and the standing army, he introduced peace and good order at home. He was fond of those acts of rigorous justice which render a prince popular, and are easy to a despot; but in these he displayed that cruel and ferocious disposition which appears in all his acts, and often punished the innocent with the guilty. His encouragement of commerce was beneficial to his subjects, though probably he was excited to it only by a desire of enriching himself. He made alliances with European princes against the Turks; and gave privileges to foreigners who were disposed to trade in his dominions. It was by means of his liberality that the Armenians were enabled to extend the silk trade through great part of the East. He settled them in Julfa, a suburb of Ispahan, which soon vied in riches and population with the city itself. An instance of his good sense appeared in the pains he took to substitute a religious pilgrimage to the tomb of the imam Rizza in his own country, to that of Mecca, which carried great sums of money among foreigners and enemies. He adorned his empire with many magnificent and useful works. In short, compared with the ignorant and weak despots who generally occupy the thrones of the East, he may merit the title of *Great*; if that be at all compatible with perfidy, injustice, and cruelty.

While the death of Abbas was concealed from his subjects, one of the principal ministers repaired to the apartments of the princess-mother of Mirza, to demand the young prince. She, suspecting it only to be a contrivance to get him murdered, refused to open her door, till at length force was threatened to be employed. She then delivered her son, with these words: "Go, my child, to join thy father; here are the murderers ready to dispatch thee." But, when she saw those lords prostrate themselves and kissing the prince's feet, her fright was turned into the most extravagant joy. The noblemen conducted the young prince to the royal palace, where they seated him in the divan on a stone table, on which there were as many carpets as there had been kings of Persia of his family; for every king, at his coming to the crown, has one of these carpets, called "carpets of justice," made for him; and, having sent for all the lords in the neighbourhood of Ispahan, they crowned him, kissed his feet, and wished him a long and happy reign. On his accession he assumed the name of Sefi.

The beginning of the reign of this emperor was remarkable for many great victories which he gained over his enemies. He defeated Karib Shah in the province of Kilan; he forced the Turks to raise the siege of Bagdad, and took by assault the fortress of Ervan. At this last place, finding the siege but little advanced after a duration of four months, he grew impatient, and resolved to make an assault on it in person, saying that he would rather die in the attempt than rise before a town which the Turks had formerly taken in three days. He had already put on the clothes of one of his attendants, to prevent him from being distinguished, and had given orders for a general attack; but he was dissuaded from the attempt, till the next day, when the whole army made the assault, and carried the place, though with the loss of fifty thousand men.

Happy would it have been for the world if the emperor

had been one of the slain; but he lived to prove a second Nero, scarcely falling short of that monster in his cruelty. Like him, he was the murderer of his nearest relations. The first object of his brutality was a half-brother, whom, according to the barbarous policy of the times, it was necessary for him to remove; he caused two of his uncles, first to be deprived of sight, and then dashed down a rock, saying, "Since they are blind, what use are they of in the world?" One of his aunts, an extremely beautiful woman, had three sons: she was frequently with the king her nephew, and once rallied him on account of his having no children; the next day he invited her to dinner, and caused the heads of her three sons to be served up in separate dishes; at the same time smiling, he said: "Console yourself, you are young enough to repair the loss." His own wife he stabbed, and his dearest friends he caused to be executed on the slightest pretences. But we will not disgust the reader with a further detail of facts which are a disgrace to human nature, and which the historian trembles in recording. He was the scourge of mankind for a period of thirteen years, though there was nothing in his countenance that indicated so foul a disposition.

He left a son named Abbas, who succeeded him, though only 13 years of age, and whom his father had ordered to be deprived of sight: but the compassion of the executioner had taught the prince to counterfeit blindness, without suffering the savage sentence. On his death-bed the king repented of the treatment which he supposed his son to have endured. The eunuch, perceiving that his grief was not feigned but sincere, promised to restore the prince to sight, and accordingly in a short time after, brought him to the king's bed-side, with his eyes open. The pleasure which Sefi felt on this occasion prolonged his life till the next day, and gave him time to settle the succession according to his mind.

A. D. 1642.—The joy which the people expressed at the change of sovereigns did not last long. Under Shah Abbas II. life was not more secure than under his brutal father. Abbas I. had banished from his court, to a commodious dwelling, a number of useless persons. These the present emperor destroyed, except fifteen whose age precluded them from the expectation of a long life. His sister's children he caused to be starved to death; and four of his wives were, by his command, burned alive.

His reign affords few memorable events. He assisted the prince of the Uzbek Tartars against his own children, who had risen in rebellion; and recovered the province of Candahar from the Great Mogul. His generals made some ineffectual attempts to reduce the prince of Jalkes, whose country lies on the coast of the Indian Sea. Several other military expeditions, of which little is known, took place in his reign. The Shah himself had the character of great capacity, and a good disposition; yet the stories related of him are little to his honour. He was much addicted to excesses in wine and women; and, if not naturally cruel, was however led by intemperance and the spirit of despotism into several acts of cruelty. He was fond of strangers, and had a taste for the arts; which may account for the encomiums he has received from some European travellers; yet Tavernier, who had near access to him, has little better to relate concerning him than some scenes of low debauch, and a trivial curiosity for works of European mechanism. After a reign of twenty-four years, he died miserably in consequence of a venereal disease caught from a dancing-girl, which his irregularity would not suffer to be treated properly. This was in 1666. He was buried at Koni under a magnificent sepulchre, of which a draught is given by the celebrated traveller, Chardin.

As soon as Abbas was dead, notice was sent of the event to his eldest son Sefi, who was immediately saluted emperor, and the ceremony of coronation was regularly performed; which consisted only of girding on the scymetar, and placing the bonnet on the sovereign's head.

Some

Some time after Sefi II. came to the crown, he was seized with a dangerous illness; and the physicians, not knowing the nature of the complaint, threw the blame on the astrologers, who they pretended had chosen an unfortunate moment for the king's enthronement. The ceremony was therefore repeated. A fire-worshipper, descended from the ancient kings of Persia, was fixed on, who was placed on a throne with his back against a wooden figure which was an exact resemblance of him; and to this the great lords did homage as to a king. The ceremony lasted till the arrival of the favourable hour, when an officer of the court came behind and cut off the wooden image, while the mock monarch fled with precipitation. The shah now appeared in the hall, where, being invested with a scymetar, in which consisted the ceremony of inauguration, he ascended the throne, and assumed the name of *Solyman*. From that time the shah recovering his health, the physicians grew in high repute, and the astrologers were disgraced.

An incident is recorded in this reign which must not be omitted here, relating to a daring action of Ali Kouli Khan, a brave man, but of a turbulent and dangerous disposition, on account of which he was often confined. He called himself the king's lion, "because," said he, "I am chained when useless, and let loose when I am wanted." He was a prisoner in a fortress at the death of Abbas, but was treated with so much lenity, that he was even permitted to go out on hunting-parties. Having received, during one of his excursions of this nature, the intelligence of Solyman's accession, as soon as he returned he fell upon the governor of the fortress and nearly killed him. At each stroke he exclaimed, "This is to teach you your duty, and to know better than to suffer a prisoner to go a-hunting whom the king has entrusted to your care." He then set off for court, and related his conduct to the king, who gave him a very gracious reception. The services of this man were afterward of great utility in the wars against the Uzbeks and the Cossacks, which happened during the reign of Solyman.

Solyman proved no less cruel than his predecessors. The acts of this nature recorded of him, and which must render him infamous to posterity, are too numerous to be all recited here. While the famous Chardin was at Ispahan, A. D. 1673, Solyman, being angry with a person who did not play on the lute to please him, ordered the poor man's hands to be cut off; and, as soon as he had pronounced this sentence, he threw himself on a heap of cushions to sleep. His women and domestics were often condemned by him to the most inhuman tortures. His tents were seldom removed in any of his journeys, without exposing to view the mangled bodies of the victims of his cruelty; and at Ispahan scarcely a day passed, but some of his attendants in the palace lost either life or limb; and these punishments he inflicted for the slightest mistakes. In a fit of displeasure against a female Circassian of great beauty and high rank, who had been his principal favourite, he ordered her to be married to a poor man of the lowest order of the populace. They lived together, however, happily; when the monarch, envying their enjoyment, sent for the husband, and demanded what feast or rejoicing he had made on his marriage. "Sire," replied the man, "I am a very poor man, and was not able to make even an illumination." "What!" returned the savage sopher, "that dog did not make an illumination! make one of his carcass." A thousand holes were pierced in his body, into which oil was poured, and wicks inserted; and these being lighted, he was left to expire in excruciating tortures.

This monster died a natural death, after a reign of twenty-nine years, A. D. 1694. He was succeeded by his son Shah Huseyn, the most merciful and most unfortunate prince of his race. He neglected the affairs of the state to such a degree, and suffered himself to be governed so much by his eunuchs, that some of his chief officers, after having reproached him with his inattention, resigned

their employments in disgust. He was wholly occupied with his pleasures, and did not bestow a thought upon any thing else. The number of his eunuchs exceeded, threefold, those of his predecessors. The ladies of his court rode on horses or mules, with each an eunuch to hold the bridle, and the female attendants on asses; while it was one of the emperor's highest amusements to scourge the beasts till they threw their riders. In a pilgrimage which he undertook, he was escorted by more than sixty thousand persons of both sexes, and of all ages. The only instance in which he showed any taste for greatness, was in his passion for magnificent buildings, and to this every thing else gave place: he built monasteries and hospitals, while his troops were perishing with hunger, or dispersed for want of pay. To what a degree he forgot his duty as a king, may be seen from the following instance. On the approach of a rebel army, his ministers endeavoured to rouse him out of his lethargy, by representing to him the magnitude of the danger. "It is your business," said he, "to look to that; you have armies provided: for my part, if they but leave me my house at Farabad, I shall be content."

For more than twenty years, which his reign lasted, he never once passed sentence of death, and consequently never put on the red habit, which was the colour worn by the kings of Persia when they were to pronounce judgment for capital offences.

There are few, if any, instances of a dissolution so entire as that of the kingdom of Persia under the feeble and inactive Huseyn. It began at the capital. The sopher resided there, who was unconscious of what was going on, till an event of importance awakened him from the stupor into which he had fallen. The province of Candahar, situated between the Mogul dominions and Persia, alternately became the possession of each of these empires. Its inhabitants were a warlike people, inured to fatigue, and divided into tribes, each under the government of a chieftain. The principal was that of the *Afghans*, or *Patans*. This people had been long treated ill by the Persians: they complained and fought for redress. Instead of attention being paid to their demands, every species of violence was committed on them; and Mir-Weis, one of their leaders, was apprehended and sent to Ispahan, as a fomentor of the discontents. Mir-Weis saw it necessary for him to act with caution and prudence. He attached himself to a party in the court, and had the address to render the governor, Gurchin Khan, himself an object of suspicion, and did not despair of becoming master of Candahar, by being appointed to watch his motions. His first attempts for this purpose were frustrated; after this disappointment he counterfeited devotion, and undertook a pilgrimage to Mecca. On his return the governor's doubts were entirely dissipated, and he was so firmly persuaded that nothing was to be feared from so holy a man, that he did not hesitate to insult him; he even commanded him to send his daughter to the haram, but this demand cost Gurchin Khan his life. No sooner was the governor thus massacred, than Mir-Weis presented himself at the gates of Candahar, which surrendered after a very slight resistance. During a period of fourteen years, Mir-Weis harassed the Persians; by his good conduct, his speeches, and his victories, he united the other tribes to that of the Afghans, of which he was the leader. He died king of Candahar, A. D. 1715, leaving his throne to Abdallah, his brother, as he thought his children too young for the duties of sovereignty.

Abdallah's love of peace made him willing to put the Persians once more in possession of Candahar. The treaty for this purpose was on the point of being signed, when Mahmud, his nephew, then but eighteen years old, heard of this intention with indignation, and at the head of thirty or forty of his father's friends he entered the palace, cut off Abdallah's head, and was proclaimed king. He then entered Persia, and laid siege to Ispahan. The misery of the people pierced the feeling heart of the unfortunate

fortunate Hufsey n; he offered Mahmud the most advantageous conditions, viz. his daughter in marriage, and the sovereignty of three fertile provinces: but this prince returned for answer, "The king of Persia offers me nothing that is not at my disposal already. The present dispute is, whether he or I shall have possession of the empire."

Such was the language of Mahmud the Afghan. The origin of the Afghan tribes, who inhabit the mountainous tracts between Chorasan and the Indus, is variously traced by different historians. Some assert that this people are lineally descended from the Jewish tribes made prisoners by Nebuchadnezzar, and the principal chiefs are said to trace their families to David and to Saul. Though their right to this proud descent is very doubtful, it is evident, from their personal appearance, and many of their usages, that they are quite a distinct race from the Persians, Tartars, and Indians; and this circumstance alone seems to give some appearance of credibility to a statement, which is contradicted by many strong facts, and of which no direct proof has yet been produced.

There is no doubt that the Afghan tribes were converted at a very early date to the Mahometan religion; they are of the sect of Omar. Their condition, from the first periods of which we have any authentic records of their history, has undergone very little change. Their chiefs have always been more anxious for personal independence than for the strength of the government under which they lived; and their followers have enjoyed a savage freedom, which made them hostile to every effort to reduce the clans into one mass, which it was obvious could never be effected without a subversion of that order of society in which they were born, and in which they gloried. It cannot be surprising that a nation so constituted should have been unable to resist any formidable attack; and we find that the Afghans made hardly any opposition to Mahmud of Ghizni, to Gengis, or Timour, and that their country was long divided between the monarchs of India and Persia; but they were always turbulent and dangerous subjects. They had triumphed over the ruins of the noble city of Ghizni, and a family of their chiefs had sat upon the throne of Delli. The next country doomed to fall by their arms was Persia.

The siege of Ispahan had been turned into a blockade. Two battles had been fought under the walls, in the first of which the Persians were successful; Mahmud's camp was forced, and all his treasures taken; which so dazzled the eyes of the Persian general Havoufa, that he was more anxious to secure this wealth than to pursue the enemy. This avarice cost Persia very dear; for the enemy took possession again of their camp, killed the Persians they found there, and pursued the main army so warmly, that they came up with their rear-guard, attacked them, and retook all the baggage and the treasure, and brought it back with them to their camp. The news of this defeat, in which more than 15,000 Persians perished, besides the loss of their baggage, and 25 pieces of cannon, soon spread all over Ispahan, and spread with it such a terror over the inhabitants, and the king himself, that if the rebels had followed their blow, they might immediately have been in possession of the city and the king; but Mahmud, who could hardly credit his own happiness, and fearful of an ambush, contented himself with advancing slowly; and resolved, moreover, to seize all the passages by which any provision or succours might enter; that so they might reduce it by famine, though they could not take it by force.

The besieged, beholding their town thus blocked up on every side, began to reflect on the miseries of the approaching famine, demanding earnestly that they might be permitted to ally and engage the foe: but Havoufa, who, it was afterwards discovered, was secretly in the interest of Mahmud, did all in his power to prevent it; telling them this was not a proper time, that he waited the command of the king; and that, as soon as ever there

was a favourable opportunity, he would not fail to advertise the king of it. This opportunity, however, was slow in coming; provisions began to fail, and several of the people were already dead by famine. The nobles, as well as the common people, were sensible how absolutely necessary it was to open a passage whereby necessaries might be brought into the city: but the king, whose fear and indolence had shut him up in his palace, would give no ear to any advice; on the contrary, he seemed to take offence, as if their petitions to save themselves by their arms had been an insult upon his authority; and behaved towards his people, in this distress, with imprudence and cruelty hardly to be paralleled. This unaccountable conduct of the king had certainly occasioned a general insurrection in the city, if Achmet Aga, a man valiant and generous, and extremely attached to the king, had not appeased the minds of the discontented, by putting himself at the head of the troops, to go forth immediately, and give battle to the enemy. In the beginning of July, 1722, this ally was made with about 30,000 men: though they were sustained but weakly by Havoufa, they had all the success they could hope for: they slew 2000 Afghans, and obliged more to retire; they seized on several of the avenues, and opened a passage for provisions to enter the city.

This fortunate expedition gave great joy to the inhabitants, but it was not long-lived; for Havoufa, who before only privately favoured the cause of Mahmud, now declared openly for him, and, joining his forces with the enemy, they charged Achmet Aga in front, drove him from the posts he had taken, and put all the Persians they found there to the sword, and pursued the rest so fast, that they could hardly save themselves in the city. This treason of Havoufa, and the defeat of Achmet Aga, damped at once the courage of the besieged, and took from them all hope of ever being relieved. The king, more sensible than any of this misfortune, and not knowing how to act, ordered Achmet Aga to be called, and publicly blamed him for giving too easily into the desires of the people; he charged him with imprudence, and want of duty, in attacking the enemy's intrenchments without special orders; and said, the revolt of Havoufa was occasioned by his rashness, in putting himself at the head of the troops, when the general might with reason believe himself injured and his authority slighted. Achmet Aga said what he could in his defence, and endeavoured to make the king sensible that necessity, the public welfare, and the safety of his majesty's person, were the sole motives that urged him to this enterprise; that, as to Havoufa, he was known a long time to have kept a secret correspondence with the rebel; that the little desire he always showed to oppose him, and his great application to remove every thing that might check his victories, were evident proofs of his infidelity. But, the king being unwilling to hear Achmet Aga on that head, the brave man, uneasy at his master's unjust reproaches, the next night, believing he could no longer live with honour, swallowed poison, of which he died in three or four days. The loss of this great man, whose composition was justice, generosity, and good nature, added to the general grief of the people; and of the king too, who, having too late corrected his prejudices against him, had resolved to intrust to him the care of defending the city, which had indeed need of such a governor, in the miserable situation to which it was now reduced by famine.

Nothing could be more deplorable, than to see to what extremities human nature was reduced by want of food. Imagine every thing painted by Josephus of the city of Jerusalem when besieged by Titus Vespasian, and behold all those horrors in the city of Ispahan. The king, who had but little experience in the art of war, and who gave in too easily to the opinions of people not only unworthy of his confidence but incapable of giving advice, had, in the beginning of the siege, published an edict, forbidding not only the citizens, but even strangers, to
leave

leave the city under any pretence: besides that, whatever people fled thither, through fear of the enemy, from the neighbouring villages, were all received into the city; so that there were within it a multitude of useless mouths; and not only all the houses, but the court-yards, gardens, streets, and every public building, was full; yet notwithstanding this, and after the city was invested, and the avenues stopped, provisions were for a little time at an easy rate, but they soon became excessively dear. Bread was sold in the month of July at nine or ten piafters the pound (about 20s. English), in the month of August it rose to thirty, in the month of September to 100, and in the month of October, when the city surrendered, it was at 200 piafters the pound. Horse-flesh, on which the king himself was obliged to feed, was 1200 piafters the pound, and cats and dogs were dainties, only to be eaten by a very few, and privately; in short, the misery became such, that at last, without horror or shame, the people nourished themselves with human flesh: and one might behold wretches, skeletons themselves, examining human carcases without flesh, of which the streets were full, to find a morsel to sustain the feeble remnant of their languishing lives, and which famine must soon make an end of: others running through the streets with weapons in their hands, and destroying the first they could meet, and greedily feeding upon them afterwards; and mothers, insensible to the cries of the very infants they bore, massacred and eat them. Nor was it only among the vulgar that these unnatural cruelties were used: people of the greatest distinction were obliged to come to the like extremities: some persons indeed of honour chose to die by poison, to prevent their being reduced to these inhuman necessities.

In this sad situation was the city of Ispahan during two long months and a half: the number of the people who died was very great; the gardens and public places were now all turned into cemeteries, and filled with dead bodies; and so many carcases were thrown into the river, that in that year after the siege, nobody could without horror think of eating fish. In a climate less pure and salubrious than that of Ispahan, the air must have been infected, and distemper would have destroyed those whom famine had spared: but no contagion arose, and the miserable remnants of the population of the fallen capital were reserved to witness the further disgrace and humiliation of their king and country. On the 21st of October, 1722, the king came out of his palace, clad in deep mourning; he walked, attended by the nobles of his court, through the principal streets of Ispahan: he bewailed aloud the misfortunes of his reign; imputed them to the bad advice he had received; proclaimed his intention to abdicate his throne; and tried to console the wretched multitude, by whom he was surrounded, with the hopes of more happiness under a better government than his had been. This language, from a prince whose faults (dreadful as their effects had been) were allied to the best virtues of our nature, whose kindness of heart, weak lenity, and extreme gentleness of temper, had brought him, after a reign of twenty-eight years, to the sad and humble condition in which he then appeared, excited a strong and universal feeling of sympathy: men forgot their own sufferings in contemplating those of their sovereign. The heart of Husseyn would have been wounded deeply by their reproaches; and he found, in the tears which they shed over his fate, all the consolation that his situation admitted.

The day after that on which Husseyn took this solemn leave of his subjects, he signed a capitulation, by which he resigned his crown to Mahmud; and, on the 23d of October, leaving Ispahan, attended by some of his nobles and three hundred of his troops, he moved towards the Afghan camp. His ungenerous enemy could not refrain from insulting the fallen monarch; and the melancholy procession was commanded to halt within a short distance of the tents, on the pretext that Mahmud was asleep.

After this delay, which would have been (according to the usage of the country) degrading to one of his subjects, he was at last permitted to proceed to the palace of Ferrahabad, where he was introduced into a great hall, or saloon, in which he found his conqueror seated; and he had reached the centre of this room before the haughty Afghan rose to receive him. Husseyn immediately addressed him in the following words: "Son, since the great sovereign of the universe does not will that I should reign any longer, and the moment has come which he has appointed for thy ascending the throne of Persia, I resign the empire to thee. May thy reign be prosperous!" After this speech, he took the *boorah*, or royal plume of feathers, from his turban, and gave it to the vizier of Mahmud; but that prince refused to accept it from any other but the monarch to whom it belonged. The meek Husseyn rose, took it from the minister, and, while his arrogant enemy remained in his seat, he placed the rich emblem of royal power in his turban, and exclaimed "Reign in peace!" After the usual refreshments of tea and coffee had been served, Mahmud deigned for the first time to speak to his captive. "Such," he observed, "is the instability of human grandeur. God disposes of empires as he pleases: he takes them from one to give to another: but I promise ever to consider you as my father, and to undertake nothing without your advice." The Afghans then took possession of the gates of the city and palace; and thus terminated the dynasty of the Sophis, which had been founded by Ismael Sofi two hundred and twenty-three years before.

In dispossessing Husseyn, Mahmud avenged himself of all those who had contributed to the ruin of the state. He confirmed the Persians in their dignities and employments, except the post of grand-vizier, in which he placed an Afghan. Husseyn gave him his daughter in marriage; and, on that occasion, addressed a circular letter or proclamation to all Persia, in which he enjoined the inhabitants to acknowledge Mahmud as their sole sovereign.

His son Tahmasp, or Thamas, however, did not think himself bound to obey his father's injunction on this head; on the contrary, he caused himself to be proclaimed king in Casbin, a town of Irak. Mahmud's conduct began to inspire the hatred of his subjects; he saw his projects defeated, and himself beginning to be treated with general hatred. He imputed these misfortunes to the anger of Heaven: to avert which, he imposed upon himself a sort of penance which continued fifteen days, and which had the effect of completely deranging his senses. His lunacy was accompanied with a very painful malady, which baffled the skill of his physicians; and in this condition his sufferings only served to increase his cruelty. His captives, seeing him at the point of death, turned their thoughts on Ashraf; but he refused the crown, except on the condition that the head of his cousin Mahmud should be brought to him. Mahmud was then in the last stage of frenzy, and had but a few hours to live: these, however, were abridged, and the destroyer of the dynasty of the shahs enjoyed his triumph but two years.

Ashraf ordered all Mahmud's guards, his ministers, and confidants, to be put to death; he did not even spare those who had placed him on the throne, lest they might do the same good office for another. Mahmud's only son and his mother suffered the same fate. As to the Persians, Ashraf pretended to show particular regard to them. The design he had to draw prince Thamas into his power, and by his death to secure the throne for ever to his family, made it necessary for him to dissemble, and to make an outward show of zeal to the royal family, and to discover a disposition to place the crown upon the head of the lawful prince. Therefore he began his reign with a visit to shah Husseyn, consoled him upon the bloody assassination of his family by Mahmud, and gave him what comfort he could; he caused the scattered bones of his relations to be collected, and placed them under a magnificent mausoleum in the town of Kan, the ancient place of sepulture

of the Persian kings. He sent likewise rich presents to the mosque in which they were placed, and 1000 tomans to be distributed among the poor. After this, with his crown and sceptre in his hand, he came in the most submissive manner, and threw himself at the feet of shah Huseyn, imploring him to take the government of the realm again, or to oblige prince Thamas to take it. Shah Huseyn, who seemed to understand the meaning of this offer, and who knew, if he discovered the least inclination of remounting the throne, his life must answer it, answered, that he was obliged to him for the zeal he expressed to his person; but that, having voluntarily quitted the government, he could not by any means think of taking it again; and, as to what regarded his son, he would not intermeddle, nor oblige him to accept a dignity which perhaps he might make a very ill use of.

Ashraf, still concealing his purpose, seemed as if he were uneasy at this determination of Shah Huseyn. However, that he might not be wanting, as he said, in his respect and duty, he sent a magnificent embassy to prince Thamas, with considerable presents, and horses richly caparisoned, inviting him to come and take possession of the throne, and praying that he would please to appoint a place where they might meet, and settle affairs in order to it. The prince, too easy to credit what pleased him, came blindly into the net, and appointed the little plain of Teheran for the rendezvous. Ashraf marched immediately at the head of 12,000 men, and arrived first in the plain, and posted his troops in such manner as they could most easily execute his purpose. The prince advanced with only 3000 men; but, having heard that Ashraf had a great number of troops with him, he began to suspect treachery; he therefore sent before him Allam Khan, with 2000 men, reserving only 1000 about his person. Allam Khan, perceiving not only a large army of Afghans, but likewise that all the avenues to the camp were guarded, found it was their design to seize the prince. Upon this he immediately gave him notice, and desired him to take care of himself; and it was time to give him notice, for Ashraf, advertised by his spies of the near arrival of the prince, had privately posted 2500 Afghans behind a hill to cut off every possibility of an escape; so that he was just upon the point of seizing him, when notice was given the prince to take care of his life. The unfortunate prince was therefore obliged to mount immediately, and take refuge with about 200 horse in the town of Teheran. But Allam Khan, foreseeing that Ashraf would besiege the town, advised the prince immediately to leave it; upon which, having refreshed their troops, they marched out, and the prince at their head, in the beginning of the night, and with such diligence, that at break of day they were six leagues from Teheran, on the side of Mezanderan. That which Allam Khan foresaw happened; for Ashraf had invested the town, to the great surprise of the inhabitants, before day-break; but, finding the prince escaped, he in great fury stormed the town, and ordered his soldiers to spare none, but to put all to the sword. After this, the town of Kam, or Sava, was taken; but this he treated with less cruelty than Teheran, for the soldiers only plundered the town, and saved the people.

Ashraf, not thinking it proper to push his conquests farther, returned to Ispahan, where, for the following reason, he meditated the destruction of those few of the nobility who had escaped the sword of Mahmud. The number of soldiers which Ashraf had taken with him to meet the prince, gave a jealousy to the nobles, that this interview was designed more for the benefit of Ashraf than of the prince; and the fears they had lest the prince, whom they tenderly loved, should be surprised, induced them to write to him. The letter was intercepted, and sent to Ashraf, who, to revenge himself of the nobles, caused them all to assemble in the royal palace, under the pretence of asking their advice; and there were they all murdered. At the same time he put out the eyes of an infant,

the grandchild of shah Huseyn; and some say he practised the same cruelty on Huseyn himself, but this is not certain; however, this weak and unfortunate monarch languished in prison about two years longer; when he was put to death, in 1729.

At this time, Nadir Khan, who afterwards became king of Persia and conqueror of the mogul empire, had already acquired a high reputation for valour and conduct. He was born in 1686 at Kallat, a fortress in Chorasan. His father was hereditary governor of a fortress built by his countrymen against the Tartars: he died when Nadir was thirteen years of age; and an uncle took possession of the office which should have devolved to the youth. He was obliged, in order to support himself and his mother, to employ an afs and camel, which were his sole property, in carrying for sale to the next town faggots which he collected in the woods. He was made a slave by the Usbeks, but escaped from them after a servitude of four years. In 1712 he entered the service of a beg, who sent him with dispatches to court; and it is said that he killed his comrade, assassinated his master on his return, carried off his daughter to the mountains, and subsisted for some time on robbery. In 1714 he became gentleman-usher to the governor of Chorasan, which seems to prove, at least, that the crimes imputed to him were not notorious. In this situation his conduct was so laudable, that he was intrusted with a company of cavalry to act against the Tartars. His courage and military talents soon raised him to the command of a thousand horse, in which station he obtained general esteem. When the Usbeks invaded Chorasan with ten thousand men, Nadir offered the governor to repulse them with only six thousand, and completely performed his promise, killing the Tartar chief with his own hand. For this success the governor proposed to procure for him from the court of Persia the post of lieutenant-general of Chorasan; but the shah, receiving an unfavourable impression of Nadir, gave the office to another. Nadir, irritated at his disappointment, reproached his patron in such insolent terms, that he was discharged from the service, after a severe bastinado. Fired with indignation, he retired to the fortress of Kallat, commanded by his uncle; and soon after joined a troop of banditti, at the head of whom he pillaged several caravans, and laid Chorasan and the surrounding provinces under contribution.

At this time the Afghans under Ashraf continued masters of Ispahan, while the Turks and Russians pressed upon Persia in other quarters, so that Shah Thamas, the lawful sovereign, was possessed only of two or three provinces. In 1727 one of the shah's generals in disgust had joined Nadir with fifteen hundred men, which increased his troop to a formidable body. His uncle now wrote to him, promising to obtain his pardon if he would engage in the service of Thamas. Nadir accepted the offer, and repaired to Kallat, which he seized, and murdered his uncle. Thamas was obliged to overlook this villany on account of the occasion he had for his services; and Nadir marched against the Afghans, defeated them, and took possession of Nisabour in the name of the shah. That prince made him a lieutenant-general; and he so well insinuated himself into the confidence of Thamas, that he was able to make him believe that the general in chief had formed a conspiracy against him. That officer was taken off by assassination, and Nadir in 1729 was appointed his successor.

He had now a free career for his ambition, and he began with rendering important services to his sovereign. He reduced the whole of Chorasan, and was recompensed by a title which in that despotic country was regarded as highly honourable: it was that of *Thamas Kouli Khan*, signifying the "Khan, or Lord Slave, of Thamas." His successes alarmed Ashraf, who marched towards Chorasan to oppose him, but was defeated and driven back to Ispahan, which he soon quitted. Kouli-Khan had then the satisfaction of re-instating his king in the capital of his empire; thus rising to the highest distinction

tion a subject could enjoy. He continued in the field; and, pursuing Ashraf, gave him a new defeat, followed by his death, and entirely cleared the country of the Afghans. Among the captives whom he rescued from this people were the aunt and sister of the shah, who gave the first in marriage to Kouli. The general then proceeded against the Turks, gained a complete victory over them, and recovered Hamadan and Tauris. While he was absent in another part, Thamas marched in person against the Turks, and met with a defeat, which induced him to make peace with that power. Kouli strongly opposed the peace; and being desired, after its ratification, to disband his army, instead of complying, he led 70,000 men, all devoted to his interest, to Ispahan, seized upon the shah, confined and deposed him, and proclaimed his infant son, Abbas III. in his stead. Every thing in Persia was now at his disposal. He renewed the war with the Turks, obtained two victories over them, and recovered all the provinces which they had wrested from Persia in the preceding war; thus justifying the opposition he had made to the inglorious treaty which had left them in their possession.

In the beginning of 1736 the young king died; and, all the great men being assembled to consider of a successor, Kouli proposed the restoration of Thamas. His real wishes were, however, too well known for the adoption of this hypocritical proposal; and he was himself desired to accept the crown. He accepted it on the condition that it should be hereditary in his family: and he annexed another condition which gives a favourable idea of his religious sentiments; this was, that they should forbear the anniversary curses, of the caliphs preceding Ali, and the fanatic commemoration of Husseyn's death, which keep up the animosity of the shiite Mahometans against the sunnites. The opposition of the head of the clergy to this innovation was punished with the bow-string; and on the next day Kouli-Khan was proclaimed king of Persia by the name of *Shah Nadir*. He then concluded an honourable peace with the Turks; and in December 1737 set out on an expedition to reduce Candahar, leaving his son Rizi Kouli to govern during his absence. After a long siege, the town of Candahar surrendered to his arms; but he found it necessary to confirm the former possessor in his government on terms of allegiance.

Whilst he was still in this country he received an invitation from some of the chief officers about the court of Mohammed-shah, the Mogul emperor, to come and take possession of that empire. Such an application he was not likely to reject; accordingly, in 1738, he began his march for the frontiers of India, at the head of 120,000 men. The details of this expedition, and of its wonderful success, have been given under the article HINDOOSTAN, vol. x. p. 65-67.

After the plunder of Delhi, and the massacre of about 120,000 persons, Nadir set out, April 14, 1739, on his return to Persia, laded with the spoils of the country. It is computed that he carried out of India to the value of 87,500,000. sterling in money, jewels, and effects, besides twelve millions shared by his officers and soldiers; and the loss to the Mogul empire by fire and devastation made a vast addition to those sums.

On his journey back, Nadir was accompanied by Khajeh Abdulkurream, a Cashmerian of distinction, who published a memoir on the conqueror's return. This was translated from the original Persian, and published at Calcutta, by Francis Gladwyn, esq. From his summary history of that predatory incursion, we shall extract his description of Nadir Shah's tent. "Nadir Shah, when at Delhi, had such a profusion of jewels, that he ordered the Moabir Basfia to make up arms and harness of every kind, inlaid with precious stones, and to ornament a large tent in the same manner. For this purpose, the best workmen that could be procured were employed a year and two months, during the march; and, when Na-

dir Shah arrived at Herat, the Moabir Basfia informed him that a great number of the following articles were prepared: horse-harness, sword-sheaths, quivers, shields, spear-cases, and maces, with chairs of different sizes; as also a large tent, lined with jewels. The tent was ordered to be pitched in the Dewan Khaneh, or hall of audience, in which were placed the *takht thauous*, or peacock-throne, brought from Delhi, the *tucht nadery*, with the thrones of some other monarchs; together with the inlaid fundelees. Publication was made, by beat of drum, throughout the city and camp, that all persons had liberty to come to this magnificent exhibition, such as had never before been seen in any age or country. Nadir Shah was not pleased with the form of the tent; and besides, from its being lined with green satin, many of the jewels did not appear to advantage. He therefore ordered it to be taken to pieces, and a new one to be made; the top of which, for the convenience of transportation, should be separate from the walls, such as in Hindoostan is called a *rowty*. This new tent, being finished, was displayed in the same manner as the former one; but its beauty and magnificence are beyond description. The outside was covered with fine scarlet cloth, the lining was of violet-coloured satin, upon which were representations of all sorts of birds and beasts, with trees and flowers, the whole made of pearls, diamonds, rubies, emeralds, amethysts, and other precious stones; and the tent-poles were decorated in like manner. On both sides of the peacock-throne was a screen, upon which was represented the figures of two angels in precious stones. The roof of the tent consisted of seven pieces; and, when it was transported to any place, two of these pieces, packed in cotton, were put into a wooden chest, two of which were a sufficient load for an elephant; and the screen filled another chest. The walls of the tent, the tent-poles, and the tent-pins, (which latter were of massy gold,) loaded five more elephants; so that for the carriage of the whole were required seven elephants."

Having now arrived at Candahar, Nadir marched with an army against the Uzbeks, who had made incursions into Persia during his absence. He brought the khan of Bokhara to submission, and took and put to death the prince of Khyeva, who had murdered his ambassadors. Returning to Meshed, he was shot at and wounded in the hand by an Afghan whom his son Rizi Kouli had employed to assassinate him. That prince, on a rumour of his father's defeat in Hindoostan, revolted, and murdered the deposed shah Thamas in the fortress in which he was confined. His father's affection was not extinguished by this criminality, and he would have pardoned him; but, provoked by his taunting language, he caused him to be deprived of sight.

Quelling revolts in different parts of his dominions, and a war with the Turks, to whom, in 1745, he gave a great defeat near Erivan, employed some succeeding years of his life. In the mean time Persia was suffering under all the evils of tyranny; and the avarice and cruelty of Nadir became insupportable to his subjects. The hatred he inspired at length proved fatal to him. As he was encamped on the plains of Sultan Meydan, a conspiracy was formed between the commander of his body-guard, another great officer, and his own nephew. The former, named Saleh-beg, with four chosen men, rushed one night into his tent after killing a woman and an eunuch, and roused him by the alarm. Nadir drew his sabre, and asked what they wanted, when Saleh answered him by a cut on the neck. He resisted, however, with so much vigour as to kill two of the soldiers; but, attempting to retire, he stumbled over the cords of the tent, and fell. Saleh repeated his blow, and to Nadir's cries for mercy, he replied, "You have shown no mercy, and deserve none." He was dispatched, and his head was struck off.

This successful usurper was of a tall stature and a robust form, with a comely aspect, a high forehead, large expressive eyes, and dark hair and complexion. He had
a tenacious

a tenacious memory, great presence of mind, and quick decision. So devoid of education as scarcely to be able to read, he yet acquired a thorough knowledge of business, and was acquainted with every particular of the revenue. He was simple in his diet, plain in his dress, except with respect to jewels, in which he took pride, and never was there a greater collector of them. He was attached to women, but an enemy to unnatural indulgencies; cruel, insolent, and rapacious. The variety of religious sects among his subjects made him indifferent to all. He heard their systems, and treated them with contempt; and it is said that he declared his intentions of giving to the world a better faith than any of them. He was cut off at the age of sixty-one, after a reign of eleven years and three months, anno 1749.

No sooner was Nadir's death known, than the Turcomans flew to arms, and rushed on the Persians, who valiantly defended themselves. Five thousand men fell in the struggle. The army dispersed, and spread themselves over the provinces, carrying with them the seeds of that tumult, confusion, and anarchy, which desolated that ill-fated kingdom, and rendered it a scene of the most horrible confusion for upwards of forty years.

The reader may form some notion of the troubles of this unhappy country from the following series of pretenders to the throne between the death of Nadir and the accession of Kerim Khan. We give it from Franklin's Observations. 1st, Adel Shah. 2d, Ibrahim Shah. 3d, Shahrokh Shah. 4th, Suleyman Shah. 5th, Ismael Shah. 6th, Azad Khan Afghan. 7th, Hassan Khan Cadjar. 8th, Ali Merdan Khan Bukhteari. 9th, Kerim Khan Zund.

Their reigns, or more properly the length of time they respectively governed with their party, were as follows: Adel Shah, nine months.—Ibrahim Shah, Nadir's brother, six months.—Shahrokh Shah, the grandson of Nadir, who had been deprived of sight like his father, was, during some years, suffered to support a petty court by the revenues of the city of Meshed and its immediate environs. But the compassion inspired by his misfortunes could not save him from a danger which continually menaced his precarious existence: he had the misfortune to possess, and he was unable to relinquish, some of the most valuable jewels which Nadir acquired in the plunder of Delhi; and the means adopted to force them from him, by the chief who ultimately succeeded to the fortunes of Nadir, terminated in his death in the year 1796, when he was about 90 years of age.—Suleyman Shah, and Ismael Shah, in about forty days were both cut off, almost as soon as they were elevated.—Azad Khan Afghan, one of Kerim's formidable rivals and competitors, was subdued by him, brought prisoner to Shiraz, and died there a natural death.—But the most formidable competitor for the supreme power was Mohammed Hassan Khan, whose grandson is the present reigning king of Persia. We must therefore devote a few lines to the origin of this family and tribe. During the reign of Shah Abbas I. considerable assemblages of Turkish families, collecting on the northern frontier of Persia, placed themselves under the protection of that monarch, and entered into his armies. Abbas received them cordially; but, apprehensive lest they might in process of time become too powerful, he dispersed them throughout his empire. Part of them repaired to Mazanderan, where they had to make head against the Uzbeks and Turcomans; while others defended the provinces of the Persian Gulf against the attacks of the Arabs. The Persians witnessed with mortification the reception given by the king to these new-comers, whom they contemptuously denominated *cadjars*, or "run-aways," an appellation which they still retain. In a short time, however, the horde of Mazanderan acquired great reputation for valour; it frequently signalized itself during the reigns of Husseyn and Thamas, and even formed part of the body-guard of the latter of those princes. The Cadjars were then commanded by Feth Ali Khan, father of

Mohammed. He obtained, in 1723, the government of Mazanderan, and was ordered to drive the Afghans from Teheran; but, being defeated by them, he retired to Aferabad. After the expulsion of the Afghans by Nadir Shah, Mazanderan was in a state of rebellion. Ibrahim, Nadir's brother, reduced it, took Feth Ali Khan, and put him to death. He is considered as the first chieftain who rendered his tribe renowned, and bore the title of Prince. Some time after this event, his son was taken into favour by Nadir, who appointed him governor of Aferabad, a city on the Caspian Sea. This was the celebrated Mohammed Hassan Khan, who was highly renowned at the time for his wars with Kerim Khan. In 1743 he commanded a corps of troops at the siege of Mousful. After the death of Adel, the successor of Nadir, and his brother Ibrahim, Mohammed marched from Aferabad against the governor of Mazanderan, whom he defeated and took prisoner; routed the Afghans, and in a short time found his ranks swelled with innumerable Turcomans and Uzbeks, whom success drew to his standard. In 1752, he was master not only of Mazanderan, but also of Taberistan and Ghilan. The same year he defeated Kerim Khan, and established his authority over the provinces contiguous to the Caspian Sea. A second victory, in 1756, put him in possession of Ispahan, where he found young Ismael, of the family of the Sofis, who had been invested with the title of Shah, and declared himself his protector. From that period it was apparently not self-interest by which he was actuated: he was influenced by a nobler sentiment, which prompted him to restore the crown to the family of the Sofis. About this time, Ared, just mentioned, who had made himself master of several towns of Irak, retired to Georgia, and his flight put Mohammed Khan in possession of Aderbajan and Irak Ajemi. The Cadjar prince even found himself strong enough to march against Shiraz, the seat of Kerim Khan's power. His army amounted to 80,000 men, though he had left 10,000 at Ispahan, and 10,000 more were distributed in the provinces. Never since Nadir's time had any chieftain been able to collect so formidable a force; but Mohammed Khan's successes had at length so inflated him with pride as to render him intolerably arrogant. He was detested by the officers; and the people, bowed down by his tyrannical yoke, and daily subjected to fresh oppressions, loaded him with execrations. Kerim Khan availed himself of this disposition to bribe his troops to desert. In a short time Mohammed had about him but a handful of Cadjars, with whom he fled with the utmost precipitation to Aferabad. This happened in 1758. In consequence of this reverse, Mohammed lost Ispahan and all the towns of Irak and Aderbajan, so that his possessions were reduced to the single province of Mazanderan, which is naturally defended by lofty mountains, and by desiles, where a small number of men may keep in check a whole army. Treachery smoothed these obstacles to Kerim's general. Sheik Ali, a brave man and able negotiator, contrived, by means of promises, money, and dignities, to bribe the officer to whom Mohammed had committed the defence of the passes. Mohammed, surprised in the very heart of his country, resisted in vain: all he could do, was to maintain the military reputation which he had acquired by selling his life at a dear rate; he was nevertheless defeated and slain, and his head was carried to Kerim. How his grandson came to attain the regal dignity will be shown in the sequel.—In the mean time, of the eighth and last pretender who intervened between Nadir Shah and Kerim Khan, we have little more than the name to mention. Ali Merdan Khan was killed by a musket-shot as he was walking on the ramparts of Meshed encouraging his men.

At length, after six years of anarchy and civil war, the domination of Persia fell to a chief whose birth and character seemed the least likely to succeed in the midst of political convulsions. Kerim Khan was of the Persian tribe of Zund. "This chief was not of high birth, and had

had obtained no command in the army of Nadir," says Sir John Malcolm, while Fraucklin tells us that he was one of the shah's "most favourite officers;" but both agree that he was distinguished for his good sense and courage. The moderation and humanity he displayed in a subordinate situation, were his chief recommendations to the highest. His soldiers respected the principles of their leader; and the eyes of all were directed with admiration and astonishment to a chief of a barbarous tribe, who refrained from plunder, and showed, amid scenes of violence and confusion, so marked a love of order and of justice.

The internal commerce of Persia, as well as its agriculture, greatly revived during the reign of Kerim Khan. This prince gave the most particular encouragement to all the industrious classes of his subjects, and to none more than the Armenians who were settled in his dominions. They enjoyed under Kerim as much consideration as he was able to give them; and he was, on all occasions, ready to redress the wrongs they suffered from the oppressions of the officers placed over them. All the cities in Persia flourished under this prince; but none in any degree to be compared with Shiraz. Kerim, perhaps, was first induced to make this city his capital, by the circumstance of its being central to the pasture-lands of those tribes on whose support he chiefly depended, and from the attachment which its inhabitants early showed to his interests. He was at great pains to strengthen its defences; and he improved and ornamented the city itself with a number of useful and magnificent buildings, and beautified its environs by the erection of some fine edifices, near which were planted luxuriant gardens. Under his auspicious sway, says his Persian biographer, "the inhabitants of that favoured city passed their leisure hours in the society of moon-faced damsels; the sparkling goblet circulated; and love and pleasure reigned in every breast." The following anecdotes are related of Kerim Khan by Sir John Malcolm:

"When I was a poor soldier," he often said, "in Nadir Shah's camp, my necessity led me to steal, from a saddler, a gold embossed saddle, which had been sent by an Afghan chief to be repaired. I soon afterwards learnt that the man, from whom it was taken, was in prison, and sentenced to be hung. My conscience smote me, and I replaced the saddle exactly in the place from whence I took it. I watched till it was discovered by the saddler's wife, who, on seeing it, gave a scream of joy, fell down upon her knees, and prayed aloud, that the person who had brought it back might live to have a hundred gold embossed saddles. I am quite certain, (he added, smiling,) that the honest prayer of the old woman has aided my fortune in the attainment of that splendour which she desired I should enjoy."

Writing was an accomplishment which this justly-celebrated chief never possessed; and he retained through life the dialect of his native tribe, which, from its rudeness, is universally denominated by the other inhabitants the *barbarous dialect*. This prince, as he was one day sitting in public, commanded his jester (a necessary appendage to a Persian court) to go and bring him word what a dog, which was barking very loud, wanted. The courtiers smiled at this sally of the monarch. The jester went as desired; and, after appearing to listen some time with a profound attention, he returned, and said with a grave air, "Your majesty must send one of the chief officers of *your own family*, to report what that gentleman says; he speaks no language except the barbarous dialect, with which they are familiar, but of which I do not understand one word." The good-humoured monarch laughed most heartily at this ridicule of his tribe, and gave the wit a present.

Kerim Khan sunk into the grave at an advanced period of life, being near 80 years of age, in the year 1779. He had reigned undisturbed for more than twenty years

over the whole of Persia, with the exception of the two eastern provinces, Chorasan and Candahar, which had been dismembered by the Afghan government of Cabul. Yet he never assumed the title of Shah; but merely that of Vakeel, or regent.

When the death of Kerim Khan was announced in the city of Shiraz, much confusion arose; two-and-twenty of the principal officers of the army, men of high rank and family, took possession of the citadel, with a resolution to acknowledge Abul Futteh Khan, the eldest son of the late vakeel, as their sovereign, and to defend him against all other pretenders; whereupon Zika Khan, a relation of the late vakeel by the mother's side, who was possessed of immense wealth, enlisted a great part of the army into his pay, by giving them very considerable bounties. Zika Khan was a man remarkably proud, cruel, and unrelenting. Having assembled a large body of troops, he immediately marched them to the citadel, and laid close siege to it for the space of three days; at the expiration of which, finding he could not take it by force, he had recourse to treachery. To each of the principal khans he sent a written paper, by which he swore upon the Koran that, if they would come out and submit to him, not a hair of their heads should be touched, and that they should have their effects secured to them. Upon this a consultation was held by them: and, it appearing that they could not subsist many days longer, they agreed to surrender themselves, firmly relying on the promises that had been made them. Zika Khan, in the mean time gave private orders, for the khans to be seized, and brought separately before him as they came out of the citadel. His orders were strictly obeyed, and these deluded men were all massacred in his presence; he was seated the whole time, feasting his eyes on the cruel spectacle.

Zika Khan's tyranny became soon intolerable, and he was cut off by his own body-guard, when Abul Futteh Khan, who was at the time in the camp, was proclaimed king by the unanimous voice of the troops, whom he immediately led back to Shiraz. On his arrival he was acknowledged as sovereign by all ranks of people, and took quiet possession of the government.

Mohammed Sadik Khan, only brother of the late Kerim Khan, who had during that prince's life filled the high office of beglerbeg of Fars, and had been appointed guardian of his son Abul Futteh Khan, was at this period governor of the city of Bassora, which had been taken by the Persians previous to the vakeel's death. Upon hearing the news of his brother's decease, he became ambitious of reigning alone, and from that instant formed schemes for the destruction of his nephew; but, as it was necessary for him to be on the spot for the advancement of his views, he determined to withdraw the Persian garrison from Bassora, who were all devoted to his interest: accordingly he evacuated that place, and marched immediately for Shiraz. The news of Sadik Khan's approach threw the inhabitants into the greatest consternation; but their minds were variously agitated on the occasion; for some, from his known public character, expected he would honestly fulfil the commands of his deceased brother; others, who had been witnesses to the confusion of former times on similar occasions, rightly imagined that he would set up for himself; and indeed this proved to be the case; for, having entered Shiraz a very few days after, he caused Abul Futteh Khan to be seized, deprived of sight, and put into close confinement.

Sadik Khan then openly assumed the government. As soon as the intelligence reached Ali Murad Khan, who was at Ispahan, that lord instantly rebelled: deeming himself to have an equal right to the government with Sadik Khan, he openly declared himself a competitor for the empire. Persia was by this means again involved in all the horrors of a civil war. Ali Murad Khan indeed took possession of Shiraz, assumed the government, and gave to the empire the flattering prospect of being settled

under the government of one man; but this prospect was soon obscured by the commanding genius of Aga Mohammed Khan.

When Mohammed Hassan was defeated and killed, as related in p. 686. his family was not extirpated, as might have been expected; but Sheik Ali, after seizing upon his treasures, carried his six sons to Shiraz, where their lives were spared, and they were kindly treated. What will appear still more extraordinary is, that, sixteen years after this event, Kerim Khan conferred on Hassan Khan, one of these sons, the government of Astarabad; nay more, that after he had rebelled, and been taken and put to death, his brother Murtafa Kuli Khan was appointed his successor. But it is no uncommon thing in Persia to see a family, several members of which have manifested a rebellious spirit, nay, even a rebel himself, obtain his confirmation in some high dignity. The court keeps numerous and trusty agents about such a person, and all his motions are known to the government.

Kerim's death set the other sons of Mohammed Khan at liberty, and they availed themselves of it to retire to Astarabad. Aga Mohammed, the most enterprising of them, expelled Murtafa from his government, and established himself in his stead. This act of violence sowed disharmony among the brothers, two of whom joined Ali Murad, while the two others espoused the cause of Aga Mohammed.

This man, who was destined to restore the prosperity of the Cadjars, and to seat them on the throne of Persia, was however an eunuch. He had been seized, when an infant, by one of the competitors for the throne of Nadir, who had the barbarity to command that he should be deprived of his virility. When his father was defeated and slain, he fell into the power of Kerim Khan, by whom he was treated with great kindness and indulgence. The whole of the time which he passed as a prisoner at Shiraz, was employed in preparing himself, by the study of men and books, for the great scene in which he was destined to act.

At the death of Kerim Khan he was thirty-six years of age. Though his frame was slender, he was, from his frugal diet and his habits of exercise, capable of suffering any fatigue or hardship. He might be said to live on horseback; for every moment that he could spare from other occupations, was given to the chase, which was, in fact, his only amusement. His heart is said to have been as hardened as his body; but the natural severity of his temper was, during the whole of his progress to that sovereign power which he attained, after a struggle of eighteen years, checked by his prudence, which led him not only to conciliate his friends by kindness, but to forget his wrongs, and even to forgive some of the most inveterate of his personal enemies.

Ali Murad, hearing of the success of Aga Mohammed, determined to go against him; but as he was previously proceeding to Ispahan to suppress a rebellion, he fell suddenly from his horse and expired on the spot.

At this period, Jaafar Khan, the eldest and only surviving son of Sadik Khan, was governor of Khum: he deemed this a favourable opportunity to assert his pretensions to the government, and immediately marched with what few troops he had to Ispahan: soon after his arrival he was joined by the greater part of the malcontents who were then in arms. In this situation he remained some time; but, Aga Mohammed coming down upon him with his army, he was obliged to risk his fate in a battle, and, being defeated, fled with the small remains of his troops, taking the road to Shiraz. Soon after, finding himself strengthened by an increase of his army, he determined to venture a second engagement; and for this purpose marched towards Ispahan: the two armies met near Yezdekhaft, when a battle ensued, and Aga Mohammed Khan's superior fortune again prevailing, Jaafar Khan was defeated, and retired to Shiraz, which he quitted on the 25th of June, 1787, and shortly after marched his army to the

northward, but returned in October without having effected any thing.

Here Mr. Francklin's narrative ends, and we are not informed of what afterwards became of this chief, who is well spoken of by Mr. F. as being of all the pretenders to the throne "the most likely, in case of success, to restore the country to a happy and reputable state." But, as we hear no more of him, we may conclude that his army melted away, and that he probably came to an untimely death; for sir John Malcolm informs us, that, in the year 1789, the only opponent to Aga Mohammed was Latif Ali Khan, who also was the only surviving representative of the house of Kerim Khan. He was grandson to the brother of that chief; and, by his military talents, and popular manners, appeared calculated to re-establish the fallen fortunes of the Zund family. But he imprudently disgusted the first magistrate of Shiraz, who was justly respected by the inhabitants. This officer, in the absence of Latif Ali, took possession of the city, and immediately applied to Aga Mohammed for assistance. This was instantly accorded; but the young chief, with a courage and heroism worthy of a happier fate, attacked and defeated two successive armies sent for the relief of Shiraz. But in 1792, Aga Mohammed, advancing in person at the head of a large army, compelled the young hero, after prodigies of valour, performed with a force altogether disproportioned to the occasion, to seek his safety in flight. From this period, until that of his death in 1795, Latif Ali continued an illustrious fugitive, occupied in the vain endeavour of collecting a force sufficient to resist the constantly-increasing strength of his more fortunate rival.

At the death of Latif Ali Khan, in 1795, we may pronounce that Aga Mohammed Khan was the actual as well as the acknowledged sovereign of the provinces of Astarabad, Mazanderan, of Ghilan, of the whole of Irak, of Fars, and of Carman. The situation of these countries, which extend from the Caspian Sea to the Persian Gulf, could only be deemed settled and obedient by a comparison of their condition to Chorasan, and other parts of the empire, which had been broken into a number of petty principalities at the death of Nadir Shah; and had, subsequent to that event, thrown off their allegiance to those rulers who assumed the title of sovereigns of Persia.

The principles and character of Aga Mohammed will be best developed by his conduct towards his own brother, Ali Kuli Khan. This chief had declined appearing at court for some time after his brother's elevation. The most pressing entreaties, the most solemn assurances of safety, were lavished, to induce him to repair to Teheran; and the government of Ispahan was to be the reward of compliance. When he reached Teheran, he was welcomed with every appearance of cordiality; and the night passed in peace. Next day, Aga Mohammed, after giving him some instructions regarding his conduct at Ispahan, said to him, with a cool indifferent air, "You have not, I believe, yet looked at my new palace; walk there with Baba Khan; and, after you have seen it, return to me." He went; and, at the moment he entered the portico, some assassins, who had been stationed there, fell upon him and slew him. The body was carried to Aga Mohammed, who mourned over it with the appearance of the most frantic grief. He desired Baba Khan (the name by which he always called the present monarch, who was then quite a youth) to approach. When near, he bade him observe the corpse of the bravest of men, and the best of brothers. Then, loading the young prince with abuse, he exclaimed, "It is for you that I have done this! the gallant spirit that lately animated that body would never have permitted my crown to rest upon your head! Persia would have been distracted with internal wars. To avoid these consequences, I have acted with shameful ingratitude, and have sinned deeply against God and man!" These sentiments, general Malcolm adds, might have been sincere; the public expression of them had the effect of mitigating the universal horror at this murder.

The

The tributary prince of Georgia, the aged Heraclius, taking advantage of the distracted situation of Persia, had, by a formal act, transferred his allegiance from the kings of that country, whose paramount authority his ancestors had acknowledged for centuries, to the sovereigns of Russia. His motive for this measure was declared to be a desire to release his Christian subjects from the violence and oppression of Mahometan superiors, and to place them under the protection of a great nation of their own religion. The empress Catharine accepted the overtures of Heraclius; and a formal treaty was executed in July 1783, by which she guaranteed to this prince all his possessions.

It was not till the year 1795, that Aga Mohammed Khan had leisure to punish this defection. He led on his army in person. At his approach, the cities of Ervan and Shisha submitted; and, advancing to Teflis, he encountered and defeated Heraclius, who fled to the mountains, whilst his capital exhibited a scene of devastation and carnage.

Aga Mohammed Khan had not yet been invested with the royal tiara, though long in possession of sovereign power. After the conquest of Georgia, he yielded, with well-disssembled reluctance, to the entreaties of his courtiers. "Recollect," said he, "that if I do, your toils are only commencing; for I cannot consent to wear the Persian crown, without as much power as has been enjoyed by the greatest sovereigns of that country."

In the year 1796, the empress Catherine again directed her armies to enter Georgia. They expelled the Persian garrisons left there by Aga Mohammed; made themselves masters of the coast of the Caspian, from the confluence of the Terek to that of the Cyrus, and reduced the principal strong-holds north of the Araxes, which general Zuboff crossed, and established his camp in the celebrated plains of Mogan. At this critical period, the death of the empress occurred; and the first act of her son and successor, the emperor Paul, was to recall the army under Zuboff.

Aga Mohammed told the assembled leaders of his army, that the Russians had presumed, during his absence in Chorasan, to invade the opposite frontier of his dominions. "But our valiant warriors shall be led against them; and we will, by the blessing of God, charge their celebrated lines of infantry, and batteries of cannon, and cut them to pieces with our conquering sabres." But Aga Mohammed had no opportunity of putting his tactics to the trial. He marched early in spring 1797; but the Russians had already disappeared, and the conqueror of Georgia was assassinated soon after by two of his domestics.

At this critical juncture, Feth Ali (whom we have already mentioned under the familiar title of Baba Khan) held a command in the army of his uncle Aga Mohammed, who had also invested him with the dignity of governor of Shiraz, which he held at the time of Mohammed's death. He was the son of the same Hassan, on whom Kerim conferred the government of Asterabad, after the downfall of Mohammed Khan, and who perished in consequence of his rebellion, if that term may be applied to the attempts of a number of ambitious men to seat themselves on a throne to which there was no rightful owner.

We have seen that Aga Mohammed intended Baba Khan (Feth Ali) for his successor, and had even murdered his own brother in order to smooth the way for him. Promptitude of action was now of the first importance. The moment that Feth Ali heard of the assassination of the king his uncle, he hastened from Shiraz to Teheran; and was so fortunate as to gain possession of that important place, where the treasures of the empire and the families of all the principal officers fell into his power. He thus ensured the attachment of the soldiery and the fidelity of the most important personages in the state. Hadjee Ibrahim, the most distinguished man in Teheran, declared in his favour; and it was in a great measure owing to his powerful and extensive influence that the prince met with so little resistance to the accom-

plishment of his wishes. Yet it was not long after, that Feth Ali *Shah* (for so we must now call him, as he was crowned king in 1798) commanded the murder of this same Hadjee Ibrahim, to whom he was so largely indebted for his elevation, who looked upon him as his own son, and was attached to him with the affection of a father. This is an indelible stain upon the king's character. It is said, indeed, that he used rather too freely those rights which his services gave him; that he spared neither advice nor rebuke; but, if it be frequently a crime to tell truth to princes, ought they to punish it by a crime still more heinous? Feth Ali nevertheless has not the reputation of being a tyrant. It is related on undoubted authority that the minister was aware of the designs against him, but declared he would not imbrue his hands again in blood: he could easily have destroyed the king, but relied on his gratitude, and conceived that the reward for giving away a crown would at least be mercy. He experienced the contrary, and his women even participated in the fate of their master. But the systematic treachery of the minister did not deserve a better fate. Hadjee Ibrahim experienced the same ingratitude he had shown to Latif Ali Khan. He had been raised to his situation by the family of the Zands, and he destroyed it; he was the principal instrument of the elevation of the Cadjars, and they destroyed him.

It is a generally-received axiom among the Persians, that he alone is worthy of reigning who has felt the edge of the sword, or at least exposed himself to it. Valour in the estimation of these people is the first of qualities. This must be the case in a country where war is in some measure permanent, and where it is thought as glorious to cut off the head of an enemy with a single stroke of the sabre as with us to perform the most virtuous action. Feth Ali Shah has not, however, displayed any very shining military qualities; nor is it likely that he will ever restore Iran to its ancient extent.

Three large provinces, each of which would form a kingdom, Chorasan, Candahar, and Georgia, have been rent from the empire. It must, however, be admitted that the sovereigns of Iran never were in peaceable possession of the two out of these three provinces which now seem to be irrecoverably lost to their sceptre. It is well known with what obstinacy the Grand Moguls contested the possession of Candahar with the Persians, who were not always successful enough to repulse the Indian armies. An officer of the too-renowned Nadir Shah's restored harmony between the competitors, Ahmed Shah, having made himself master of that mountainous province and the adjacent countries, there founded the kingdom of the Afghans, which is daily becoming more enlarged and consolidated. In the west, Georgia, situated between Turkey and Persia, had been, ever since the loss of its independence, a bone of contention with these two powers. The sovereignty of Chorasan has been for ages disputed with Persia by the Usbeks, who never either wholly subdued or were wholly dispossessed of it. Their invasions of that beautiful province, and the exploits of the Persian warriors against the Tartars, who frequently passed the Djihoun, as they still continue to do, have furnished a theme to many of their poets, and the celebrated Firdoufee with the subject of an epic containing 120,000 verses. The *Shah Nameh* (Book of Kings) has been famous for upwards of eight centuries throughout all the east, and is justly considered as the master-piece of Persian poetry. If, however, the Persians have been frequently disturbed in the possession of Chorasan, they have never wholly lost that rich and extensive province: and according to their own accounts, Feth Ali has made some progress in establishing his power over the greatest part of Chorasan: even the chiefs of that country who have not been subdued, yield a nominal obedience and an occasional tribute.

Notwithstanding the loss of these important possessions, the kingdom of Persia still extends from 26° to 40° north latitude,

latitude, and from 45° to 61° east longitude, being upwards of 1000 miles in length and 600 in breadth. The names of the provinces have been given at p. 655.

During the Marquis Wellesley's administration in India, Persia was an object of his particular notice. After the fall of Seringapatam in 1800, the first mission from any European nation to the Persian court, was under General (now Sir John) Malcolm, who concluded a treaty of amity with that power, by which she engaged to send 20,000 men against the Afghans, should those tribes attack the company's territory. The ambassador, who was afterwards sent by Persia to ratify the treaty, was unfortunately killed, with seven of his suite, in an accidental fray at Bombay. In 1807, Bonaparte dispatched a mission under General Gardanne to the Persian court, and another to Cabul, in Upper India. These missions were viewed with so much jealousy by the Supreme Government, that in 1808, Mr. Elphinstone, the present governor of Bombay, went on an embassy to Cabul, and succeeded in removing the French mission there; at the same time General Malcolm was sent on a similar errand to Persia; but, being insulted at Abushire by the governor of that place, he returned to Calcutta. In 1809 the English destined an expedition of 10,000 troops from Bombay against Persia, which placed itself in a posture of defence, and built forts on the coast of Abushire; but such was the dread of this intended expedition, that the Persians resolved on sending a plenipotentiary to India, with an offer to expel the French mission from Teheran, and to subsidize any number of British troops that could be spared to expel the Franco-Russian attack on the northern frontiers of Persia.

At this critical moment, Sir Harford Jones arrived on an ill-timed embassy from England, quite independent of any control, and without even the privity of the government of India. The proposals he was instructed to offer to Persia rendered the intended expedition nugatory, and prevented the departure of the plenipotentiary from Teheran. Sir Harford Jones concluded a treaty by which he engaged the East India Company to pay to Persia a subsidy of 200,000 tomans per annum; and she was also to receive, without any expense to her, as many British officers and non-commissioned officers as she might require to discipline her native troops in the northern provinces. Mirza Abul Hassan Khan, on the part of Persia, and James Morier, esq. on the part of the British minister, proceeded to England, and obtained a ratification of this treaty.

In 1810, General Malcolm again proceeded to Teheran on the invitation of the Shah, who desired to show him kindness for the treatment he had received at Abushire in 1808; but, differences arising between the general and Sir Harford Jones, the former was speedily ordered back to India, and the latter recalled to England. In May of the same year, sir Gore Ouseley left England as ambassador extraordinary and minister plenipotentiary to the Persian court, with a detachment of artillery and non-commissioned officers under major Darcy and major Stone: the latter died in a few months after his arrival. France and Russia were then in alliance; and Persia was at war with Russia, in consequence of her encroachments upon the Persian territory beyond the confines of Georgia, of which province Russia had possessed herself several years before. France, by general Gardanne's treaty, had engaged to assist the Persians with troops to recover Georgia from the Russians; but this was not attempted, in consequence of the subsequent alliance between the emperor Alexander and Napoleon. On the arrival of sir Gore Ouseley in 1811, the troops of Abbas Mirza, in the north of Persia, were in a bad state of discipline and wretchedly organized. They consisted of about six battalions, some acting under Persian words of command, others under French, English, and Russian. They had only 13 pieces of field-artillery, and were without wood

in the arsenal, or stores in the magazine. One of sir Gore Ouseley's primary objects appears to have been to effect an alteration in the existing treaty, whereby the expense to the East India Company might be materially reduced. He therefore proposed, that the British officers and non-commissioned officers in the service of Persia, who were to obtain one step of local brevet rank, should receive extra pay from Persia according to that rank, out of the subsidy granted by England, which was promised to be continued so long as the Russians retained the Persian territories of Lankaroon and Karrabaugh. The Persians, however, refused to accede to this proposition until after the affair of Sultonboud in 1812, when the Prince Royal's army attacked the Russians and obtained a complete victory. The Shah and Prince Royal ascribed the success to their having been led on by their English friends; and then signed the new treaty proposed by sir Gore Ouseley. The Persians, headed by English officers, were equally successful on the south-west shores of the Caspian Sea. They expelled the Russians from their posts at Taulish and Lankaroon; but Darcy, the English commander, was compelled to withdraw his party in consequence of the arrival of two Russian armed vessels bearing a flag of truce, with the London Gazette, announcing the preliminaries of peace between Great Britain and Russia.

Soon afterwards Persia lost the advantages she had obtained; and, in 1813, she acceded to terms of peace, by which she not only ceded to Russia the province of Taulish, as far as Astarria, but renounced all claim to Georgia and Mingrelia, as well as the right of navigating the Caspian Sea by armed vessels of any description. Though she still holds the port of Resht on that sea, she is restrained from even building a boat, notwithstanding there is a remarkably fine forest of timber in the province. Subsequently, the Russians conquered the entire province of Daghestan from the native tribes; and the garrisons of that nation now extend to the banks of the Araxes, and along the southern shores of the Caspian Sea.

In consequence of the before-mentioned treaty, sir Gore Ouseley, in May 1814, proceeded to St. Petersburg, leaving Mr. Morier in charge at Teheran. He was shortly joined by Mr. Ellis, with instructions to cut off the subsidy, and every other expense attached to England. This measure, effected against sir Gore Ouseley's assurance to the contrary, was the principal cause of Mirza Abul Hassan Khan's second embassy to England in 1819, when it was arranged by the late British minister for foreign affairs, that 100,000 tomans, or six months' arrear of subsidy, should be forthwith paid by the government of India to Persia. As a measure of economy, but in violation of the third article of the Persian treaty with England, Messrs. Morier and Ellis ordered all the British officers and non-commissioned officers to depart from Persia by the 1st of January following, notwithstanding they were entitled to pay, whether they remained in Persia or were in England or India. The Prince Royal remonstrated and protested against the measure without avail; but, this mistaken economy being persisted in, the prince resolved on procuring French officers to replace his English friends; a purpose that he abandoned solely on condition that Lieutenant-colonel Darcy would take a certain number of Persian youths from Tabriz to England, under his immediate charge, for the purpose of receiving liberal and scientific instruction. The prince applied to the British minister at Teheran to sanction his wishes, which were so far acquiesced in, that Darcy had no alternative but to proceed with his charge, or take upon himself the responsibility of seriously offending the prince by a direct refusal. They accordingly proceeded to England by way of Russia, "subject to the ulterior wishes of his majesty's government." The British officer intrusted with these youths had funds placed in his hands by the Prince Royal to pay the expenses of their journey, and a regulated allowance during one year's residence in England; which, in
the

the event of an objection by the British government, was to be applied in defraying the charges of re-conducting them to the Persian ambassador at St. Petersburg.

After the departure of sir Gore Ouseley, our affairs at the Persian court gradually assumed another aspect. When Mr. Morier and Mr. Ellis quitted Teheran, Lieut. Henry Willock, of the Madras cavalry, who had acted in the subordinate rank of aide-de-camp to sir Harford Jones, was left in the important situation of British chargé d'affaires: and from that moment our interest seemed to decline before the influence of Russia. In 1820, a Russian mission, splendidly fitted out, and attended with a considerable military guard, proceeded to Hurrat, Bokharrab, and such other places as were found most advisable for opening a new trade for Russian manufactures, and for procuring a direct supply of Cashmere shawls for the Russian market.

Latterly the British government appears to have considered Persia of little importance to this country; and the Russians readily stepped into our shoes. In 1817, general Yermaloff having been appointed governor of Georgia, he occupied that territory with 50,000 chosen Russian troops, personally surveyed its military posts, and entered Persia in the character of ambassador extraordinary from the court of St. Petersburg, with a suite composed of the flower of the Russian nobility: this embassy was dignified in the eyes of Persia by extraordinary magnificence and splendour. Yermaloff concluded a treaty of alliance and commerce, and at his departure left colonel Mazzaravich as Russian chargé d'affaires. This officer, with qualifications fully adequate to such an important station, takes every opportunity of cultivating the good-will and esteem of the Persians, and spares neither pains nor expense to conciliate their friendship. The 50,000 Russian troops in Georgia in 1817 were increased in 1820 to 100,000, and in the year 1822 there were 130,000; although during the war between Russia and Persia, the number rarely, if ever, exceeded 30,000. Colonel Mazzaravich keeps an open table for the Persian nobility; and his general style of living is worthy the representative of a great nation. England, to compete with this man, has been represented by an individual, whose subaltern rank in the army, rendered him, in the first instance, of little consequence in the eyes of the Persians; while his inferior style of living, his opposition to the wishes of the Prince Royal, and his general demeanour, made him personally obnoxious, and occasioned comparisons to the disadvantage of himself and the British interests.

At length, serious differences arose from the non-payment of the 100,000 tomans, which was to have been settled by the British East India Company, for arrears of subsidy due to the shah. The delay in fulfilling this engagement was attributed by the court of Persia to Mr. Willock. The money had been given up by the shah to the prince royal; and, to appease his royal highness, Mr. Willock had on one occasion advanced 10,000 tomans on account of it. The prince issued a second order upon Mr. Willock for 2,000 tomans, which he declined paying; and the shah, in a moment of irritation, prepared to enforce the payment from Mirza Abul Hassan Khan, by whose embassy to the court of London the arrangement had been concluded. Ultimately, cooling upon this resolve, he sent Aga Mahomud Kerreem to Mr. Willock to insist on payment of the prince's order. This messenger had incurred the shah's displeasure in a former transaction; and he determined to redeem his credit by succeeding, if possible, on the present occasion. Unluckily, he over-acted his part, and told the British chargé d'affaires, that, "if the prince's order was not paid in five days, he had the king's command to return at that period and cut off his head." The idea of this alternative, so common in despotic eastern courts, and delivered as a message from a gracious king who had already murdered his best friend, the instrument of his elevation, and all his family, was very alarming to Mr. Willock, as it probably would have been to the

reader. That gentleman immediately demanded his passports, and a guard to attend him to the frontiers. Assurances on the part of the shah himself, under his own seal, as well as explanations on the part of his ministers, were ineffectual to restrain Mr. Willock from leaving Persia. The shah condescended so far as to offer marks of his particular kindness to our chargé d'affaires, in atonement for the mistake; and the ministers stated the necessity which existed for his remaining, in consequence of negotiations then pending with the Porte. Mr. Willock, however, insisted on taking his departure, though the shah assured him, that if he left the court unpleasantly, or contrary to his wishes, Persia would feel it essential to her dignity to dispatch an envoy to England with a report of Mr. Willock's offensive conduct, and to require the appointment of another person in his stead. The chargé d'affaires, however, left Teheran; and Mirza Mohammed Saulah, one of the students formerly in England, was accordingly appointed envoy extraordinary from Persia to London. Mirza arrived here *by the way of Russia*; and his reception in that quarter must have formed a striking contrast to the neglect that he and his companions experienced during their residence in England. He was provided with an establishment and equipage by the Russian government, conducted to see every thing worthy his attention, and the emperor presented him with a diamond ring of great value. On his departure, a vessel was provided to convey him and his suite to England. The captain was commanded to pay them every attention, and not to suffer another passenger on-board, nor to take the slightest present from him, or any of his suite. In compliance with the express desire of the emperor, a young artist, who accompanied Mirza to England, was afterwards sent back to St. Petersburg for education at the emperor's expense. In the event of the British government or the East-India Company declining to advance a portion of the subsidy-money, the Mirza received a letter of credit on the Russian representative at the court of London for 30,000 ducats, that he might experience no difficulty to the making of purchases in England. These are strong indications of the importance attached by Russia to her Persian connexions.

The envoy's mission embraced several objects. He was the bearer of a firman of congratulation to his majesty on his accession to the throne: he was instructed to require payment in London of 15,000l. in part of the subsidy-arrear, which the court of directors has complied with: he was commissioned to purchase arms and clothing for the Persian army: he had orders to lay before the British government, the shah's disavowal of Aga Mohammed Kerreem's offensive message to Mr. Willock, and to submit the same explanations upon the subject, which were offered without effect to that gentleman in Persia; he was further instructed to exhibit a list of specific charges against Mr. Willock for improper conduct to the shah, the prince royal, and their ministers, and even to the whole nation, in the violation of a sacred religious rite; and he was especially required to protest against the re-appointment of Mr. Willock, and to solicit for his successor a gentleman whose personal demeanour may be the means of preserving harmony between the two powers.

We have reason to think that the issue of the Persian envoy's mission will determine whether it will be worth while for the East-India Company to continue their depots at Abushire, Bassora, and Bagdad, which were established principally for the supply of the Persian market, and where they have residents in charge at a considerable expense. It is understood that a proposition has been made to Persia, on the part of Russia, which, if acceded to, will ultimately secure the whole of the trade to the Russian merchants; a reply has been waved until the fate of the present mission is known. Mr. Canning will doubtless investigate this subject himself, and give it the calm consideration of his own mind. It is an affair of too much importance for management by others, who may

consult particular interests that by no means harmonize with the welfare of Great Britain as connected with the safety of her Indian possessions. Persia neither undervalues the friendship nor the manufactures of England. On the contrary, we may preserve our pre-eminence if we will. Should government, by a wise disregard of personal considerations, act liberally and justly towards Persia, our foreign trade will reap the benefit: by a contrary course, she will leave Persia to the influence of Russia, and our northern ally will enrich herself by ultimately excluding the English merchant and the East-India Company from participation in Persian commerce. Such was the political situation of Persia with Great Britain and Russia at the beginning of the present year 1823.

PRESENT STATE OF PERSIA.

OF THE KING; HIS COURT, GOVERNMENT, LAWS,
AND RELIGION.

If we neglect the fluctuating limits of transitory possession, and look only to the landmarks placed by nature, the boundaries of the Persian empire seem distinctly traced by the courses of the Indus, the Oxus, and the Tigris; the shores of the Caspian, and the arid tracts which skirt the Indian Ocean. The primitive inhabitants of this extensive region, too, have in all ages been advantageously distinguished from the adjacent nations. Their tall and graceful persons are neither disfigured by the harsh features of the Arabian physiognomy, nor the darker tints of their Indian neighbours. Their skill in horsemanship, their expertness at military exercises, the acuteness of their understanding, and the vivacity of their conversation, appear at all times to have merited praise; whilst their insincerity and falsehood, the usual vices of slaves, seem as justly to have attracted censure. In all these respects nothing is changed. They are still richly endowed with the gifts of nature; but the "invariable laws of the Medes and Persians" have decreed, that despotism, in its most pernicious form, should defeat the objects of her bounty; and that, with less glory, less wealth, and less enjoyment, the subjects of Feth Ali Shah, at the present day, should display the same natural talents, and the same inherent defects, which marked the slaves of Darius, dispersed through twenty satrapies.

Mr. Scott Waring is certainly not an adept in calculating the influence of government on the morals of a people, or he would not have said, in extenuation of Persian despotism, that he "doubted whether the moral character of the Persians qualified them for a better government." What else than government is it, we should be glad to know, that has engendered and disseminated these corruptions? Does the soil or the climate of Persia contain any quality more productive of vice than the soil and the climate of Europe? or what else than tyranny has created the distinction between the moral qualities of the Greek in the present day, and those of his ancestor in the age of Aristides?

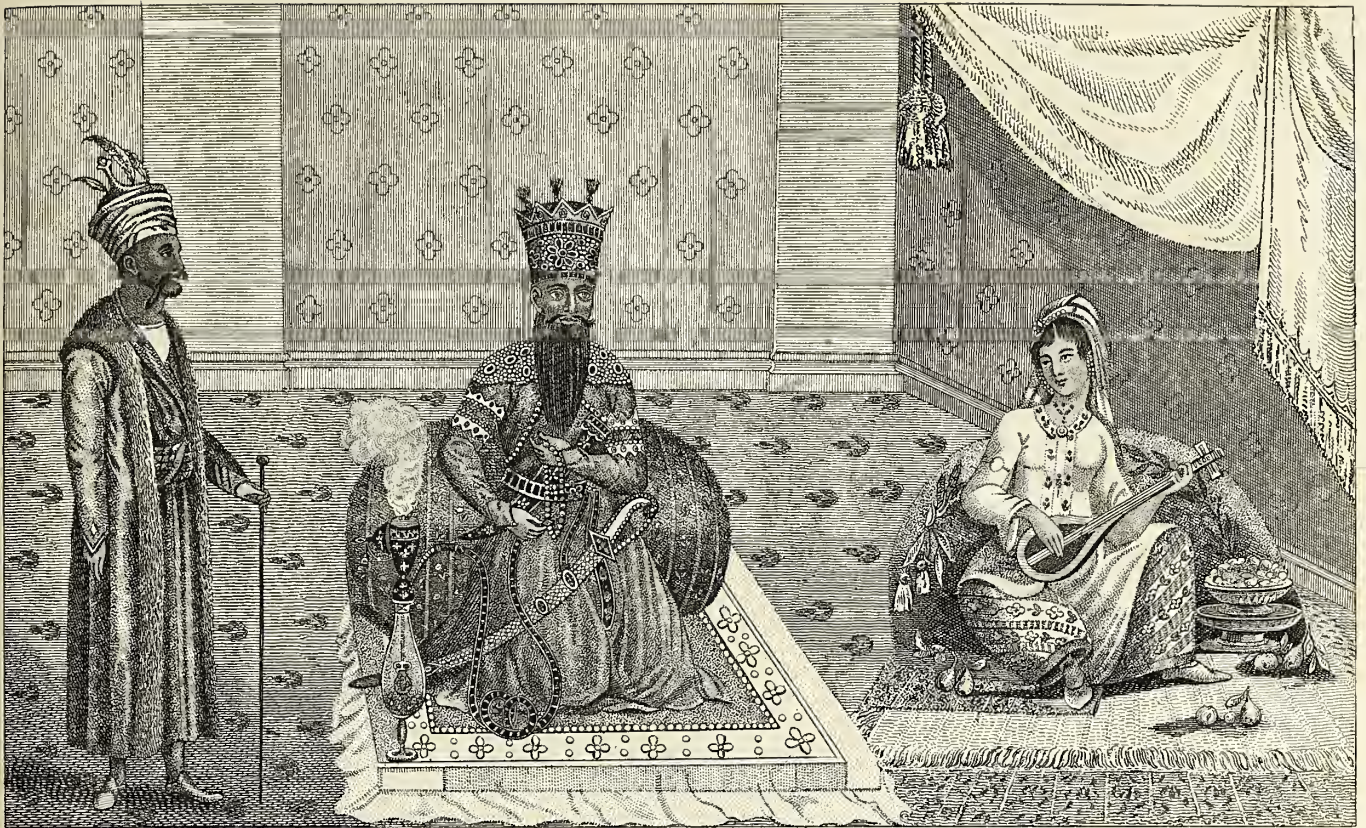
Feth Ali Shah, the present king of Persia, is about fifty-three years of age, having been born in the year 1770. Sir Robert Ker Porter, to whom his majesty sat for his portrait, who seems to have been not a little flattered by his condescension, and to be not very sparing of flattery in return, describes in the following terms the personal character of this monarch: "His face seemed exceedingly pale, of a polished marble hue, with the finest contour of features, and eyes dark, brilliant, and piercing; a beard black as jet, and of a length which fell below his chest over a large portion of the effulgent belt which held his diamond-hilted dagger. This extraordinary amplitude of beard appears to have been a badge of Persian royalty from the earliest times; for we find it attached to the heads of the sovereigns in all the ancient sculptured remains throughout the empire. His complexion, as before observed, is extremely pale; but, when he speaks on subjects that interest him, a vivid colour rushes to his

cheek, but only for a moment, it passes so transiently away. His nose is very aquiline; his eye-brows full, black, and finely arched, with lashes of the same appearance, shading eyes of the most perfect form, dark and beaming, but at times full of a fire that kindles his whole countenance, though in general its expression is that of languor. The almost sublime dignity which the form of his beard adds to the native majesty of his features is not to be conceived; and the smile which often shone through it, ineffably sweet and noble, rather increased than diminished the effect." The portrait of his majesty given in the upper part of the annexed Engraving, where he is accompanied by his master of the ceremonies and one of the ladies of the harem, is copied from Monf. Jourdain's work entitled *La Perse*, to which we are indebted for all the Plates accompanying this article, and a great deal of the following information. This work has never been translated, though it has formed the groundwork of a neat publication now coming out in London, called the *World in Miniature*.

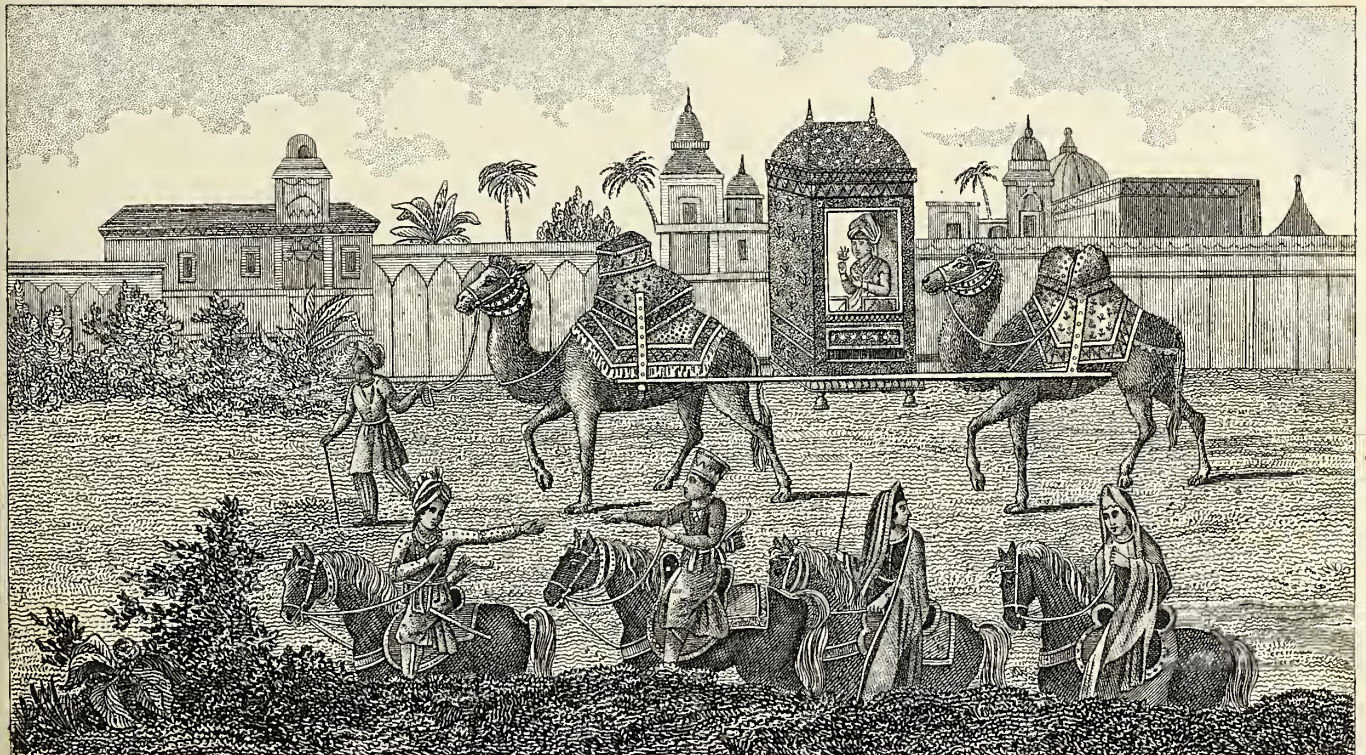
Though the reigning monarch has not been celebrated for that activity which demonstrates itself in ambitious projects, yet he manifests on every occasion that promptitude in the dispatch of public business, and vigilance in maintaining the laws he has enacted for the security of the persons and property of his people, which bear every testimony to the soundness of his judgment on the duties of a king; while his encouragement of Persian literature and his taste for poetry and the arts show him to be a scholar and a man of genius. That his views are liberally directed toward the improvement of his people, is still more evident from the many Persians sent by him to Europe, to study the arts and sciences most wanted in their own country. These men generally conduct themselves well when abroad; and, the quickness of their intellects soon making them masters of their objects, they return home in the prime of life, bringing back not merely the learning and practice for which they were sent out, but seeds of moral, mental, and national, improvements, which, being gradually sown in the minds of the people, nothing can prevent from producing their natural harvest.

Feth Ali Shah is not merely a lover of poetry but himself a poet, and the author of some pleasing compositions of that kind. The chief of the poets of his court is in high favour with him, and receives for his praises and the effusions of his genius more substantial remuneration. The governor of Kathan was indebted for his appointment to his being an excellent poet. On his sending the king a present of one of his compositions, he expressed greater satisfaction at the gift than at the sumptuous offering of Chiragh Ali Khan, which amounted to some thousands of pounds; but, adds Mr. Scott Waring, "he would be very sorry to have all his governors poets, and all their presentations, poems."

Persia has, properly speaking, no capital city. The seat of government has been changed according to the caprice or the convenience of the reigning monarch. Rages, Ispahan, Casbin, Tauris, Shiraz, Sultania, Ctesiphon, and even Samarcand, have been, at different times, the place of their residence. The present king keeps his court at Teheran; this must therefore be considered as the metropolis at the present time. It is situated in the Irak Ajemi, and province of Mazanderan, a league and a half from Rages, and about eight leagues south of the Caspian Sea. The surrounding scenery renders the approaches to this city highly interesting. To the south are the ruins of the celebrated Rages, the country of Haroun Alrashid; on the east is Mount Alboraz, famed in Persian mythology as having been the retreat of the *devas*, or evil genii; to the north is the elevated peak of Demavend, always capped with snow; while to the west we discover a vast plain well cultivated and covered with villages, charmingly contrasting with the frightful rocks on the east and north. The population amounts to 60,000 persons during nine months of the year; but in June, July, and August, when



The King of Persia, attended by his Master of the Ceremonies and one of the Ladies of the Harem.



From La Perse of M. Jourdan.

Pass 50

The Queen of Persia on a Journey.

Engraved for the Encyclopædia Londinensis

the king and his court retire to the plains of Sultania, so many of the inhabitants follow him thither, or retire to the neighbouring mountains, that not more than 10,000 remain.

The king has probably, at this time, not fewer than 200 children. In the year 1819, the number was as follows: ten sons administering important governments of cities or provinces, 39 younger sons, and 140 daughters. It has sometimes happened that several women have made him a father in one and the same night. One day, while Mr. Morier was at Teheran, in his first visit to Persia, six of his women produced his majesty six children, four boys and two girls.

It has been customary with some of the Persian monarchs to deprive their children of sight lest they should prove rebellious subjects, leaving but one unmutated as heir to the throne: while others have been content with dooming them to perpetual imprisonment in the seraglio. Feth Ali has not imitated the barbarity of the former practice nor the injustice of the latter; several of his sons who have arrived at manhood occupy high posts in the empire, and are training in the art of government under experienced ministers, to whose guidance the king consigns them.

The king's eldest son, Mohammed Ali Mirza, is invested with the government of Kermanshah. The condition of his mother, who is a Georgian slave, or perhaps the partiality of his father for another son, has excluded him from the throne. He is thirty-five years of age, with a pleasing physiognomy, affable manners, courage and activity. Abbas Mirza, whose mother was of the tribe of the Cadjars, and whom Feth Ali has declared his successor, governs the province of Adherbijan. According to the concurrent testimony of all travellers, the qualities displayed by this prince justify the preference of his father. He is of middling size; his face, though pale, is full of majesty and good-nature, and animated by large black eyes, shaded by well-arched eye-brows which meet. He is an excellent horseman, distinguished for his skill in all military exercises, and passionately fond of war. The simplicity of his dress bespeaks the dignity of his mind. When one of his officers once appeared at his court clothed in stuff of gold and covered with rich ornaments, "What is the benefit of this luxury?" said the prince; "instead of this gold and this tinsel, why do not you buy a good horse, a good sword, and a good gun? Such finery as this belongs to women, and is unbecoming a man, and especially a soldier." The same spirit which dictated this rebuke is manifested in an anecdote recorded of this prince by captain Kotzebue, who accompanied the Russian embassy to Persia in 1817. When the ambassador offered him the presents sent for him by the emperor, among which were a service of porcelain, diamond plumes, &c. Abbas Mirza selected only a superb gun and a sabre: "This," said he, "belongs to me; the rest is too handsome for me, and belongs to the king."

Kotzebue, speaking of the reception of the Russian embassy, by this prince at Tabreez, says; We accidentally discovered an honourable trait in his character, which, in Persia, excited our astonishment. The ambassador observed in the garden a projecting corner of an old wall, which spoiled the beauty of the surrounding objects and disfigured the prospect. His excellency asked the prince why he did not order it to be pulled down. The prince replied, "With a view to the forming of gardens on a grand scale, I purchased the ground of several proprietors. The owner of that where the wall stands is an old peasant, who has absolutely refused to sell his property to me, because he will not part, for any price, with an ancient patrimonial possession of his family. His obstinacy, I must confess, vexes me exceedingly; and yet I cannot but honour him for his attachment to his forefathers, and still more for his boldness in denying me the ground. I must wait till the time when his heir will perhaps be more reasonable."

This anecdote will certainly surprize the English reader, who would not expect to find any eastern prince, from the days of Ahab, inclined to refrain from helping himself to Naboth's vineyard when it suited his convenience. We have heard other particulars much to the credit of Abbas Mirza, the declared heir, and also of some of the other princes who are governors of provinces; but we shall only observe, that cutting-off noses and ears, and putting out eyes, are now very little in use. With this comfortable reflection we shall dismiss the rest of the 59 sons of Feth Ali; and, as to enlarging upon the virtues and accomplishments of his 140 daughters, our readers will not be so unreasonable as to expect it.

We have noticed the alteration of the succession. Can that ill-adviced measure fail to produce a civil war at the decease of the present king? and will not those dreadful massacres, and emasculations, and blindings, which we have been forced so repeatedly to describe in the course of this article, be repeated? Sir Robert Ker Porter informs us, that, on the day for naming the successor, all the royal brothers, with the ministers and great khans, were present; and, when the king presented Abbas Mirza to them as their sovereign, every one bowed the head of submission, excepting Mohammed Ali Mirza; and he told his royal father, that, while he lived, he would acknowledge no other sovereign than himself; then, laying his hand on his sword, he added sternly, "After that, *this* shall decide who is to be the king of Persia."

This may be sufficient to bear us out in our melancholy forebodings. But we have also to add, that, in the treaty of 1813, (alluded to p. 655.) by which Georgia was ceded to Russia, the emperor Alexander agreed to a stipulation, by which both "himself and his successors are bound to acknowledge, and to maintain on the throne, by force should it be necessary, the prince who is destined to succeed, in order that no foreign power shall interfere in the internal concerns of Persia." Now may not our jealousy of the influence of Russia induce us to support what may be called the legitimate succession, and thus greatly enlarge the theatre of the war? for otherwise, should the resistance to the new succession be very obstinate, what can hinder the Russians, when once they get footing in the country, from overrunning the greater part of it, and, after all, from leaving their own favourite candidate with a divided and dependent kingdom? and, supposing that a second Alexander should, after overcoming a second Darius, find himself on the banks of the Hydaspes or the Tigris, and in a situation to invade India from the north; would not the natives avail themselves of the opportunity to shake off their yoke? or rather, might they not be forced into (what we should call) a harder servitude; but, at any rate, might they not cease to be slaves to us?

We will not pursue this subject any farther; but proceed to state what *is*, instead of what may be.

The ordinary title of the Persian monarchs is *Shah*, which corresponds with our Emperor; or *Padjshah Iran*, Great Emperor of Iran. His subjects, however, dare not give him so simple a denomination: they must not write his name without adding, "The most exalted of men; the source of majesty, of grandeur, of power, of glory; the equal of the sun; the chief of the great kings, whose throne is the stirrup of heaven; the centre of the globe of the earth; the master of the conjunctions; the asylum of the world; the shadow of God, diffused over the face of all sensible things," &c. But these denominations vary according to the eloquence of the writer.

In Persia there are no nobility according to the acceptation of that term in Europe. In that country no dignity, no office, is hereditary; yet there are titles which denote the birth or rank of the persons who bear them: such are those of *Mirza* and *Khan*.

Mirza is a Persian compound word, a contraction from *mirzadeh*, which signifies "son of an *emir*, or prince." This title is very common in Persia: but it would be wrong to suppose that all who assume it are of high birth.

It is applied alike to the lawyer, the physician, and the son of the king: its position before or after the name constitutes its value. The princes alone can subjoin it to their proper names, as Abbas Mirza, Huseyn Mirza: but as a prefix to the name, it may be assumed by, or conferred on, any person. It is right, however, to observe, that none but well-educated men, or such as follow respectable professions, or hold honourable posts, take the title of *mirza*.

The title of *Khan*, was formerly given to the governors of provinces only. It is of Tartar origin, and very ancient. Quintus Curtius mentions several princes conquered by Alexander, who bore it, as *Portican*, *Oxican*, *Mesican*, which shows that it was subjoined to the name in those times as at present. The number of Persians now honoured with the title of *khan* is very great. It is conferred by the king either on his own subjects to reward their services, or on foreigners as a mark of honour and esteem. Feth Ali bestowed it by letters patent on some of the members of the French embassy sent to Persia under Gen. Gardanne. So much is certain, that it ought to be borne exclusively by military men, and that those who have obtained it by martial achievements despise others who are indebted for it solely to the favour of the prince. The ceremony attending the creation of a *khan* is very simple. The king sends a *khilaut*, or robe of honour, to the person whom he honours with this title, accompanied with a *firman*, or two letters, the one relating to the present of the *khilaut*, and the other conferring the title. This *firman* the receiver must wear three days attached to the top of his turban.

The king's household consists, like that of European monarchs, of a great number of officers, each having his particular duties and functions. The chief of these is the *high chamberlain*, who is superintendent of the king's finances, manager of all the royal domains, and inspector of all the other officers. On him all the persons engaged in the arts and sciences at the expense of the royal exchequer are dependent; and to him such persons as come to Persia on commercial business have to address themselves. It is his duty also to make suitable provision for ambassadors, to assign them quarters, and to supply all their wants. Hence some idea may be formed of the influence attached to this dignity.

The second officer is the *Ichic-Agasee Bashee*, whom Morier calls the *master of the ceremonies*: he superintends the porters, ushers, door-keepers, and other officers of that class belonging to the palace. Before him is borne a gold stick covered with precious stones, which is the mark of his dignity: and, when the king quits his *seraglio*, he takes it in his hand, standing at some distance from his majesty's person, and endeavouring to anticipate his commands from his looks. As soon as the king looks at him, he advances, takes his orders, lays down his stick, causes the orders to be executed, resumes his stick, and returns to his place. He receives all petitions presented to the king, delivers them into his hand, and either reads or reports the substance of them to his majesty. His office by right requires him to lie every night at the door of the palace; but, instead of performing this service in person, he places guards there. The annexed engraving represents the costume of the master of the ceremonies, from Jourdain, tom. iii.

The *Yesaools* and the *Yesaools-sohbet* are immediately dependent on the *Ichic-Agasee-Bashee*. The former are a kind of messengers who carry the orders of the king; the latter are a sort of assistants to the master of the ceremonies: they form a body composed of the sons of nobles. When on duty they carry painted and gilt sticks, and impose silence and keep order wherever the king may be. When the king gives audience to ambassadors, they go to the entrance of the palace to meet them, introduce them, and lay their presents before his majesty.

The *Meer-akhor*, or chief equerry, and the *Chikkiar-Bashee*, or chief huntsman, come next. They have each

subordinate officers, as the *Djeladar-Bashee*, chief of the grooms; the *Zindarthee-Bashee*, chief of the faddlers; the *Oozengoo-coortshidjy-Bashee*, or chief of the stirrup-holders; the *Taoos-Kaneh Agasee*, head-keeper of the birds of prey; the *Sekban-Bashee*, keeper of the hounds.

Next in importance are the *Hakim-Bashee*, or chief physician; and the *Monaddjem-Bashee*, or chief astrologer. The reader need not be surprised to meet with such an officer as the latter in a country where the sway of astrology is omnipotent among all classes. Such are the places which confer the right of sitting in the presence of the king. The chief of those to which this privilege is not attached is the post of *Mesheldar-Bashee*, or chief torch-bearer, who rides before the king, carrying a golden torch in his hand, and superintends the flambeaux for lighting the interior of the palace. These torches are brass cups fixed to the end of rods of the same metal, which are filled with oil, and in the middle of which is burned a cotton wick. The Persians seldom make use of wax, and never of tallow or rosin. In Chardin's time the *Mesheldar-Bashee* had the superintendance of taverns, public prostitutes, musicians, and buffoons of all kinds. The *Mehmandar-Bashee* comes next; he is the chief of the officers whose duty it is to go out of the city to meet ambassadors, to conduct them to the quarters prepared for them, and to accompany them in their journey: for every foreigner of distinction, on entering the Persian territory, is furnished with an officer whose duty it is to attend him, to protect him from insult, and to procure for him whatever he wants.

The post of *Mihtur*, or chamberlain, is always filled by a white eunuch: it is considered as one of the most important in the royal household. In Persia, as in Turkey, there are two sorts of eunuchs, black and white. The latter are very rarely, if ever, admitted among the women; whereas the former never quit the palace. The chamberlain has not a right to enter the women's apartments, unless he be sent for; but he seldom leaves the king. He waits upon him at table on his knees, and tastes the dishes; he dresses and undresses him; and is entrusted with the care of the jewels and precious stones commonly worn by the sovereign. In Europe, gold keys or wands form the characteristic insignia of the office of chamberlain: in Persia, the *Mihtur* wears suspended from his waist a small gold box in the shape of a gondola, enriched with precious stones, and containing two or three exquisitely-fine white handkerchiefs, opium, perfumes, and cordials.

Of the *SERAGLIO*.—We apply, in our language, the term *seraglio* to that part of the oriental palaces which is inhabited by the women, and to which the prince alone has access. The idea attached to this term does not precisely agree with its meaning: *serail*, or *serai*, signifies merely "a house." Thus the public buildings at which caravans stop are called *caravan-serais*. The spot which we call *seraglio*, the orientals denominate *harem*; that is, "the sacred place," the place to which access is forbidden. The harem is in general the most magnificent portion of the palaces of Persia and the east, for here the princes spend the greatest part of their time. All that here passes is enveloped in profound mystery: the harem is the theatre of pleasure, intrigues, and crimes; and there, too, the most important matters are irrevocably decided upon. Chardin, that minute and faithful observer, notwithstanding his familiarity with the great, could not gain much information concerning the harem. The same offices and places exist there as at court; but they are filled by women. The king has his chief and under equerry who carry his arms, the captain of the gate, the captain of the guards, ushers, and *gentlemen*, all of whom are females: while others read public prayers and perform the rites of religion. These follow professions useful in common life; those practice medicine; and others inter the dead: for a harem contains a mosque, a cemetery, in short, all that is to be found in a city; in fact, it is a colony of Amazons.

In the harem there are three classes of females distinguished by different appellations: the princesses of the blood are called *begum*, and such of the king's women as have brought him children, are called *kanoom*; under the denomination of *katoon*, are comprehended the women of inferior rank; and all those not belonging to any of these three classes are termed *slaves*, which indeed might be applied to the whole of them.

Each female of the harem, one of whom is represented in the Engraving on the king's left hand, has an apartment to herself, or lodges with some aged woman, and cannot visit her fellow-prisoners without permission. Besides subsistence, she receives an allowance, half of which is paid in money, and the rest in stuff for wearing apparel. The number of her attendants increases with her rank. But, alas! when the king dies, the harem is filled with mourning, consternation, and dismay; yet the tears that are shed are not those of regret for the lost object: what these women deplore is the loss of the shadow of liberty, and of the illusory pleasures which charmed their captivity: they are shut up for the remainder of their lives in the most retired part of the harem, and a guard of ferocious eunuchs will prohibit the entrance of all who are not brought thither by the natural wants of the victims.

According to the report of the Persians, the king's harem contains the most beautiful women in the East. In any other country, the manner of supplying it would be the most execrable tyranny: in Persia it is an honour courted by the most distinguished persons. No sooner does a beauty spring up in any part of the kingdom, and the rumour of her charms reach the court, than she is taken from her family, or, more properly speaking, her parents are anxious to offer her for his majesty's acceptance, and she is transferred from the paternal habitation to the royal harem. The favour and fortune of the parents keep pace with the king's fondness for his new mistress; and, when she becomes a mother, the most elevated dignities are conferred on her father. The name of *mother*, however, though it confirms the influence of her who presents the monarch with the first son, becomes to the others a source of apprehension and sorrow. Confined with their infants in a corner of the seraglio, they live in continual fear lest a supreme order should deprive them of life, or at least of sight. Hence the crimes of which the seraglio is the theatre. When the number of children is too great, the queen-mother, who rules with despotic sway in the harem, coolly orders a certain proportion of them to be dispatched; and custom stifles all remorse in her soul.

There are three sorts of guards to the harem. The white eunuchs guard the outside, without ever entering the interior; the black eunuchs, mostly brought from the coast of Malabar, dwell round the second inner inclosure; within which women are on duty night and day, relieving each other by turns.

We have just seen what precautions are taken to ensure the fidelity of the women of the harem, and to prevent the access of strangers. From these precautions we may infer the strictness of those which are practised when they appear abroad. When the king's women are about to remove from one place to another, public notice is given five or six hours before-hand of the road which they are to pursue. Woe then betide the unfortunate wretch who should happen to be found in that road, or in any place from which he could perceive the camels or horses which carry these ladies. The very inhabitants of the villages through which this road passes, must quit their habitations. When the hour for their departure is arrived, troops of horsemen ride forward at a great distance before the cavalcade, crying: *Coorook! coorook!* "Prohibition!" which is a notice for every one to retire. Between these horsemen and the females come eunuchs also on horseback, who with thick sticks belabour such as have not retired with sufficient dispatch.

The ladies commonly travel on horseback, riding

astride, after the fashion of the East, like men; "the most natural and safest seat for a lady," gravely observes a recent traveller. Some of them, the favourite, for example, are carried in a species of litter called by the Persians *takhtirevan*. It consists of a cage of lattice-work covered with cloth, borne by two camels, the one before and the other behind, and conducted by two men, one of whom rides before on a mule, and the other leads the front camel. The lower part of the Engraving represents the queen, or favourite, in her litter, with her female attendants on horseback.

The court of Teheran exhibits a luxury and a magnificence that bespeak a great monarch. When Feth Ali Shah appears in all his royal ornaments, it is impossible to look at his person if the sun shines on him. The throne, known by the appellation of *takht-thaous*, the peacock-throne, is particularly superb; it is said to have cost a hundred thousand tomans, or upwards of 130,000 sterling. It seems to have been made in imitation of Nadir's, which has been described at p. 685. This throne, as Morier informs us, is raised three feet above the floor, and seems to be an oblong square, twelve feet in length and eight in breadth: a high balustrade runs round it, and its extremities are adorned with vases and other ornaments. The back is very high: on each side there is a pillar supporting a bird, probably a peacock, glistening with precious stones and holding a ruby in his bill. The canopy of this throne consists of an oval ornament, from which diamonds throw a thousand brilliant rays. On this throne the king is seated upon a cushion embroidered with fine pearls. His appearance at the *nouroos*, or festival of the new year, when he receives the homage of all his subjects, is thus described by Sir Robert Porter: "He was one blaze of jewels, which literally dazzled the sight on first looking at him. A lofty tiara of three elevations was on his head, which shape appears to have been long peculiar to the crown of the great king. It was entirely composed of thickly-set diamonds, pearls, rubies, and emeralds, so exquisitely disposed as to form a mixture of the most beautiful colours in the brilliant light reflected from its surface. Several black feathers, like the heron-plume, were intermixed with the resplendent aigrettes of this truly-imperial diadem, whose bending points were finished with pear-formed pearls of an immense size. His vesture was of gold tissue, nearly covered with a similar disposition of jewellery; and crossing the shoulders were two strings of pearls, probably the largest in the world. I call his dress a vesture, because it sat close to his person from the neck to the bottom of the waist, showing a shape as noble as his air. At that point it devolved downward in loose drapery like the usual Persian garment, and was of the same costly materials with the vest. But for splendour nothing could exceed the broad bracelets round his arms and the belt which encircled his waist; they actually blazed like fire when the rays of the sun met them; and, when we know the names derived from such excessive lustre, we cannot be surpris'd at seeing such an effect. The jewelled band on the right arm was called the *mountain of light*, and that on the left, the *sea of light*; which superb diamonds the rapacious conquests of Nadir Shah placed in the Persian regalia."

On the right of the king, on occasions of extraordinary state, stand several of his sons magnificently dressed, in respectful attitudes. At some distance in front are ranged the great officers of the crown, according to their dignities. Five young pages habited in velvet and silk, bear different articles. One holds a crown similar to that worn by the king; the second a superb sword; the third a buckler and a mace of gold and pearls; the fourth a bow and arrow enriched with precious stones; and the fifth a spitting-pot, adorned in the same manner.

Contrasting with all this magnificence are the humble looks of the assembly. The presence of the king fills all with fear and respect; and Jupiter making heaven tremble at his nod is not more awful than a Persian monarch amidst

his court. Whoever approaches the throne must previously put off his shoes and make frequent obeisances. None is allowed to sit excepting poets, persons of extraordinary sanctity, and ambassadors: the king's ministers never enjoy this privilege. The monarch, in fact, seems a sharp secluded from society, whom all are fearful of approaching: whether he speaks or is addressed, every thing demonstrates the influence of despotism or the meanness of servitude. (Jourdain, tom. iii.)

Of the ARMY.—Although it is evident from Homer, that, at the period of the siege of Troy, the Asiatics were not at all inferior to the Greeks in military knowledge; and equally clear, from the extent of the Persian empire afterwards, that considerable advances must have been made in the science among that people before their invasion of Greece; we are yet almost entirely without information on the state of the Persian armies; and it is impossible not to wish, with Mr. Mitford, that we possessed their own histories of events, for which Herodotus, a stranger to their country and manners, is our only authority. With our defective means of judging what the Persians were in the best days of their empire, we can only assert, positively, that their monarchs were the first who maintained a regular and disciplined force.

The Persians have, in all ages, been distinguished for a military character: but, though valiant, they possessed no regular discipline. Being, however, not so jealous as the Turks on the score of innovation in military and religious matters, they have recently made considerable advances towards improvement. It is true, that it is chiefly by the enterprise and liberal views of the heir-apparent, prince Abbas Mirza, that the system has been brought to its actual state of perfection: but it would appear that attempts to effect the same object had been made by former rulers of the country. The corps of infantry which Shah Abbas the Great raised, in 1602, to render himself independent of his turbulent chiefs, and to oppose the Turkish Janissaries, probably owed its discipline to the counsel and aid of two English knights, sir Robert and sir Anthony Sherley, and their military followers. The following passage, written by a contemporary, appears to prove this fact. "The mighty Ottoman, terror of the Christian world, quaketh of a Sherley fever, and gives hopes of approaching fates: the prevailling Persian hath learned Sherleian arts of war; and he, which before knew not the use of ordnance, hath now five hundred pieces of brass, and sixty thousand muketiers: so that they, which at hand with the sword were before dreadful to the Turks, now also in remoter blowes and sulfurian arts are growne terrible." Purchas's Pilgrims, vol. ii.

About a century after this, Nadir Shah, reflecting that the advantages obtained by the Europeans over the Turks resulted from the order and regularity with which they made war, secretly procured some French officers, and began by placing the artillery under their management. He reformed his cavalry; divided his army into brigades, battalions, and companies; created inferior officers, and separated his infantry into regiments of the line and sharpshooters. After his death the troops fell again into disorganization: and, had it not been for the war with Russia, it is probable the military skill which they had acquired would have been lost, and the Turks regained possession of Aderbijan, from which they had been driven by Nadir. Aga Mohammed Khan, though he signalized himself in his various expeditions into Chorassan and Georgia, did little for the discipline of the army: a short time after his decease, however, some Russian deserters were received into the service of the governor of Tabreez, where they attempted to organize a few battalions; but, as it would seem, with indifferent success. Hitherto the Persian armies were solely composed of irregular infantry and some bands of cavalry; their artillery consisted of what are called zumbooruki (swivels) fixed to the backs of camels, and carrying balls from one to two pounds weight; but, in the year 1800, Abbas Mirza, who had

been sent into Aderbijan to direct the military operations of that province, employed a few Russian deserters, who had recently come over to him, to form and organize different corps. His first essays in discipline were not, however, attended with much success, as he had to combat the prejudices of the Persian recruits, who unanimously rejected the proposal of being assimilated in any manner to the Firenges, (Europeans,) and above all to the Russians, whom they more especially affected to despise. The prince therefore began by setting the example: he adopted the dress of a soldier, and submitted to learn the military exercise from a Russian. He had hardly, however, succeeded in teaching a few of his men the platoon exercise, to march abreast, and to wheel at the word of command, when the opportune arrival of the French embassy from Bonaparte supplied him with a number of able and active officers, who, being put in command of large bodies of troops, advanced his views to the utmost of his expectations. The prince subsequently raised a corps of artillery under the command of lieutenant Lindsay, of the Madras army, (who accompanied the mission of sir Harford Jones,) to whom he gave full power to fashion and equip his recruits in any manner he chose, with the single exception of cutting off their beards. On this point he was inexorable; nor would the sacrifice ever have taken place had not a powder-horn exploded in the hands of a gunner luckily gifted with a more than ordinary length of beard, which was in an instant blown away from his chin. The lieutenant produced the scorched and mutilated wretch before the prince, who was so struck with his woeful appearance, that he conceded the long-contested curtailment.

The character of this prince, as given by Mr. Morier, is highly favourable both to his talents and disposition. We are indebted to this gentleman for the following amusing anecdote related to him by Abbas Mirza, in a conversation on the policy of declaring hostilities against the Ubeek Tartars. It was suggested that an easy victory might be obtained over these people, possessed, as the Persians now were, of a good artillery. Ah! said the prince, "it would indeed be an easy matter. What do they know of guns or manœuvres, and of firing ten times in a minute! I recollect the time when the Persians were as bad as they. My father, Ali Shah, once besieged a fort, and had with him one gun, with only three balls, and even this was reckoned extraordinary. He fired off two balls at the fort, and then summoned it to surrender. The besieged, who knew that he had only one ball left, sent him this answer; For God's sake, fire off your other ball at us, and then we shall be rid of you altogether."

The Persian army is at present divided into the king's troops and those of the state: the former are regulars; the latter might not inaptly be termed militia.

The king's guards, those of the princes, and the garrisons of the towns, compose the *regular troops*, to whom we apply this term because they are under a particular discipline, and are permanently employed. In the first rank of the troops composing the military household of the king must be placed the *gholam-shahee*, or king's slaves. A very numerous corps formed of the sons of nobles and of young Georgians. The name of *gholam* (slave) denotes not so much a state of servitude as a blind devotedness to the service of the prince. According to Mr. Scott Waring, the *gholam-shahees*, who are considered as the choicest troops in Persia, amount to about 20,000. They have charge of the king's person, receive greater pay and are clothed in a more expensive manner than the regular cavalry. The flower of this corps is formed into a body of about 4000, who are distinguished by the excessive richness of their dress and the insolence of their behaviour. Messrs. Morier and Kinneir, however, state the number of *gholams* as being much lower: according to them, it does not exceed three thousand in the whole.

Besides these troops, who may be called the life-guards, there are four regiments of *kechikdjee*, each composed of three thousand

thousand men, and commanded by a *fer-kechikdjee*. These are selected from among all the tribes, but more particularly from that of the Cadjars. Half of these troops are disciplined in the European manner, and half in the Persian. The former, who belong to the king's household, are called *djan-baz*, in contra-distinction to those trained by the princes, and especially by Abbas Mirza, who are denominated *fer-baz*. The first of these appellations signifies "one who plays with his soul," and the latter "one who plays with his head." Both are expressive of devotedness and valour. The *gholam shahees* form the cavalry of the royal guard, and the *kechikdjees* the infantry. These troops are clothed, equipped, and maintained, at the expense of the king.

The wandering tribes, of which we shall presently have occasion to speak, form the real military force, and furnish what we have termed the *militia*. When the king is going to war, he intimates his intention to their different chiefs, who are obliged to repair with their contingents to the royal camp: the number of these contingents is governed by the population of the tribe. Each town and village has to furnish its quota. In this manner Feth Ali Shah might raise probably from 150,000 to 200,000 men, in case of emergency.

By way of pay, each officer and soldier receives a grant of land; but, when they take the field, they have pay, and a *juryofat*, or allowance of barley and straw for their horses, and wheat, rice, and butter, for themselves. They find their own arms, horses, and clothing; and are supplied with nothing but ammunition.

The Persian armies are composed of infantry and cavalry. The infantry are generally employed at sieges; but, as their services are seldom required, they are for that reason very indifferent soldiers. It was to its cavalry that Persia in ancient times owed its military glory, and it still constitutes the chief force of the kingdom. The Persian is less ostentatious in the harness of his horse than the Turk. Luxury has given place to utility and convenience. Nadir Shah substituted to the Arabian stirrups and bit a very simple bridle and iron stirrups. The Persian saddle, though lighter than that of the Turks and Mamelukes, is not broad enough in the seat: it requires great practice to keep upon it, especially as the stirrups also are very narrow.

The troops are commonly divided into regiments of one thousand men; and each regiment has its standard. These standards are of every colour, and of every sort of rich stuff, and cut to a point: they bear for a motto either the Mahometan profession of faith or a passage of the Koran; and many of them display a lion with a rising sun, or the two-edged sword of Ali. It is a point of honour with them, as with our troops, to preserve the standard from falling into the hands of an enemy. The bearer of it is styled *alemдар*. The *alemдар-bafhee*, or chief standard-bearer, is an important personage in the military hierarchy of the Persians.

The arms of the Persians are the scimitar, the carbine, the lance, the bow, and the noose. A horseman, when fully equipped, usually carries a pair of pistols either in his girdle, or at the saddle-bow, a carbine or bow slung at his back by a transverse shoulder belt, and a lance. The latter, which is very light, being made of bamboo, he carries in his right hand, and uses the bow with great dexterity and promptitude. The use of the *hemend*, which is a long rope with a noose at one end, is of great antiquity in Persia. There exist paintings, in illustration of the Shah Nameh, in which Roustam is represented catching his enemies with this noose, and dragging them after him. It is well known that the ancient Slavonians and Bulgarians employed this species of offensive weapon in war. At present the *hemend* is but little used.

The Persians are greatly deficient in the soldier's first art, the art of *dying*. A Persian, talking to one of our officers on that subject, said very ingenuously: "If there were no dying in the case, how gloriously the Persians

would fight!" Their ideas of courage, indeed, are totally different from ours: they look upon it as a quality which a man may have or not, as he may feel at the moment; and one of the king's generals, who has the reputation of being a courageous man, was not ashamed to own that he and a large body of troops had been kept at bay by two Russian soldiers, who alternately fired their muskets at them, and at length obliged them to move away. In talking of the Russians, they say "that they are so divested of *feeling*, that rather than run away they will die on the spot." Thus much of the Persian armies.

GOVERNMENT and LAWS.—The first personage of the kingdom, next to the sovereign, is the *itimad-ad-dowlah*, whose dignity corresponds with that of grand vizir among the Turks, or our prime minister. In petitions addressed to him he is styled *Visir azem*, Supreme Vizir; but in familiar language he is denominated *Itimad-ad-dowlah*, a compound word signifying "Pillar of the Empire." This minister is in fact the axis round which the enormous mass of the affairs of the state revolves. His favour is the only way to obtain appointments and emoluments from the prince: no application reaches the royal ear, unless transmitted through and supported by him. He negotiates with the ambassadors of foreign powers, and concludes or breaks treaties at pleasure. The finances are under his direction, and no public or royal domain can be alienated, no innovation made in the government, and no point whatever decided, without his participation. No document is valid unless it be furnished with his seal, and the governors of provinces act only by his instructions.

No sooner has the favour of the sovereign exalted a subject to the dignity of *itimad-ad-dowlah*, no sooner is his utmost ambition gratified, than he becomes a stranger to peace and happiness. His days belong to the state; he passes them in the palace, away from his women, his children, and the objects of his affection. His nights are disturbed by the constant apprehension lest some courtier who is his enemy, and has contrived to win the good graces of the monarch at an entertainment; some eunuch whom he has affronted; some female who shares the king's couch, and whose parents have met with some refusal from him; or lastly, the queen-mother, whose schemes he has thwarted; may be secretly preparing his downfall. He frequently owes his high fortune to chance: why then may not his disgrace be the work of intrigue? This apprehension identifies itself with his being, haunts him wherever he goes, and shows him the elevation of his rank merely as a measure of the depth of his possible fall. He has two methods of retaining his dignity; and the duration of his power depends on the address with which he employs them. These are, to remove by exile or death those from whom he has any thing to fear; and to flatter the vanity and the passions of the sovereign by magnifying his most insignificant exploits, ascribing to him qualities which he does not possess, and administering to his pleasures.

Kotzebue has given some anecdotes tending to show that the situation of prime-minister in Persia is not always a very enviable post. We shall relate only one, for which we are indebted to Sir Robert Ker Porter. The late prime minister Mirza Sheffea, who died so lately as the year 1819, at the advanced age of 82, held the same post under Aga Mohammed Khan, the predecessor of the reigning monarch; indeed he had been prime minister seven-and-forty years. Among the variety of cruel punishments with which that tyrant visited those who offended him, pulling out their tongues, cutting off their ears, and digging out their eyes, were his most lenient sentences. One morning, some of the royal gholams having just returned from an errand of this kind to an unfortunate village under the displeasure of the king, and its doom having been to lose a certain number of eyes extracted from the heads of its inhabitants, the people in attendance produced the fatal bag, and the sightless organs were poured out before his majesty.

Scrupulous

Scrupulous as to the execution of his orders, the shah instantly began to separate them deliberately one by one with the point of his dagger, to ascertain if his sentence had been punctually obeyed. Mirza Sheffea, his faithful minister, who had long regarded his master's repeated acts of violence with secret horror, now hoping to make some impression on his conscience, seized this opportunity. "Does not your majesty think it possible," said he, "that God may one day not be pleased with this?" The king slowly raised his head, keeping the dagger in its place among the heap, and as solemnly replied: "By my head, if there should be one eye too few here, I myself will make up the number with yours." The rash philanthropist awaited his fate in shuddering silence, well knowing that the word of his master was irrevocable: but, happily for him, the sentence had been too scrupulously executed to call for the forfeit of his compassion; and he even remained in favour.

Hadjee Mohammed Huslain Khan, the present *itimad-ad-dowlah*, was originally a green-grocer in Ispahan, of which city he is a native. From this humble station he rose successively to be deputy of his division, mayor of the city, and chief of a rich and extensive district near Ispahan, where he acquired great reputation for his good government. He afterwards made himself acceptable in the eyes of the late king by a large *pehkeesh*, or present; and, as the then governor of Ispahan was a man of dissolute life, oppressive and unjust, he succeeded in deposing him, and was himself appointed *beglerbeg*. Here, from his intimate knowledge of the markets, and of all the resources of the city and its inhabitants, he created a larger revenue than had ever before been collected. He became the partner of every shopkeeper, of every farmer, and of every merchant; setting up those with capitals who were in want, and increasing the means of others who were in trade. He thus appeared to confer benefits when by his numerous monopolies he was raising the price of almost every commodity. As, however, this revenue was apparently acquired without oppression, his reputation as a financier greatly increased: in spite of the opposition of his enemies he advanced rapidly in the favour of the reigning monarch, and in the honours to which it led. On the accession of the present king, his zeal, his devotedness, and above all his presents, secured to him a continuation of the royal favour; and he rose, in 1807, to the dignity of *ameen-ad-dowlah*, or second minister; and at length, upon the death of Mirza Sheffea in 1819, he became prime minister.

How he acquired the wealth which enabled him to emerge from the green-grocer's stall is not exactly known. His enemies assert, that, during the last civil wars in Persia, a string of Jiafar Khan's mules were passing close to his house in the middle of the night, when two of them were accidentally detached from the rest, and strayed into his yard: they happened to be loaded with precious stones and other articles of great value, which, on the subsequent destruction of that prince, he appropriated to himself. And it is asserted, that, impressed with the precarious nature of court-favour, he is in the habit of annually remitting considerable sums to his father, who lives near Bagdad, in order to provide a resource for himself in case of disgrace.

There cannot be a stronger instance than he is of the few qualifications requisite to become a statesman in Persia. Illiterate as any green-grocer may well be supposed, necessity has obliged him since his elevation to learn to read and write: but he has succeeded so ill, that he can scarcely make out a common note, or join two words together in writing. In his particular department, however, that of raising money to feed the king's coffers, perhaps no man in Persia has ever surpassed him; and, with all this, the people of Ispahan, from whom the greater part of his riches are derived, are in general very well disposed towards him. He takes great pride in the improvement of the city and its environs, and with evident

success. The public buildings have been repaired and beautified during his administration; the cultivation has considerably increased, and there is a more general appearance of affluence and prosperity.

The second minister in Persia is now known by the title of *ameen-ad-dowlah*. This title is a new one, and not to be found in the older travellers. It seems probable that this minister has superseded the *nazir*, who, in Charadin's time, was the steward of the domains and effects of the crown, and whose functions have perhaps been extended. Morier calls him *lord-treasurer*, and says that he has a *nazir*, or deputy. According to the same traveller, the *ameen-ad-dowlah* defrays the expenses of the royal household, clothes the king's servants, furnishes the *khilauts*, or robes of honour, and provides for the princes and the women. It is also the duty of this minister to have apartments constructed or repaired in the seraglio for the new-comers admitted into it, and to furnish them with all the requisite utensils, which must be of silver. This statement is confirmed by Kinnier; who farther informs us, that the *ameen-ad-dowlah* is charged with the administration of the interior, or the home-department, including the collection of the revenues, the cultivation of the lands, &c.

The next great officer is the *vaca-neviz*, or secretary of state. We have not met with any mention of this dignity in modern travellers, though it still exists. Morier introduces among the Persian ministers the "secretary-in-chief;" and Kinnier informs us, that the events of Feth Ali's reign are regularly written by the royal historiographer, who is no other than the *vaca-neviz*, or "writer of occurrences." Kämpfer calls him chief secretary of state; and adds, that he is styled *viziri-chep*, or "vizir of the left," because his place is on the left of the king. The duty of the *vaca-neviz* consists in keeping an accurate register of all the decisions and decrees of the king; in examining all the acts of his authority; in reporting, either to his majesty in person or to his ministers, all the important events which occur throughout the empire, and in carefully committing them to writing. He is also keeper of the archives of the state, and of the letters and notes of foreign potentates and their ministers, of treaties of peace, and all diplomatic papers. Thus the *vaca-neviz* is both secretary, keeper of the archives, and historiographer of the state. It is said, that on the first day of the year he reads, before the king and the whole court, a sketch of the events of the preceding year. In this respect, the dignity must be of very high antiquity, as its origin must date at least so far back as the time of Ahasuerus. See the Book of Esther, chap. vi. and Journal iii. 138.

The kingdom is at present divided into several extensive departments, over which are placed princes of the blood, who have under them officers with the title of *Beglerbeg*, or Beg of Begg. They are also styled *Arkan-ad-dowlah*, or Pillars of the Empire.

These governors of districts may be considered as the *civil officers* of the state: they have no authority over the troops; but the commanders, in case of exigence or alarm, are subject to their requisitions. The commandant of the citadel is another independent authority; so that the office of *beglerbeg*, which was formerly committed to the charge of one person, is now divided among a considerable number; and, as it is impossible for so many interests to coalesce, the king is sure to be informed of whatever may be done contrary to his orders. His government has been disturbed by only two rebellions; and it is probably owing to this system of counteracting the power and authority of his ministers and officers of state, that his reign has been of longer duration than is usually the case in despotic monarchies.

Each of the *beglerbegs* is to the utmost extent of his power a despot; and the connivance of the king is purchased with extraordinary presents. This system of tyranny descends in a successive series from the king to the

servants of his governors and officers of state; it returns, however, to its first source, and the government requires pecuniary satisfaction for the oppressive administration of its servants.

These beglerbegliks, or grand divisions, are subdivided into districts called *balook*, under officers bearing the title of *khan*, *zabit*, or *hakim*, according to the extent of their jurisdiction. Each considerable town has, besides its governor, a *kelaunter*, or mayor, whose business it is to collect the taxes. He is a magistrate of high rank, who holds his office of the crown, and appears once a-year before the king, an honour not granted to magistrates of an inferior class. His salary is paid out of the royal exchequer. The *kelaunter* is the channel through which the petitions of the people are presented and their wants made known to the king; he is on all occasions the representative of the *rayas*, or subjects. He is obliged by his office to ascertain the amount of the property possessed by persons under his jurisdiction, for he has to prepare the list of assessments; and, if the paper fixing the sum at which each is assessed were not furnished with his seal, the individual would pay no attention to it at the time of collecting the imposts. The *kelaunter*, moreover, acts as judge in cases of theft or quarrels: his decisions, which are, or ought to be, agreeable to established usage, are given on the spot. On this account he is styled *hakim-ourf*, judge of the common law. It is his duty also to carry into execution the sentences of the civil magistrate.

The cities of Persia are usually divided into *mahals*, or quarters. Each *mahal* is under the superintendance of a *ket-khoda*, who is accountable to the *kelaunter*. There is no salary attached to this office, which is merely honorary, and is filled by the most reputable person in the quarter. The duties imposed by it consist in rendering an accurate account even of the most trifling circumstances, such as births, marriages, natural deaths, robberies, quarrels &c. and in ascertaining the occupations and means of subsistence of all the inhabitants of the quarter. When troops arrive in a town, the governor assembles the *ket-khodas*, and informs them of the number for whom lodging and subsistence are required: and it is their business to quarter the troops and levy the rations in such a manner that the charge shall fall equally on every inhabitant.

It is a custom that has been followed ever since the most ancient times, not to commit the custody of the citadel of a town to the governor, but to an officer called *kut-wall*, who is appointed by the king or the beglerbeg, and wholly independent of the *kelaunter*.

Besides the *kelaunter*, the *ket-khoda*, and the *kut-wall*, there are in every town other officers for the maintenance of order, such as the *darogha*, the *meer-usus*, and the *mohtufib*. The *darogha*, or superintendent of the bazars or markets, holds his office from the government. He settles the disputes that occur in the markets, hears complaints, and decides without appeal. If a shopkeeper refuses to execute, or violates, his agreement, and complaint is made to the *darogha*, he obliges him to perform it; or, if a debtor should prove that he is totally unable to satisfy claims made upon him, he grants a certain time for the fulfilment of his contract. This magistrate also superintends the morals of the people; and, if he detects any of them drinking wine, or in the society of courtisans, he compels them to purchase his connivance at no small expense. Hence the office of *darogha* is extremely lucrative: for, in addition to the presents and bribes which he is in the habit of receiving, the shopkeepers supply him gratuitously with every thing he requires, that they may ensure his protection and favour.

The appointment of the *meer-usus*, or head of the watch, who is also styled *kecheekhjee-bajhee*, nearly resembles that of *darogha*; the latter superintending the police in the day-time, and the former at night. It is his office to preserve the peace of the city; to apprehend persons found in the streets at improper hours, and to prevent

robberies. He has under him, for this purpose, a number of people, who patrol the streets, and keep watch on house-tops. Each shopkeeper contributes two-pence or three-pence, monthly, to defray the expenses of this establishment. If a housekeeper is robbed, the *meer-usus* is accountable for the robbery, and is obliged either to recover the property stolen, or to pay the amount. The latter rarely happens; for this officer is generally connected with all the thieves in the city, and can answer for their obedience to his orders. They rob, therefore, in places not under his protection; and, as he is commonly supposed to participate in their plunder, they are connected together by a common interest.

The *mohtufib* is an inspector, whose business it is to regulate the price of every article which is sold in the bazaar, and to see that the weights are of the proper standard. This duty is usually performed once a-week; and, if he convicts any person of using false weights, the punishment frequently is death.

Small towns and villages are governed by a *ket-khoda*, who has under him a *pak-kiur*, or deputy. The latter attends to the details of the duty, and reports to his principal. Lastly, there is no place, how insignificant soever, but what is under the superintendance of a *reis*, or chief.

As to the taxes which are levied in Persia, they are of three kinds; called *malieh*, *jadveer*, and *pehkegh*.

1. The *malieh* are the taxes levied, in money or in kind, on land and towns. They are paid in kind on corn, silk, cotton, and other articles of that sort; and in money on vegetables, fruit, and other less considerable productions of the soil. These taxes were formerly only one-tenth, but are now one-fifth, of the produce: they are regulated by the number of oxen kept by the cultivator: thus it is assumed that one ox is sufficient to do the work of a certain quantity of land, and this quantity is multiplied by the number of cattle. For the taxes in kind, the produce of a *jureeb*, or acre, is calculated; and the amount of the tax is deduced from this estimate. The amount of the taxes paid by towns is governed, not by the number of the inhabitants, but of the houses. In general a town is taxed for a whole district, and its magistrates fix the quota to be paid by the dependent villages. The collector is called *moustoufee*: it is his duty to keep a register of the value, the produce, and the annual amount, of the taxes of the lands within his jurisdiction, and a regular statement of the receipts and disbursements made on account of government. In the various parts of Persia there are royal granaries established for receiving the rents and taxes in kind, which are entrusted to the management of an officer called *umbardar*. Another depot, called the *hakim*, who is invested with the general control over these officers, enforces the claims of government, either by punishing or confining the cultivators. These officers of course have under them a number of subordinate agents, who are dispersed among the different villages within the circuit of their authority.

When government is in want of money, it applies to the *hakim* or to the *moustoufee*, stating the sum required. These officers have a right to increase it for their own profit, and are at no loss for means of extortion. Besides, most of the offices of this kind are sold by government, and the price paid for them regulates the degree of oppression that is exercised: this practice is general down to the very lowest stages. The whole body of collectors is a poisoned spring, and every stream that flows from it is infected. Let the payment of a certain sum be required of the humblest agent, and it matters not how it is levied: he has no other standard than his conscience. "I have repeatedly seen," says Mr. Scott Waring, "the servants of the prince's dependents enter a village and seize whatever they require, without making the smallest remuneration to the inhabitants. If the villagers evinced the least reluctance, they were threatened with the *bastinado*, the usual recompence which a poor man in Persia receives from his superior."

2. The *fadeer* is an arbitrary tax raised on extraordinary occasions, such as the passage of a prince, grand dignitary, ambassador, or body of troops. The *fadeer* is fixed upon the same system as the *malieh*.

3. The *pefhkeesh*, or presents which the governors are obliged to make the king at certain festivals, are also levied upon the towns and villages.

From the preceding statement it appears, that the cultivator is in the worst situation in Persia, and that the tradesman or shopkeeper fares much better. The latter pays a particular tax, it is true; but the merchant is not liable to any other than the duty of customs. The *customs* are under the direction of several officers independent of one another, being farmed out by government to the highest bidder. No difference is made in favour of the produce of Persia, nor are the duties upon the manufactures of one country higher than upon those of another: but the rate is not invariable. At Bushire the duty on goods imported into Persia amounts to about five per cent. and at Shiraz a duty of two and a half per cent. is levied. A caravan going to any of the cities of Irak from Bushire must pay the duties at Shiraz; if it passes Ispahan, at that city; and, in short, at every city it may pass through where duties are levied: so that, by the time it reaches the Caspian Sea, the merchants may probably have paid thirty per cent. on their goods.

The classes of people who pay the heaviest tax to government are the female dancers and the votaries of pleasure. They exercise their professions under the immediate patronage of the governor: their names, ages, and places of abode, are carefully registered; and, if one should die or marry, another instantly supplies her place. They are divided into classes, agreeably to their merits and the estimation in which they are held; and each class inhabits a separate street. (Jourdain iii. 146 & seq.)

Kinnier is of opinion that the revenue arising from land and merchandise does not exceed three millions sterling; meaning, no doubt, that such may be the amount of what is paid into the royal treasury; but how much this sum is increased upon the payers by the extortion of the collectors is not even to be guessed at. We are now to enquire if any, and what, code of laws is provided to protect the subject in Persia in what remains to him after these exactions.

In considering the general character of the Persian legislation, we shall find the connexion between church and state very intimate indeed. The Koran is both a religious and civil code; just in the same manner as the sacred books of many nations of antiquity, and of the Israelites in particular, furnished rules for the various circumstances of life. The legislator, in thus stamping his works with the seal of the Deity, undoubtedly had recourse to this expedient, as the only one calculated to ensure to them the veneration and obedience of men.

The Persians have but a single term, *cheriet*, to express the canon law and the civil law. That they have a legislation cannot be questioned; but there is every reason to believe that its application is frequently perverted or evaded, and that, though there exist laws, there is no justice.

The Mussulman legislation takes the *lex talionis* for its basis. It is the development of the principle, Do not to others what you would not have them do to you; or, receive an equivalent for whatever you do to them. Murder is accordingly punished by murder, and one wound by another, provided the latter be not more dangerous than the former. Such is the rule, but its application is subject to various modifications.

One of the peculiar features of Persian jurisprudence is its exemption from judicial forms. The most important suit is terminated in a few days; so that the parties are not reduced to beggary by the law's delay. A Persian cannot form any idea of our system of procedure, and the delays attendant on it: he prefers arbitrary but

speedy justice to the tediousness of a regular investigation. Still less has he any conception of the equality of all men in the sight of the law, though it is inculcated in the Koran, and though despotism and venality alone have destroyed it. The protection which the law affords to the poor against the oppression of the rich appears to him as but a dream; because in Persia the humbler classes are always sacrificed to the opulent and the powerful; and the man of quality there enjoys a number of privileges, which are denied to people of low condition. A servant must not complain of the dishonesty or cruel treatment of a grandee; nor must a tradesman demand of him the payment of a debt. This is a species of injustice which custom has erected into a principle; but there is an infinity of other circumstances in which the laws are violated. Hence arises the aversion of the Persians to law-suits; they are too well acquainted with the iniquity of judges to wish to expose themselves to its effects.

In Persia there is no profession corresponding with that of attorney or notary. When a contract is made, the only way to ensure its validity, is to obtain the signatures of several witnesses: for it is right to observe, that in this case the system of evidence in civil and criminal matters is generally pursued agreeably to the Koran: but the sacred book also recommends to the faithful to be sincere in their testimony, were it even against themselves or their parents that they had to give evidence. The Persians are at no loss for reasons for evading this precept; and giving evidence is with them a profession, which, like any other, they will exercise for money.

Since religion, as we have said, serves as a foundation to the laws, the administration of justice is committed to magistrates whom we may, without impropriety, term ecclesiastical. The chief of these magistrates is the *Sheik-ul-Islam*, an appellation which signifies the "elder, teacher, or high-priest, of the Mahometan religion." This title was created in 1423, by the Turkish emperor Mahomet II. to be conferred on the celebrated Djelalzadeh, whom he raised to the dignity of mufti and cadi of Constantinople. Shah Ismael, founder of the dynasty of the Sofis, having instituted a new religious dignity in Persia, gave to the person who filled it, the same title; and this prelate is now regarded as the head of religion in that country. The *sheik-ul-islam* is the judge of all civil causes, the decision of which is governed by the text of the divine law, or the Koran. He also determines all religious causes. The great cities of the empire, such as Teheran, Ispahan, Shiraz, Tabreez, &c. have each a *sheik-ul-islam*: we believe, however, that they are not all of equal rank, but that the magistrate of the first of these cities is superior to the others.

The *Cadi*, whose authority was formerly very great, is subordinate to the *sheik-ul-islam*: his functions are of the same nature. Scrupulous Mussulmans apply in preference to the *cadi*, in consideration of the antiquity of that dignity, which has existed ever since the time of the first caliphs, whereas that of *sheik* is of modern creation.

The *Mufti* seems to be rather a lawyer than a magistrate, as is implied by his name, which is an Arabic participle, signifying "one who gives decisions founded on the Koran." He seems, in fact, to combine the characters of doctor of divinity and doctor of law; for he is consulted on litigated matters, on points relative to religious doctrines and ceremonies, or to morality, and in civil and criminal causes. In Persia the mufti enjoys respect rather than authority: the *sheik*, the *cadi*, the ministers, and the king himself, defer to his decisions.

These are the only magistrates whose judgments are founded on the text of the Koran. Each of them has his separate tribunal; for there is no place set apart for the administration of justice. This tribunal is in general a large room open towards a court or garden, and raised two or three feet above the ground. A kind of alcove of lattice-work is constructed in it for the accommodation of females.

males. The judge sits at the extremity of the apartment in the eastern fashion: his head is covered with a large turban; the lower part of his face is concealed by a very black bushy beard, while his body is wrapped in an ample robe. Long experience has given him a correct eye; and, before he has even heard the parties, he can discover from their dress which of them is right and which wrong. Not a motion, not a gesture, escapes him; he readily comprehends their signification, and in his decision he is guided much less by conscience than the expectation of a present. It is, indeed, the custom to make him one: the wealthy give stuffs, confessionary, or coffee; the artisan or the husbandman, a lamb, a sheep, or fruit; and it is necessary to conciliate the favour of his servant also by some gift or other. (Jourdain, vol. iii. p. 199.)

It has been already observed that the Persians have no idea of our law-proceedings; they have therefore neither counsel nor attorneys. Every man pleads his own cause.

The first step towards what we should call bringing an action against a person is to present a petition to the judge, who writes on the margin of it an order for bringing before him the party against whom complaint is made. One of his officers immediately puts this order in execution. It is customary for the defendant to pay this officer for his trouble by the way; for he has no other salary than what arises from fees of this kind, and even these he has to divide with his employer. The parties commonly appear together with their witnesses: both insist on being in the right; they warmly maintain their point; the altercation becomes violent, and they abuse one another in the grossest terms. When they are people of fortune or distinction, the judge lets them go on; but, if they belong to the lower classes, a few thumps on the head or back from his attendants allay the warmth of the dispute. The uproar is twice as great when the parties are of the female sex; for it is to be observed that women also personally defend themselves. They appear before the court covered with a veil, and remain in the small separate apartment already mentioned.

For want of witnesses, the Koran is brought. The judge, after respectfully kissing and raising it to his forehead, presents it to the defendant, to do the same, and receives the oath of the latter on the open book. If the defendant swears, he gains his cause, as it is not to be supposed that the allurements of worldly and perishable lucre would induce a man to incur the punishment reserved for perjury in a future life. When the defendant is summoned on account of debt, and he is unable to pay it, the Koran enjoins that a delay be allowed him: but, if he has several times availed himself of this indulgence without fulfilling his engagements, or if he has betrayed in his conduct a want of integrity, he is delivered to his creditor, who has a right to do with him what he pleases, except maiming or putting him to death. He may then sell him, as well as his wife, detain him prisoner, maltreat him, and beat him publicly in the streets of the town.

Quarrels and assaults in the streets are usually punished with a fine and the bastinado. Whenever any disturbance takes place, an officer of the police rushes among the combatants, striking indiscriminately the aggressors, the persons assaulted, and the lookers-on, who take to their heels. Such of them as he can secure he carries before the judge, driving them along and belabouring them with his staff. On reaching the tribunal, the judge enquires their names and professions. The sentence is usually the infliction of the bastinado as well on the complainant as on the aggressor; and they are moreover obliged to pay a fine. As the money goes into the coffers of the judge, the fine is never remitted; but it is possible to avoid the beating, by paying another fine to the officer.

The slightest faults are severely punished in Persia. The venality which prevails among the judges ensures,

if not the administration of justice, at least the diligent exercise of their functions. The repression of irregularities of every kind is a source of profit to the magistrate. The drunkard caught at a tavern, and the debauchee found in the house of ill fame, purchase impunity for their transgressions. Even murder may be compounded for. When a man has been killed, his relatives run with loud cries to the residence of the judge, and demand the blood of the murderer, for whose apprehension the magistrate issues orders. If the murderer be opulent, a negotiation is opened. The judge proposes the requisite indemnification to the complainants, setting down a handsome sum for his own trouble as mediator; but, if the relatives persist in demanding the murderer, the judge delivers him into their hands with these words: "I deliver up to you, agreeably to the law, the murderer of your kinsman: pay yourselves for the blood which he has spilled; but remember that God is generous and merciful." The officers then conduct the culprit to the spot directed, and inflict on him such torments as they are directed by the relatives, unless the latter prefer glutting their rage on him themselves; but, if the murderer, after enduring all their tortures, and being left for dead by his executioners, should nevertheless recover, he is free both in regard to his liberty and his life, and the family of the person whom he killed has no right to persecute him any more. The compromising mulct paid to the family of a murdered man is usually rated at from fifty to one hundred tomans; but, if a Christian happen by any evil chance to kill a Mussulman, the sum commonly exacted is two hundred tomans. A toman is 11. 7s. sterling.

Criminal justice is administered by the civil magistrates, according to the *owf*, or common law. There is neither public prison nor public executioner: the only places of confinement are dark and filthy apartments in the houses of magistrates, whose servants perform the office of executioners. The kinds of punishment are numerous, and vary according to the nature of the crime, and the quality of the culprit. The bastinado is the most common. The legs of the sufferer are tied together and raised by means of a cord fastened to a tree or stake: the soles of the feet are then beaten with a stick. The rule is to give at least thirty strokes, but never more than three hundred. When a person is convicted of perjury, his throat is crammed with tow or rags, and melted lead poured into his mouth. Swindlers are branded on the forehead with a red-hot iron; house-breakers and coiners of counterfeit money have a hand cut off. Tradesmen using false weights are put into a kind of walking pillory. A thick plank, with a hole in the middle to admit the head, rests upon the shoulders of the culprit; to this plank is fastened a bell: a straw cap is placed on his head, and thus accoutred he is paraded through the streets of the town.

The most common capital punishment, called *shekeh-kerden*, consists in cutting the body in two lengthwise with a sword, beginning between the legs and terminating on the side of the neck above the shoulder. For this purpose the criminal is fastened by the heels to a pack-saddle on the back of a camel, with his head hanging nearly to the ground. After the horrid sentence has been executed, the camel with the bisected body is led through the whole town, preceded by an officer who proclaims the nature of the crime. The remains of the culprit are then hung to a pole or a tree, either in the country or in the suburbs, or even in the *meidan*, or open place before the palace.

Mr. Morier relates, that, during the residence of the embassy which he accompanied at Shiraz, the report of a gun was one day heard; and on inquiry it was found to be the execution of a thief, who had been blown from the mouth of a mortar. Three men had been condemned to death by the prince-governor for robbery: one was beheaded; the second blown up; and the third was cut in half, and the two parts of his body hung over two of the

most

most frequented gates of the city, as a warning to other thieves. This horrid spectacle was displayed for three days.

Another cruel punishment reserved for robbers, who, since the accession of Feth Ali Shah, have been treated with peculiar severity, is the following: The tops of two young trees are pulled down by means of a rope; one of the legs of the criminal is fastened to each of them, and the ropes are suddenly loosed: the force with which the trees return to their original erect position, tears the body of the unfortunate wretch in two. Impaling, cutting off the hands and legs, and immuring between four walls, were punishments usual in Persia in Chardin's time.

The death inflicted on grandees who have incurred the anger of the king varies according to his pleasure. The most common is beheading: but, if the fault be attended with aggravating circumstances, ingenious cruelty easily finds out refinements of suffering. As to females, they frequently owe the preservation of their lives to the notion entertained by the Persians that their blood produces ill-luck. This notion has probably given rise to the punishment reserved for them, which consists in muffling them up closely in their veils, and precipitating them from the top of a tower. (Jourdain, tom. iv. p. i.)

RELIGION.—We have already (p. 673) stated the readiness with which the Persians adopted foreign customs, even from those they had conquered. We shall not be surprised therefore, that, having been themselves vanquished by the Saracens, they should have adopted, without trouble or persecution, the Mahometan religion. But, as this conquest took place during the caliphate of *Omar*, the second caliph after Mahomet himself, we are not so well able to account for the Persians being of the sect of *Ali*.

The principles of MAHOMETANISM have been fully given under that article, vol. xiv. We shall therefore endeavour to confine ourselves to these particulars wherein the Persians differ from the Turks. The chief of these is, their belief "that *Ali*, the son-in-law of the Prophet, is the lieutenant of God." This article of faith, which is rejected with horror by the Turks, is the grand schism which divides the Mussulmans; the partisans of *Ali* being called *Shiites*, or Heretics; and the followers of *Omar* *Sunnites*, or Believers.

The hatred of the Sunnites and Shiites increased in the sequel. Under the caliphs of the dynasty of the Abbassides, it frequently degenerated into fury; and it was considered a meritorious action in a man to kill another of a contrary opinion to his own. The Shiites found warm protectors among the Abbassides, whose zeal, however, only paved the way to fresh scenes of carnage. How often have the streets of Bagdad, "the City of Peace," the Rome of the Mahometan world, been drenched with the blood and strewed with the carcases of its inhabitants!

The destruction of the caliph of Bagdad by Hulagou, put an end to the religious dissensions, or at least to the fanaticism which kept them up: a million of inhabitants perished by the hand of that Tartar. Among his successors, however, there were some who adopted the doctrine of the Shiites: such were Gazan Khan, and his brother Mohammed-Koda-bendeh, though the latter, indeed, afterwards recanted. At length Ismael Ardebili, founder of the house of the Sofis, embraced it; he spread it with his victories, and in his zeal laid sacrilegious hands on the tombs of the Sunnites, destroyed their mosques, and cruelly persecuted such of his subjects as rejected his doctrine. Selim I. who then occupied the throne of Turkey, availed himself of the pretext of religion, to declare war against Ismael: and in the letter which he addressed to the Persian monarch, previously to this declaration, he gives a curious exposition of the motives of piety and zeal by which he professed to be influenced. Ismael was vanquished in the battle of Tchaldiran, but nevertheless continued his efforts for the propagation of the tenets of the Shiites, which the majority of the Persians have ever

since his reign espoused. This difference of creed has laid the foundation of that antipathy which prevails between them and the Turks to this day.

When Nadir Shah had contrived that the crown should be offered to him, he accepted it only on condition that the Shiites should in future abstain from anathematizing the first three caliphs, and holding festivals in honour of *Ali* and *Hussey*n. (See p. 685.) It must have been a singular spectacle, though not unparalleled in history, to see that ferocious conqueror assembling the doctors, entering into theological discussions, and arguing like a casuist: he exhorted the Persians to return to more moderate opinions, to adopt merely the explanation of the Koran by the Imam *Djafar-el-Sadik*, one of *Ali*'s descendants, and to assume the name of *Djafari*. These indications of extraordinary moderation were at first persuasive; but it was not, as may easily be conceived, either philanthropy or pity that had actuated this barbarian. His object was to conciliate by this conduct, the Arabs, the Curds, and the Turcomans, who composed the greater part of the army, and who were Sunnites. It was probably his intention also, to pave the way to the more easy conquest of Turkey, by removing the cause of religious animosity. These designs he thwarted by the impolicy of his own conduct: he imagined that a new point of faith may be established by force of arms, and that it is not more difficult to rule consciences than to govern men. He increased the hatred of his subjects, shook his power, and perished without obtaining the least success. Had he been better informed, the history of past ages would have taught him, that a religion never shines with brighter lustre than when it is furiously attacked, and that periods of persecution furnish occasions for its proudest triumphs.

The Persians are the most decided Unitarians in the world. They not only profess the unity of God, but they insist also on a singleness of person in his essence, and charge the Christians with blasphemy in adoring a deity composed of three persons. All their divines agree upon this point, as well as on the omniscience and omnipotence of the Divinity: they differ only in this particular, that some consider these qualities as attributes, while others hold them to be part of the essence of God.

They believe in the resurrection, the last judgment, and a future state. As soon as the body is deposited in the tomb, the two angels of death, *Monkyr* and *Nekyr*, appear and question the deceased respecting his religion, faith, and works. His answers are inscribed in a great book, which will be delivered in at the day of judgment. After this examination, the souls of the good proceed to *Barzak*, and those of the wicked to the valley of *Bairouth*: there they abide till the general resurrection, neither enjoying nor suffering, but by anticipation of their eternal happiness or misery. An intermediate place between paradise and hell receives for eternity the spirits of those who have not done either good or evil. On the day of resurrection the souls will appear, together with the bodies which formerly belonged to them: they will assemble in a vast plain near Mecca. The judgment will take place by means of a pair of scales, each of which will be as large as the superficies of the heavens. In one, called the *scale of light*, will be placed the book of good actions; in the other, or the *scale of darkness*, the book of bad actions. After this examination, the spirits will cross the famous bridge, *Ponli-firath*, laid over hell, on which the separation will take place. The good will traverse it with the rapidity of lightning which flashes and disappears, but the wicked will be tumbled from it into the infernal regions.

We have seen that it is an article of the Persian confession of faith, that *Ali* was the lieutenant of God: in an axiom which is very common with them, they demonstrate the respect which they pay him. "*Mahomet* (say they) is a City of Knowledge, and *Ali* is the Gate to it."

Setting

Setting no bounds to their veneration or their fanaticism, they exalt him above human nature, attribute miracles to him, and almost deify him: nay, there is a sect, whose members inhabit the countries contiguous to the sources of the Djihoun and the Sind, to the north of Candahar, who regard him as God, though they admit the divine character of the Koran, and follow its precepts. It is chiefly among the lowest class of the people that these exaggerated notions are current: this caliph's name always figures in their oaths, and instead of commending themselves to the divine protection, they invoke that of Ali. The superior orders, however, make a great difference between Mahomet, the apostle of God, and Ali, the son-in-law of that apostle; and, though they regard Ali as his legitimate successor, they are far from making him his equal.

Not only do the Persians maintain the justice of Ali's rights to the crown to the exclusion of the first three caliphs, rights which he derived from Mahomet himself, but they admit no legitimate princes excepting his descendants. These princes are twelve in number. Ali is the first, and Mehdi the last. They bear the title of *Imam*, that is "spiritual and temporal guide, or chief." From the nobleness of their origin may be inferred the qualities with which they are endowed. Supernatural knowledge, perfect sanctity, and the power to perform miracles, are some of the most remarkable of their attributes. The twelfth imam was but five years old when he succeeded to the *imamat*; and he disappeared at the age of twelve years. Opinions are divided respecting him. The Sunnites consider him as destined to appear again towards the end of time, to call all the nations of the earth to the knowledge of Islamism; adding, that three hundred and sixty celestial spirits will assist him in this mission, and that he will be the vicar of Jesus Christ, in the august office of the *Imamat*. The Shiites, on the other hand, believe, that he still dwells in this world, living unknown by men in a sequestered cave: his return is the object of their wishes and expectations; for he is to reassert the rights of his house, to establish a universal caliph over the whole surface of the earth, and to bring all mankind to the true faith, as is denoted by the surname of *Medhi*, or Director, which he bears. His proper name is Mohammed. This opinion has favoured the ambition of a multitude of impostors, who have given themselves out for this imam, and who, by the assumption of so sacred a character, have collected numerous partisans.

Purifications form one of the most essential practices of the Mahometan religion: "The body appears before God as well as the soul; it must therefore be cleansed from all stain previously to the performance of any religious act." Such is the principle on which purifications are enjoined. But bigotry has so increased the number of objects which make a person unclean, and carried its scruples relative to legal purity to such a length, that the half of life might be occupied with purifications. "Religion," says Mahomet, "is founded on cleanliness of the body." No pretext, not even want of water, can excuse the Mussulman from the duty of purifying himself before he says his prayers. For want of running water he will use such as is stagnant and muddy, earth, or even camel's dung. Hence it may easily be supposed that a Persian is frequently more dirty after than before his purifications. Thus all institutions, how useful soever originally, in process of time become corrupted. Moses, in making purifications a religious duty, designed to prevent those diseases which are engendered by neglect of cleanliness, especially in a hot climate where perspiration is profuse. Mahomet adopted this principle and for the same purpose. Such was the cause of this institution, but what is its effect? If personal cleanliness be the emblem of internal purity, it must be confessed that the Persians have very filthy souls indeed.

Mahomet, having received from God the principles of his new religion, promised, in behalf of himself and his

followers, to say prayers fifty times in the course of each day: the lukewarmness of men, however, soon obliged him to reduce the number to thirty. But the occupations of civil and military life were incessantly interrupted by these devotions; and the enemy availed themselves of the fervour of the piety of the Mussulmans to destroy their works. Mahomet, therefore, entered into a second negotiation with God; and the number of prayers was reduced to five. The first of these five prayers should be said at noon, at which hour the civil day of the Mussulmans commences; the second, when half the sun's disk is below the horizon; the third when it is so dark that a white thread cannot be distinguished from a black one; the fourth at bed-time; the fifth between the moment when the stars disappear and noon. As, however, the precept was somewhat obscure, these prayers have been reduced to three; those for noon and evening, and those for bed-time and night, being said together.

The Koran in several places commands the *giving of alms*. Every Mussulman who has acquired wealth generally devotes part of it to the foundation of establishments of public utility, and that independently of the tithe required by religion to be given in charity, if he would ensure himself a quick passage over the *Pouli-sirat* on the day of judgment. Ostentation, indeed, is more frequently his motive than piety; but, be the cause what it may, the effect is beneficial. Charity may be said to be the pre-eminent virtue of Mahometan nations: there is not a moralist, not a poet, but recommends the practice of it, and sounds its praises. "Be ye like the trees laden with fruit and planted by the road-side," says Djami: "they give shade and fruit to all, even to those who pelt them with stones." Most of the caravanserais of Persia, as well as the bridges, cisterns, mosques, colleges, and baths, are pious foundations.

Fasting is no less an obligation than purifications and prayer: it is termed by the doctors, the gate of religion. The fast of Ramazan alone is of divine command; the others are of human institution. It consists in abstaining from every kind of food from day-break till night, *from all sin*, and from temporal concerns and the cares of life, during the thirty days contained in that month: hence a perfect dervise is described to be "a man living in this world in a perpetual Ramazan." This month is the ninth in the year of the Persians, which is lunar: thus it runs through the different seasons, and falls in winter as well as in summer. But this fast must be extremely distressing in summer, when the days are long. Let the Catholic, who murmurs against lent, which merely enjoins abstinence from certain articles of food, consider the Persian, summoned betimes to his daily avocations, overpowered with heat, fatigue, and hunger, taking as it were by stealth a few drops of water to quench his thirst, abstaining even from smoking, and waiting till the tardy departure of the sun shall allow him to break a fast of nearly seventeen hours!

The only pilgrimage enjoined by the Mahometan religion, is to the *caabah*, or temple of Mecca, the object of the veneration of all true Mussulmans. The Persians, however, are far from strict in their observance of this precept. They think, and justly too, that this act of piety cannot well be performed but by those who are in good health, and whose circumstances will allow them to take such a journey without injury to their families. Many, however, acquit themselves of this duty by substitute. You meet in Persia with numbers of Arabs, who sell the title of pilgrim which they have acquired, or who travel to Mecca instead of another for a certain sum of money. To prevent fraud, their employers require them to bring back the certificate which the sheriff of Mecca delivers to pilgrims. The Persian who has visited the sacred city bears for the rest of his life the honourable title of *hadjee*, or pilgrim. On his return from Mecca, he usually passes through Jerusalem and Hebron, which he also considers as sacred places, on account of his veneration for

Abraham; and in his way back to Persia he traverses the Arabian Irak, where he pays his devotions at the tomb of Ali and his son Huseyn.

The Persians have a great number of religious festivals in celebration of the birth and death of their prophets and saints, the principal mysteries of their faith, and the most memorable events of their religion. It would be too long to enumerate all these festivals; we shall therefore confine our notice to a few of them.

The conclusion of the Ramazan gives occasion for one religious festival called the *Beiram*, which lasts five or six days, and is kept with the greater enthusiasm because it terminates the strictest fast. "The Ramazan was now over," says Mr. Morier: "the new moon, which marks the termination, was seen on the preceding evening just at sun-set, when the ships at anchor fired their guns on the occasion; and, on the morning of our visit, the Beiram was announced by the discharge of cannon. A large concourse of people, headed by the Peish Namuz, went down to the sea-side to pray; and, when they had finished their prayers, more cannon were discharged. Just before we passed through the gates of the town in returning from our visit, we rode through a crowd of men, women, and children, all in their best clothes, who, by merry-making of every kind, were celebrating the feast. Among their sports, I discovered something like the round-about of an English fair, except that it appeared of a much ruder construction. It consisted of two rope-seats suspended, in the form of a pair of scales, from a large stake fixed in the ground. In these were crowded full-grown men, who, like boys, enjoyed the continual twirl, in which the conductor of the sport, a poor Arab, was labouring with all his strength to keep the machine."

The *Aid-el-Corban*, or Festival of the Sacrifice, is also attended with great rejoicings. It was instituted in commemoration of Abraham, who, out of obedience to the Almighty, would have sacrificed his son *Ishmael*, whom the Arabs regard as their progenitor, and whom they substitute in this instance to Isaac. Some days before the *corban*, every family buys a sheep without spot or defect, an emblem of the corporeal and spiritual purity of *Ishmael*. On the day of the festival, this victim is decorated with ribbons, pearls, and ornaments of every kind; its forehead, feet, and other parts of the body, are stained with *henna*, a powder made of the leaves of the cyperus; after being thus adorned and paraded about, it is slaughtered, and pieces of the flesh are sent by the family to its friends and the poor. On the return of the people from the sacrifice, scaffolds are erected before the governor's palace, in the public places, and in the streets; and rope-dancers, wrestlers, musicians, singers, and dancers, amuse the multitude there during the rest of the day.

On the 21st of Ramazan, a solemn festival is held in honour of Ali. For this purpose, a covered gallery is constructed somewhere out of the town, where the chief men of the place take their station. In front of this gallery is a kind of pulpit, eight feet high, covered with cloth. Here the preacher appointed to pronounce the panegyric of the sacred personage, reads for an hour or two in a book intitled *Moctel Nameh*, Book of the Murder, containing a history of the death of Ali, chanting without intermission in a loud and doleful voice. There are certain passages of which he pronounces only the first word, leaving some of the congregation to finish. At the end of each passage they repeat this imprecation; "May the curse of God be upon the murderer of Ali!" and all the people respond, "Rather more than less." After the sermon, the people return in procession to the town: three camels bear representations of the tombs of Ali, and his two sons, Hassan and Huseyn. These are followed by three chests covered with blue cloth, containing the spiritual treatises which they wrote; horses carrying bows, turbans, and flags; and men bearing on their heads little boxes covered with feathers and flowers, and containing the Koran. The procession is closed by musicians and young men performing a variety of dances.

The first ten days of the month of Moharrem are devoted to a solemn mourning, in memory of the death of Huseyn, the son of Ali. During this period the Persians dress themselves in mourning, affect all the external appearances of sorrow, abstain from shaving their heads, from bathing, and even from changing their clothes. On the eve of the first of Moharrem, the mosques are hung with black. The next day the pulpits are dressed in the same manner; the *akhond* and *pih-namaz*, inferior ministers of religion, ascend them, and narrate the particulars of the murder of Huseyn with all the inflexions of voice that are calculated to render them more pathetic. The congregation from time to time heat their breasts, ejaculating "O Huseyn! Alas, Huseyn!" Parts of the history of this imam are in verse, and are chanted to a doleful tune. Various episodes of this history are daily represented by itinerant minstrels, (as the circumstances of the Passion of Christ are exhibited in the catholic countries of Europe;) and banners, to which are fastened pictures relating to it, are carried about the streets, followed by a concourse of men and boys, some personating Huseyn's soldiers, and others his enemies. The two parties sometimes come to blows, and these sham-fights terminate in the death of one or two of the combatants.

The representation of the marriage of young Cassem, Hassan's son, with the daughter of his uncle Huseyn, forms one of the amusing incidents of this funeral festival. A young man acts the part of the bride, who is attired in a rich wedding dress, and accompanied by her relatives, who sing a mournful elegy on the death of the bridegroom; for it should be observed that Cassem was slain before the consummation of the marriage. At parting from his bride to go to the fight, Cassem takes the most affecting farewell of her; and, with a presentiment of his fate, he gives her, in token of his love, a mourning robe which she puts on. At this moment the people, transported with rage, rush upon the effigy of the caliph Yezid, the murderer of the Ali family, and tear it in pieces.

Mr. Scott Waring mentions a festival celebrated by the Persians for the death of the caliph Omar. They erect a large platform, on which they fix an image, disfigured and deformed as much as possible. Addressing themselves to the image, they begin to revile it for having supplanted Ali the lawful successor of the Prophet: at length, having exhausted all their expressions of abuse, they suddenly attack the image with stones and sticks, till they have shattered it into pieces. The inside is hollow and full of sweetmeats, which are greedily devoured by the mob who attend the ceremony.

We shall say nothing of the festivals instituted in commemoration of some of Mahomet's miracles; such as the cleaving of the moon, the parturition of the stone, the speaking camel, &c. because these are common both to Persians and Turks, and we shall have occasion to resume the subject under the article TURKEY.

But we shall advert to a very pleasing topic whereon these two nations differ widely, as indeed they do in many others. The Persians, unlike other professors of the Mahometan faith, manifest a spirit of *toleration* towards those whom they regard as infidels, worthy of the imitation of many a Christian community. To show how this spirit is encouraged by the present government, either from a principle of justice or from political motives, we shall adduce a circumstance that happened some years since in the province of Adherbijan; under the administration of Abbas Mirza, heir-apparent to the throne. One day, in the month of January 1807, a Persian belonging to the household of the prince-royal thought fit to insult publicly an Armenian merchant in the city of Tabreez, and to abuse him in the grossest manner, for no other reason than the difference of their religions, the Armenian being a Christian. Not content with personally affronting the Christian merchant in an outrageous manner, this Persian servant launched out into the most atrocious language against Christ, his gospel, the sign of

the cross and other emblems of our religion. These blasphemies roused the indignation of the Armenian to such a degree, that, to punish the aggressor and to avenge his religion before the public, he laid hands on him, and, after giving him a sound beating, left him extended on the ground, and returned to his own house. The man, covered with dirt and blood, presently got up, and went to the palace of the prince his master, to prefer his complaint against the Armenian merchant, by whom he had been so roughly handled. He took good care to conceal from the prince the real cause of their quarrel, and interlarded his story with many false allegations against the merchant. Abbas had too much penetration not to perceive the means by which his servant hoped to strengthen his complaint; he nevertheless, listened with patience to his whole deposition, which embraced a variety of circumstantial details that had all the appearance of truth, but in reality were nothing but fictions. He then summoned before him the Armenian merchant, and determined to examine him in full divan, and hear what he had to say in his defence. At the same time he ordered the persons who had witnessed the fray to attend. After hearing their declarations and evidence, the divan was convinced that the servant had without provocation attacked the Armenian, and uttered blasphemies against the Christian religion, and that for these causes only the merchant had beaten the Persian.

With a view to prevent similar offences in future, to give satisfaction, as it were, to the Christians resident in the country, and to administer justice with the sanction of those who are the guardians of the laws of Mahometan states, Abbas convened a divan composed of the Sheik-ul-Islam, and the principal ulemas of the city of Tabreez, and proposed the following questions, which he required them to answer.

1. Was the Lord Jesus (Hazreti-Iyfa) a real prophet by God?—*Answer.* Yes.
2. Are the laws contained in his noble Gospel (Indjil-sheryf) just or not?—They are just.
3. Is it permitted by our laws to blaspheme the Lord Jesus and his noble Gospel?—No, it is unjust.

Upon these unanimous decisions of the ulemas, called in such cases *fetva*, or sentence, the prince-royal ordered the merchant to be set at liberty, and his own servant to be punished with a hundred strokes of the bastinado; moreover he dismissed him from his service, as a warning to all who should be disposed to insult the professors of a different religion from their own.

Similar sentiments were displayed by the monarch himself on a more recent occasion. In April 1815, the vicinity of the capital was visited with an extraordinary drought. The Sheik-ul-Islam of that city imagined that he was performing an action well pleasing to God and his majesty, in persuading the populace, that the drought and the consequent dearth of the productions of the soil, were a punishment inflicted by the Almighty, because people frequented the taverns kept by the Armenian Christians; and that, to appease the divine wrath, they ought to destroy those haunts of impiety. By such language, the Sheik-ul-Islam inflamed the minds of his hearers, who tumultuously proceeded to that quarter inhabited by the Armenians, and, in the presence of the Sheik, demolished one of their churches, and pulled down the houses of several dealers in wine. It was not long before the king was informed of this outrage. He ordered the Sheik-ul-Islam, and the persons whom he had instigated to its commission, to be brought before him. "Audacious wretches!" said he, "who commanded you to act thus? What law authorises such proceedings? Is the Sheik-ul-Islam your sovereign, or the ruler of this country? Ye have violated the laws of my dominions; by them I condemn you: depart from my presence." The legal penalties were immediately enforced, and the culprits were obliged to pay the Armenians an indemnification of a thousand tomans. His majesty then sent for the principal persons of the Armenian nation: "It

is my wish," said he to them, "that all my subjects, of what religion soever they be, should enjoy a just liberty and live unmolested under the protection of my royal authority." He then promised to inflict condign punishment on the Sheik-ul-Islam; and exhorted them to pray to God for the preservation of his life. At the same time he ordered his treasurer to pay to these notables the sum of three thousand tomans out of his privy purse, as a compensation to the Christians for the injury they had sustained. He moreover commanded that the Armenian church should be repaired at the expense of government, and that restitution should be made for such furniture and effects as had been damaged or destroyed.

If the preceding facts exhibit a laudable relaxation of Mahometan rigour towards those whom they regard as infidels, the following whimsical anecdote proves the Persians to be the least fanatic of all Mussulmans, in permitting doubts to be publicly raised among themselves against points of faith inculcated by their own religion. A mollah, preaching one day in a mosque, strongly insisted on the examination which the deceased have to undergo from the angels of death, Nekyr and Monkyr, as soon as they are deposited in the tomb. "Don't believe a word of it!" cried one of the congregation; "for one of my slaves died a few days since; I filled his mouth with rice, and, on digging him up again to-day, the rice was just as I left it. Now it is morally impossible for a man to give answers, even to angels, with his mouth full."

But, in an absolute government, so much depends upon the caprice of the monarch, upon the whim of the moment as we may say, that we do not take upon us to affirm that every Christian, Jew, or Pagan, is, or has cause to be, quite at his ease in the kingdom we are treating of. It is certain that the Sosis, a very ancient sect, the origin of whose name is veiled in obscurity, have been treated with great rigour by the present most gracious, most merciful, most tolerant, monarch, Feth Ali Shah.

The name, as sir R. K. Porter informs us, is spelt by different writers in a variety of ways; for instance, Suffi, Sooffee, Sefi, and Sophi. The Arabic term, which bears all these spellings, means wise, holy; and is supposed to be derived from a root-word, signifying "be pure, clean;" and the sect who assume that title arrogate a peculiar degree of wisdom and purity beyond all other believers. But the Monthly Reviewers inform us, that "the Arabic word is erroneously understood by sir R. Porter. It is a noun signifying *wool*, and the sect is said to be so named from an allusion to the coarse mantles affected by its teachers: but the *σοφοι* or *σοφισα* of the Greeks is the most probable derivation." (M. R. Jan. 1823.) We think so too; but, be that as it may, and whatever be the name they bear, whether in old or in modern philosophy, the same common vanity of human reason, that has misled enthusiastic and self-confident minds from the beginning of man's history until now, may be recognised in the self-denying theories of these wild deists. Inflamed by the poetic fancies of an ardent imagination, nothing seemed to them too exalted for their conceptions, too sublimely pure for their participation; in fine, deriving their existence from God himself, not by creation, but by emanation, they set forth with so peculiar and mystical a pretension to holiness, that the ignorant vulgar, confounded with the excess of light to which they pretended, yielded implicit credit and consequent homage to such superior sanctity. Indeed, the great reputation acquired by Sooffee (or Sefi)-u-deen, one of the most eminent of these philosophic devotees, smoothed the road for his descendants to mount the throne of Persia. (See p. 678.) Ismael the First, of the posterity of this celebrated ascetic, became king A. D. 1500; and, in honour of his holy ancestor, the dynasty he founded took the name of Sooffee, Sefi, or Sophi; and hence came the monarchs of that race to be designated, even in European courts, by the name of *the Sophi*, without any additional title. But the princes of the Sooffee descent were too sensible of the value of stationary laws, moral and religious, to support

support those vague dreams abroad, which attracted so mysterious an interest about the enthusiast in his cell. Most of the Sooffee professors kept within the formal pale of the established religion, for the sake of security, and the facility of making proselytes. They avowed themselves believers in one God, that Mahomet was his prophet, and Ali the legitimate successor of the prophet, to the exclusion of Omar. So far they were perfectly orthodox according to the Persian rule of faith; but the creed was only from their lips, while their real tenets were as much calculated to charm a vivid imagination as to mislead it into consequences unsuspected and dangerous.

The Sosis of the present day are often confounded with the Dervises of Turkey, whom in some particulars they resemble. Their doctrine and practices are still covered with profound mystery. A Sosis, according to the idea to be formed of him from the works of the Persian poets, is a pious man living in seclusion from the world, whose morality is pure; whose doctrine is mild and tolerant; whose soul is plunged into the depths of mysticism; who spiritualizes all the ceremonies of religion, and constantly keeps a vigilant eye over himself. Universal indifference, the extinction of every worldly wish and desire, the presumptuous hope of an imaginary perfection, constitute the essence of his contemplative life. It was in this acceptance of the term that Saadi, Senai, Hafiz, Djelal-eddin, and Djami, aspired to the rank of Sosis: but mysticism approaches too near to the illusions of fanaticism for the mind to pause at any middle point; and, when the imagination has once passed that point, it sets no bounds to its extravagance. Thus there arose in Persia, a particular sect of Sosis, which were called *impious*, and who derived no other fruit for their crude meditations than the belief that there is no God. They gleaned from the Mahometan religion, the relics of the Grecian philosophy, and the reveries of the Indian gymnosophists, materials for an insensate doctrine, which rather encouraged than checked the passions. These Sosis have a book called *Gulshen-raz*, the *Mysterious Garden*, containing their opinions on theology, philosophy, and morals. As secrecy is the first precept of the order, it is difficult to ascertain its principles. It is said, however, that their doctrine is founded on that of Pythagoras; that they acknowledge one only essence, and believe in the transmigration of souls. They repeat among themselves this distich, which they style the mystery of the Sosis: "There is only one essence, but there are a thousand forms or figures; And, how numerous soever these forms may be, they are not worthy of engaging our attention." There is a striking resemblance between this distich and the following passage of the *Baghavat* of India: "He who considers all the different species of beings as forming but a single essence diversified to infinity, that man knows Brahma." It would not be difficult to prove that these sects of Persian Sosis derived most of their doctrines and practices from India.

But the Reviewer we have quoted above is of opinion, that the philosophy of the Sosis is Chaldean, not Persian or Indian, in its origin; and of a far higher antiquity than the doctrines of Zoroaster. "The opinions of the sect are precisely those of the Jewish Cabalists; who, in common with the Sosis, maintained the existence of one pure and perfect substance only; denying the entity of matter as distinct from spirit, and believing that whatever exists is of the same essence as the Deity, has emanated from him, and must at length be re-united with him. Creation, according to the Cabalists, is a development and modification of the divine nature, while destruction is the removal of the forms communicated to things created, and the re-absorption of the portion of Deity which resided in them." The pious Sosis, who is influenced by this faith, (if absolute Spinozism can be regarded as faith,) beholds around him the wonders of the visible world, and professes to discover God in all that he sees, and all that surrounds him. We are, however, much in-

clined to doubt whether the disavowal of individual responsibility for good or evil actions can be strictly chargeable on the whole sect; for we believe that the doctrine of an actual union with God, from which the present author justly deduces the most pernicious consequences, has been professed only by madmen or impostors. The better class of Sosis, according to an extract from one of their own works, inserted by Sir John Malcolm in vol. ii. of his *History of Persia*, confine the highest privileges of their saints, during this life, to the contemplation of God's essence, and a perfect knowledge of his will; a dreadful tenet, if it were practically influential; for no spiritual power which the world has yet witnessed, could be more dangerously operative on the mind of man than that of teachers pretending to be the sole depositaries of the will of the Almighty. It fortunately happens, however, that the innate feelings of mankind triumph over absurd tenets of theology; and that common sense, as well as the necessities of human affairs, counteracts the influence of wild and pernicious opinions. The Sosis appear for the most part to be a harmless race of enthusiasts; and the ascetic exercises of their devotion have had the good effect at least of detaching them from worldly ambition. *As about studia in mores*, and it is almost impossible for men not to become at last what they have long affected to be, their exterior humility and self-denial are, we make no doubt, for the greater part sincere and genuine." M. R. as above.

Yet the devout Mahometans charge the Sosis with atheism; while the latter not only deny the accusation, but pretend to hold intercourse with God: they assemble at night and perform the exercises of turning round, jumping and shouting, till they drop down from weakness and exhaustion. Owing to these practices, they are obnoxious to the Persians, who, hating every thing Turkish, confound them with the Dervises of that country, whose habits of whirling round are well known.

But our object was to show that toleration is not extended to every sect, and at all times, in this country. The following is the translation of a letter addressed by Feth Ali Shah to one of his governors, enjoining him to punish two Sosis accused of having endeavoured to excite sedition: "Whereas for some time the Sosis have spread their opinions in a truly alarming manner, and gained a great number of credulous and silly proselytes, who blindly adopt the faith and the habit of those preachers; as nothing can be more hostile to the interests of the true religion; as the subject has been deemed worthy of the attention of our wisest counsellors, and you have yourself addressed to us your observations upon it; we have deemed it advisable to take this matter into consideration, and to write to our governors and officers to punish these Sosis, unless they amend their conduct; to take from them what they have craftily obtained from the credulous and people of weak minds; and, in case the owners of these things cannot be discovered, to distribute them among the poor. We have lastly ordered this sect to be *extirpated and destroyed*, that the true faith may flourish. Aga Mehdy and Muza Mehdy have misled the people in the neighbourhood of Hamadan, where they were regarded as holy doctors; they have been sent prisoners into our presence. We now deliver them into your hands considering you as the most learned, the wisest, and the most virtuous, of the doctors of this kingdom. Put them to death, imprison them, or punish them in any manner most agreeable to the laws of our holy religion." The two unfortunate Sosis were immediately put to death by "the most learned, the wisest, and the most virtuous, of the doctors of this kingdom."

CLIMATE, SOIL, PRODUCE, POPULATION; MANNERS AND CUSTOMS, DRESS, AMUSEMENTS, &c. OF THE MODERN PERSIANS.

The climate of this country varies considerably according to its situation; some parts being parched with insufferable

ſufferable heat, whilſt others are frozen with cold, at the ſame time of the year. The air, wherever it is cold, is dry; but, where it is extremely hot, it is ſometimes moiſt. All along the coaſt of the Perſian Gulf, from weſt to eaſt, to the very mouth of the river Indus, the heat for four months is ſo exceſſive, that even thoſe who are born in the country, unable to bear it, are forced to quit their houſes, and retire to the mountains; ſo that ſuch as travel in theſe parts, at that ſeaſon, find none in the villages but wretched poor creatures left there to watch the effects of the rich at the expenſe of their own health. The eaſtern provinces of Perſia, from the river Indus to the borders of Tartary, are ſubject to great heats, though not quite ſo unwholeſome as on the coaſts of the Indian Ocean and the Perſian Gulf; but in the northern provinces, on the coaſt of the Caſpian Sea, the heat is full as great, and, though attended with moiſture, as unwholeſome as on the coaſt before mentioned. From October to May there is no country in the world more pleaſant than this; but the people carry indelible marks of the malign influence of their ſummers, looking all of them of a faint yellow, and having neither ſtrength nor ſpirits; though, about the end of April, they abandon their houſes, and retire to the mountains, which are twenty-five or thirty leagues from the ſea. But this moiſtneſs in the air is only in theſe parts; the reſt of Perſia enjoys a dry air, the ſky being perfectly ſerene, and hardly ſo much as a cloud ſeen.

Perſia has juſtly been termed the Country of Mountains. Beſides thoſe which interſect the interior in all directions, branches of the Taurus encompass it on the north, weſt, and ſouth. The Taurus, after traſverſing Armenia and Adherbijan, after uniting on the one hand with ramifications of the Caucasus, and forming on the other the various ranges of Media, ſkirts the ſouthern ſhore of the Caſpian Sea, and conſtitutes that lofty barrier which ſeparates Ghilan and Mazanderan from the central provinces. Mount Zagros, which runs parallel to the courſe of the Tigris, ſtretches to the eaſt of Suſter, enters Louriſtan, coaſts the Perſian Gulf at ſome diſtance from the ſea, and terminates beneath its waters below Gombroon. A few leagues from Hamadan, the Alwend, the ancient Orontes, divides into two branches; the one, running north-eaſt, paſſes to the weſt of Caſbin, and unites to the ſouth-weſt of the Caſpian Sea with the Elborz, which is a continuation of the Taurus; the other, purſuing a contrary direction, and joining the ramifications of the Zagros, forms the high-lands of Louriſtan and Perſia, or the ſnow-covered mountains inhabited by the Bakhtiaree and the Louree tribes.

From this diſpoſition of the grand features of the country reſults the variety of temperature. The ſhores of the Perſian Gulf, the Kermanſhab, for inſtance, are uninhabitable in ſummer. From the 15th of June to the 15th of Auguſt, the ſeaſon of extreme heat in that country, blows the malignant *Samiel*, whoſe breath, ſwift as lightning, is equally deſtructive. The northern provinces, Mazanderan and Ghilan, reſreſhed by the winds that regularly blow from the Caſpian Sea and are repelled by the mountains, enjoy a temperate climate in winter as well as ſummer. Here the atmosphere is cooler, and the vegetables are ſucculent; mountains clothed with wood remind the European of the Alps and the Pyrennees; but, as he riſes from theſe low tracts in his progreſs to the central platform of Perſia, the wind becomes colder, the productions of the earth are changed, and he would almoſt imagine that he was tranſported into ſome diſtant region. Thus the variation of climate depends more on the elevation of the ſoil than the difference of latitude; ſo that you may paſs in a few hours from the climate of Montpellier to that of Siberia. The order of the ſeaſons is nearly as follows: From the middle of May to the end of September the heat is exceſſive along the Gulf and the Indian Ocean in the Chufiſtan, the deſerts of Kerman and even in ſome parts of the interior, as at

Teheran. The ſummers are generally temperate in tracts of middling elevation. Mr. Kinnier found the mountains covered with ſnow in July 1810; and the cold was ſo ſevere in ſome of the valleys between Shiraz and Iſpahan, that two or three blankets were ſcarcely ſufficient to protect him from it in the night. The winter, nevertheless, generally begins in November, and laſts till March. To the north of Shiraz, in the vicinity of Teheran and Tabriz, that ſeaſon is very cold, and frequently interrupts for months the communication between thoſe cities and their dependencies. From May till September the atmosphere is ſerene, and cooled by the breezes which blow morning and evening.

The climate of Shiraz, the capital of Perſia Proper, is repreſented by a traveller who lately viſited it, as one of the moſt agreeable in the world, the extremes of heat and cold being ſeldom felt. "During the ſpring of the year the face of the country appears uncommonly beautiful. The flowers, of which they have a great variety, and of the brighteſt hues, the fragrant herbs, ſhrubs, and plants, the roſe, the ſweet baſil, and the myrtle, all here contribute to reſreſh and perfume the natural mildneſs of the air. The nightingale of the garden (called by the Perſians *boobul hezar daſtaan*), the goldfinch, and the linnet, by their melodious warblings at this delightful ſeaſon of the year, ſerve to add to the ſatiſfaction of the mind, and to inſpire it with the moſt pleaſing ideas. The beauties of nature are here depicted in their full eſt extent; the natural hiſtorian and the botaniſt would here meet with ample ſcope for purſuing their favourite investigations. With ſuch advantages, added to the ſalubrity of the air, how can it be wondered at that the inhabitants of Shiraz ſhould ſo confidently aſſert the pre-eminence of their own city to any other in the world? or that ſuch beauties ſhould fail of calling forth the poetical exertions of a Haſiz, a Sadi, or a Jami? Their mornings and evenings are cool, but the middle of the day is very pleaſant. In ſummer the thermometer ſeldom riſes above 73 in the day-time, and at night it generally ſinks as low as 62. One thing which is moſt to be eſteemed in this country, and renders it preferable to any other part of the world, is their nights, which are always clear and bright; and the dew, that in moſt places is of ſo pernicious and dangerous a nature, is not of the leaſt ill conſequence here: there is none at all in ſummer, and in the other ſeaſons it is of ſuch a nature, that, if the brighteſt ſcimitar ſhould be expoſed to it all the night, it would not receive the leaſt ruſt. This dryneſs in the air cauſes their buildings to laſt a great while, and is undoubtedly one of the principal reaſons that the celebrated ruins of Perſepolis have endured for ſo many ages, and, comparatively ſpeaking, in ſo perfect a ſtate."

As to rivers, except the Araxes, which riſes in the mountains of Armenia, and falls into the Kur or Cyrus before it reaches the Caſpian Sea, there is not one navigable ſtream in this country. The Oxus divides Perſia on the north-eaſt from Uſbek Tartary. The Indus alſo may be reckoned among the rivers of Perſia, as the provinces lying to the weſt of that river are now in poſſeſſion of that crown: this river is ſaid to run a courſe of more than 1000 miles, and overflows all the low grounds in April, May, and June.

The ſoil of Perſia is in general ſtony, ſandy, barren, and everywhere ſo dry, that, if it be not watered, it produces nothing, not even graſs; but, where they can turn the water into their plains or valleys, it is not unfruitful; and hence the leaſt rill is a bleſſing of heaven; the ſmalleſt reſervoir for collecting rain-water is a treaſure which each would ſtrive to appropriate to himſelf excluſively, did not government regulate the diſtribution of its contents. The neceſſity for this has occaſioned the institution of an office the like of which is not to be found in any kingdom whatever. The *Meer-aub*, or "Prince of the Waters," is an agent appointed by the ſupreme power to ſuperintend this diſtribution of the water of the

rivers or springs, which is made monthly in the following manner. On the canal which conducts the water into the field is put a circular bowl of very thin copper, with a small hole in the middle: at this hole the water slowly enters. When the bowl sinks to the bottom, the measure is complete. This operation is repeated till the necessary quantity is furnished. The proprietor pays in proportion to the number of bowls thus filled. The price of the water varies according to the nature and situation. River-water is dearer than spring-water. Each province has its *meer-aub*, under whom there are numerous agents for conducting streams from district to district, and from field to field. His income is immense, for his extortion has no other bounds than his avarice. His favour is of greater importance to the cultivator of the soil than that of the prime minister. His patronage is therefore purchased, and his probity is assailed in a thousand ways by those who are solicitous to obtain a little more water than their neighbours, or to induce him to change the direction of a canal. Jourdain, tom. i. ch. 2. and tom. iii. p. 143.

There is a great difference in point of fertility in the different provinces of the empire; and those of Media, Iberia, Hyrcania, and Bactria, are now in a great measure what they were formerly, and surpass most of the others in their productions. All along the Persian Gulf, the soil is still more barren, cattle less plenty, and every thing in a worse condition than anywhere else.

Though there is scarcely a province in Persia which does not produce wine, yet the wine of some provinces is much more esteemed than that of others; but Shiraz, or, as it is written by Mr. Francklin, *Shirauz*, wine is universally allowed to be the very best in Persia; insomuch, that it is a common proverb there, "That to live happily one must eat the bread of Yezd, and drink the wine of Shiraz."

The grain most common in Persia is wheat; which is wonderfully fair and clean. As for barley, rice, and millet, they only make bread of them in some places, as in Curdistan, when their wheat-bread is exhausted before the return of harvest. They do not cultivate either oats or rye; except where the Armenians are settled, who make great use of the latter in Lent. Rice is the universal aliment of all sorts of people in Persia; for this reason they are extremely careful in its cultivation; for, after they have sown it in the same manner as other grain, they in three months time transplant it, root by root, into fields which are well watered, otherwise it would never attain that perfection in which we find it there; since it is softer, sooner boiled, and more delicious, than the same grain in any other part of the world. Perhaps its taste is, in some measure, heightened by a practice which they follow to give it a glossy whiteness, viz. by cleansing it, after it is beaten out of the husks, with a mixture of flour and salt. Corn ripens exceedingly in this country; so that in some parts they have a threefold crop in the year. The Persian bread is generally very thin, white, and good; and commonly cheap enough.

Metals of all sorts have been found in Persia. Since the reign of Shah Abbas the Great, iron, copper, and lead, have been very common; but there are no gold or silver mines open at present; though, as Persia is a very mountainous country, such might very probably be found, if pains were taken to search them out. There are silver mines in Kerman and Mazanderan, and one not far from Ispahan; but they cannot be worked for want of wood. Minerals are also found in Persia in abundance; especially sulphur, salt-petre, salt, and alum. Nothing is more common in this country than to meet with plains sometimes ten leagues in length, covered entirely with salt, and others with sulphur or alum. In some places salt is dug out of mines, and even used in building houses. Marble, freestone, and slate, are found in great plenty about Hamadan. The marble is of four colours,

viz. white, black, red and black, and white and black. Persia yields two sorts of petroleum, or naphtha; namely, black and white. In the neighbourhood of Tauris they find azure, but it is not so good as that brought from Tartary. Among the most valuable productions of Persia are the precious stones called *turquoises*, of which there are several rocks or mines.

The horses of Persia are the most beautiful of the East, though they are not so much esteemed as those of Arabia. They are higher than the English saddle-horses; straight before, with a small head, legs wonderfully slender, and finely proportioned; they are gentle, good travellers, very light and sprightly, and do good service till they are eighteen or twenty years old. The great numbers of them sold into Turkey and the Indies, though none can be carried out of the kingdom without special license from the king, is what makes them so dear. Next to horses we may reckon mules, which are much esteemed here, and very fine; and next to these we may justly place asses, of which they have in this country two sorts; the first bred in Persia, heavy and doltish, as asses in other countries are; the other originally of an Arabian breed, the most docile and useful creature of its kind in the world. They are used wholly for the saddle; being remarkable for their easy manner of going, and are very sure footed, carrying their heads lofty, and moving gracefully. Some of them are valued at 20l. sterling. The mules here are also very fine; they pace well, never fall, and are seldom tired. The highest price of a mule is about 45l. sterling. Camels are also numerous in Persia, and very serviceable; they call them *hechty-krouchkouion*, i. e. "the ships of the land;" because the inland trade is carried on by them as the foreign is by ships. Of these camels there are two sorts, the northern and southern: the latter, which is much the smaller, but swifter, will carry a load of about 700 weight, and trot as fast as a horse will gallop; the other will travel with a load of 1200 or 1300 weight; both are profitable to their masters, as costing little or nothing to keep. They travel without halter or reins; grazing on the road from time to time, notwithstanding their load. They are managed entirely by the voice; those who direct them making use of a kind of song, and the camel moving brisker, or at its ordinary pace, as they keep a quicker or slower time. The camels shed their hair so clean in the spring, that they look like scalded swine; but then they are pitched over, to keep the flies from stinging them. The camels hair is the most profitable fleece of all the tame beasts: fine stuffs are made of it; and in Europe, hats, with a mixture of a little heaver.

As beef is little eaten in Persia, their oxen are generally employed in ploughing, and other sorts of labour. Hogs are nowhere found in Persia, if we except a province or two on the borders of the Caspian Sea. Sheep and deer are very common throughout all Persia. Of wild beasts, the number is not great in this country, because there are few forests; but where there are any, as in Hyrcania, now called Tabristan, abundance of lions, bears, tigers, leopards, porcupines, wild boars, and wolves, are to be found.

In Persia may be seen all the several sorts of fowls which we have in Europe, but not in such plenty; excepting, however, wild and tame pigeons, of which vast numbers are kept all over the kingdom, chiefly on account of their dung, which is the best manure for melons. It is a great diversion among the lower sort of people in town or country to catch pigeons, though it be forbidden; for this purpose they have pigeons so taught, that, flying in one flock, they surround such wild ones as they find in the field, and bring them back with them to their masters. The partridges of this country are the largest and finest in the world, being generally of the size of our fowls. Geese, ducks, cranes, herons, and many other sorts of water-fowl, are common here; as are likewise nightingales;

gales, which are heard all the year, but chiefly in the spring; martlets, which learn whatever words are taught them; and a bird called *nowra*, which chatters incessantly, and repeats whatever it hears. Of birds of a larger size, the most remarkable is the pelican, by the Persians called *tacab*, or water-carrier; and also *misc*, i. e. "sheep," because it is as large as one of these animals. There are in Persia various birds of prey. Their falcons are the largest and finest in the world: the people take great pains to teach them to fly at game; the Persian lords being great lovers of falconry, and the king having generally a great quantity of them, (some say 800,) with officers or keepers, of course, to attend upon and train them, the chief of whom is called *taoos-kaneh-agafee*, or head-keeper of the birds of prey.

The seas on the south of Persia are, the Gulf of Persia or Bassora, the Gulf of Ormus, and the Indian Ocean. The only sea on the north is the Caspian or Hyrcanian sea; which is more properly a lake, having no communication with any other sea. These seas, together with the lakes and rivers, supply Persia with plenty of fish. The Caspian Sea contains very fine fish on one side; and the Persian Gulf, on the other, is believed to have more fish than any other sea in the world. On the coasts of this gulf is taken a sort of fish, for which they have no particular name: its flesh is of a red colour, very delicious, and it sometimes weighs 200 pounds. The river-fish are chiefly barbels; but far from being good; those of the lakes are carps and shads. In the river at Ispahan are a great number of crabs which crawl up the trees, and live night and day under the leaves, whence they are taken; and are esteemed very delicious food.

But few kinds of insects occur in this country; which may be ascribed to the dryness of the climate. In some provinces, however, there is an infinite number of locusts, which fly about in such clouds as to darken the air. Mr. Morier, in his Second Journey, gives the following curious account of them. "On the 11th of June, whilst seated in our tents about noon, we heard a very unusual noise, that sounded like the rushing of a great wind at a distance. On looking up we perceived an immense cloud, here and there semi-transparent, in other parts quite black; that spread itself all over the sky, and at intervals shadowed the sun. This we soon found to be locusts, whole swarms of them falling about us: but their passage was only momentary; for a fresh wind from the south-west which had brought them to us, so completely drove them forwards, that not a vestige of them was to be seen two hours after. The locusts which we saw at Bushire were like those which Shaw saw in Barbary in 1724, with legs and body of a bright yellow, and the wings spotted brown. These were larger, and of a red colour; and, I should suppose, are the real predatory locust, one of the Egyptian plagues: (see *GRYLLUS migratorius*, vol. ix. p. 57.) They are also the *great grasshopper* mentioned by the prophet Nahum, no doubt in contradistinction to the lesser, (iii. 17.) As soon as they appeared, the gardeners and husbandmen made loud shouts, to prevent their settling on their grounds. The strength and agility of these animals made me suppose that this was their first flight, and that they could not have come from any great distance. They seemed to be impelled by one common instinct, and moved in one body, which had the appearance of being organized by a leader. As all was dry in the plain of Shiraz, the same instinct seemed to propel them forwards to countries of more vegetation; and, with a small slant of the wind to the westward, they would get into the mountains of Louriston, where the corn was not ripe; and where, as the prophet Joel says after comparing them to a great army, they had *the garden of Eden before them*; ii. 3. Their strength must be very great, if we consider what immense journeys they have been known to make. Pliny says they came from Africa to Italy: they have been known in Scotland. Mandelsoe saw them in the island of Madagascar, the

nearest point of which, from Mofambique, on the continent, is 120 leagues. This proves them to exist in the southern hemisphere; and, if Arabia be their native country, as naturalists affirm, they do not always travel northward, as Shaw seems to think; but, perhaps, take the impulse which the first wind may give them after they are ready to fly.

"I have had opportunities, from time to time, to make observations on the locust, particularly at Smyrna, where, in 1800, they committed great depredations. About the middle of April the hedges and ridges of the fields began to swarm with young locusts; which then wore a black appearance, had no wings, and were quite harmless. About the middle of May they had increased triple the size, were of a grey cindery colour, and had incipient wings about half an inch long. They still continued to be harmless: but, at the end of June, they had grown to their full size, which was three inches and a half in length; the legs, head, and extremities, red; the body a pale colour, tending to red. They appear to be created for a scourge; since to strength incredible, for so small a creature, they add saw-like teeth, admirably calculated to *eat up all the herbs in the land, and devour the fruit of the ground*. Psalm cv. 34. They remained on the face of the country during the months of July and August; sometimes taking their flight in vast clouds, and, impelled by a strong wind, were either lost in the sea, or were driven into other countries. It was during their stay that they showed themselves to be the real plague described in Exodus. They seemed to march in regular battalions, crawling over every thing that lay in their passage, in one straight front. They entered the inmost recesses of the houses, were found in every corner, stuck to our clothes, and infested our food. It is an extraordinary circumstance, that the barn-door fowls eat them before they are quite full grown; and that, when such was the case, the yolk of the eggs which the hens laid was of a dark reddish colour, partaking of that of the locust. The locusts lay their eggs in the autumn, which they do frequently before they take their flight. Sometimes they deposit them in countries where they alight after their flight; gestation and generation going on during their excursion: for, even on the wing, the male and female locust are frequently found together.

"The operation of the female locust in laying her eggs is highly interesting: she chooses a piece of light earth, well protected by a bush or hedge, where she makes a hole for herself, so deep that her head just appears above it. She here deposits an oblong substance, exactly the shape of her own body, which contains a considerable number of eggs, arranged in neat order, in rows against each other, which remain buried in the ground, most carefully and artificially protected from the cold of winter. The eggs are brought into life by the heat of the sun. If the heats commence early, the locusts early gain strength; and it is then that their depredations are most feared; because they commence them before the corn has had time to ripen, and they attack the stem when it is still tender. Harmer would probably have derived some help from what has happened to fall under my observation on this subject in his illustration of the 17th verse of the 3d chapter of prophet Nahum; for I conjecture, that *camping in the hedges in the cold day*, may be explained by the eggs being deposited during the winter; and, *when the sun ariseth they flee away*, may also be illustrated by the flying away of the insect as soon as it had felt the sun's influence."

The POPULATION of Persia, very much diminished by the civil wars of 1722 (the epoch of the overthrow of the dynasty of Ismael Sophi), and of 1743 (the year of the assassination of the celebrated Shah Nadir), is estimated at twenty-two millions of souls. But, as Persia has been overrun alternately by the Gaznevides, the Carizmians, the Seljuks, the Moguls, the Tartars, Turcomans, Usbeks, Afghans, Courds, &c. these successive invasions could

not fail to produce such a mixture in the population, that it would now be difficult to find the Persian blood in its original purity. Chardin estimated the population at forty millions of souls: Kinnier considers this number as greatly over-rated; and doubts whether the space between the Euphrates and Indus could furnish more than eighteen or twenty millions. This population, be its number what it will, may be divided into two classes: the stationary inhabitants or those resident in towns and villages, and the migratory or wandering tribes.

1. The native Persians, who style themselves *Tadjik*, are a medley of all nations, Arabs, Guebres, and Jews, who have voluntarily or by compulsion embraced the religion of Mahomet.

2. The Elauts, or wandering tribes, are mostly of Turkish origin, speak the Turkish language, and retain the custom of their ancestors, the Scythians. The tribes of the southern provinces may be considered as the descendants of those savage hordes which dwelt in the same parts in the time of Alexander.

Almost all these tribes lead a pastoral life. Some of them have fixed habitations, but they are mostly rovers. The latter, however, have districts to which they confine themselves. They live in tents surrounded with mats and covered with coarse black cloth. In winter they reside in the plains; but in summer they move about in quest of pasturage, retiring during the intense heats to the summits and slopes of mountains. In winter some of these tribes, such as the Caraguzloo and the Afshars, dwell in villages. In Daghistan, at Asterabad, and in the northern part of Chorasan, they have small portable wooden huts instead of tents. They subsist chiefly on the produce of their flocks and herds, pay of course very little attention to agriculture, and are almost utter strangers to the mechanic arts, though they make cloth and various other articles for their own use.

The wandering tribes collectively are divided into four great classes, according to the language which they speak and from which they are denominated. Collectively they amount to about 685,500 persons; but in this estimate are included only the tribes that are best known, while many others, concerning which we have no positive information, are wholly omitted.

Each of the principal tribes is divided into several *divaz*, or branches, all having their respective chiefs, subordinate to the supreme chieftain of the tribe. These chiefs are, as to birth and the power they possess, the highest personages of the state; hence the king is anxious to keep them about him, by giving them offices at his court, that he may hold some pledge for the fidelity of their tribes; and, as they are in general extremely jealous, and of a martial disposition, he consults his own security and that of the empire, by habitually fomenting quarrels among them, and keeping their power nicely balanced. The son commonly succeeds his father in his dignity; but, if he proves himself unworthy of it, it is transferred to the younger brother.

The military force of Persia resides in these tribes; their fondness for war, and their intrepidity, form the safeguard of the kingdom, when it is not convulsed by the spirit of rebellion, which too often seizes them. They all pay tribute, and are bound to furnish the king with succours in the wars in which he is engaged; each tribe being obliged to assemble at the first summons, and to bring into the field a quota proportionate to its number. (See p. 697.) They all profess the Mahometan religion.

3. Let us now proceed to the dissenters from the Mahometan religion. The *Guebres* are a remnant of the ancient Persians, who have retained the fire-worship and the doctrine of Zoroaster, amid all the revolutions which have so frequently changed the face of their country. In Chardin's time, but a small number of them remained: the late wars have nearly completed their extermination: the villages which they inhabited to the south of Ispahan

are swept away; and a few families, which escaped death, have sought refuge at Yezd, and in Kerman. Kinnier informs us, that there are still at Yezd four hundred Guebre families, who groan under the tyranny of Persian agents. Each family pays a capitation-tax of twenty piastres, and is nevertheless liable to all sorts of extortions. See PERSEES.

The *Christians* settled in Persia are mostly Armenian schismatics, and chiefly dwell in the northern provinces. Their patriarch resides at the convent of Etschmiazin, near Erivan. These Armenians, so opulent under the Sofys, and especially under Abbas the Great, who planted a colony of them at Julfa, near Ispahan; the same people who had at one time nearly monopolized the commerce of all Persia, and part of its manufactures; now lead, most of them, a vagrant life, bowed down by oppression and indigence. Julfa, formerly so populous, is now but a heap of ruins, and contains no more than five hundred inhabitants. Some Armenians are likewise to be met with in Adherbijan, and in the districts of Meragah, Ourmiah, Salmas, Tabriz, Carabagh, and Erivan. Their total number is computed at 60,000 souls, which perhaps exceeds the truth. The catholic churches of Nakshivan, and other places in Persian Armenia, no longer exist: the catholics who live in the kingdom are in very small number, and are natives of India or Turkey.

It is the lot of the *Jews* in Persia, as in all the rest of the East, to live in degradation, poverty, and contempt. There are Jews at Ispahan, at Shiraz, and at Kashan in Adherbijan: their number in these different places is estimated at about 35,000. Poverty depresses them more and more, and familiarizes them with vice and infamy. Some of them are artificers, brokers, and usurers; the rest live by selling wines, procuring women, and all sorts of intrigues. Many addict themselves to medicine and magic; and, as the populace of all countries have a great deal of credulity, derive a great profit from their impostures. The Jewesses gain admittance into the seraglios, of which they are the oracles. From them beauty purchases the art and means of withstanding the ravages of time; the coquette, the gift of pleasing and of exciting love in her tyrant; the female, solicitous to become a mother, the speedy accomplishment of her wishes. They also foretell future events, and sell potions possessing virtues of all kinds, to produce love and hatred, to ruin a rival, and so forth. These Jews are the most ignorant in the world. Travellers distinguish two classes of them: the one descended from the wretched Samaritan captives, whom the Assyrians carried from Judea during the reign of Hosaia king of Israel, and who were dispersed over Media and Parthia; the other from the Jews who were led into captivity to Babylon. Both wear external marks by which they may be known: these are caps of a particular colour, or square patches of cloth of a different hue from their garments. At Ispahan the Jews are not permitted to wear cloth stockings.

Making allowance for the wandering tribes not enumerated, we now venture to sum up the population of this interesting kingdom in round numbers as follows:

Fixed inhabitants of the Mahometan religion	20,000,000
Wandering tribes, ditto	700,000
Christians and Jews	100,000
Guebres, or fire-worshippers	2,000
	20,802,000

It would, perhaps, be impossible to give to an inhabitant of London a correct idea of the first impressions made upon the European stranger on his landing in Persia. Accustomed, as his eye has been, to neatness, cleanliness, and a general appearance of convenience in the exteriors of life, he feels a depression of spirits in beholding the very contrary. Instead of houses with high roofs well glazed and painted, and in neat rows, he finds them low, flat-

flat-roofed, without windows, placed in little connexion. In vain he looks for what his idea of a street may be: he makes his way through the narrowest lanes, incumbered with filth, dead animals, and many dogs. He hears a language totally new to him, spoken by a people whose looks and drefs are equally extraordinary. Instead of our smooth clins and tight drefles, he finds rough faces, masked with beards and mustachios, and long flapping clothes. He fees no active people walking about, with an appearance of something to do; but here and there he meets a native juft crawling along in flip-fhod shoes. When he seeks the markets and shops, a new and original scene presents to him. Little open sheds in rows, between which is a passage, serving as a street, of about eight feet in breadth, are to be seen, instead of our closely-shut shops with windows gaily decked. Here the vender fits, furrounded with his wares. In a country where there is fo little apparent security of property, it is furprising how a man fo easily exposes his goods to the pilfer of rogues. Comparifons might be made without end; but, however distressing the transition from great civilization to comparative barbarity may be, yet it is certain that first impressions soon wear off, and that the mind receives a new accession of feelings adapted precisely to the situation in which it is placed.

There are noises peculiar to every city and country; and none are more distinct and characteristic than those in Persia. First, at the dawn of day, the *muezzins* are heard in a great variety of tones, calling the people to prayers from the tops of the mosques; these are mixed with the sounds of cow-horns, blown by the keepers of the *hummums*, to inform the women, who bathe before the men, that the baths are heated, and ready for their reception. The cow-horns fet all the dogs in the city howling in a frightful manner. The asses of the town, generally beginning to bray about the same time, are answered by all the asses in the neighbourhood; a thousand cocks then intrude their shrill voices, which, with the other subsidiary noises of persons calling to each other, knocking at doors, cries of children, complete a din very unusual to the ears of an European. In the summer season, as the operations of domestic life are mostly performed in the open air, every noise is heard. At night, all sleep on the tops of their houses, their beds being spread upon their terraces, without any other covering over their heads than the vault of heaven. The poor seldom have a screen to keep them from the gaze of passengers; and, as we generally rode out on horseback at a very early hour, (says Mr. Morier,) we perceived, on the tops of the houses, people either still in bed, or juft getting up; and certainly no sight was ever stranger. The women appeared to be always up the first, whilst the men were frequently seen lounging in bed long after the sun was risen. This universal custom of sleeping on the house-top speaks much in favour of the climate of Persia; and indeed repose in the open air is much more refreshing than in the confinement of a room.

As to the character, manners, and customs, of the Persians, though they differ in many particulars from the Turks, yet they differ fo much more from Europeans, that we think our readers will admit the justice of the following quotation from *Las Cafes' Journal*, vol. iii. now publishing. "In the course of the conversation in the evening, the emperor, speaking of different nations, said he only knew of two, the Orientals and the inhabitants of the West. The English, the French, the Italians, &c. said he, compose one family, and form the western division; they have the same laws, the same manners, the same customs, and differ entirely from the Orientals, particularly with respect to their women and their servants. The Orientals have slaves; our servants are free: the Orientals shut up their women; our women share in all our rights: the Orientals keep a seraglio; but polygamy has never been admitted in the West at any period: with the Orientals every thing is calculated to enable them to

watch over their wives, and make sure of them; all our institutions in the West tend, on the contrary, to put it out of our power to watch over our's, and to make it necessary for us to rely upon them alone. There are several other distinctions, said the emperor: some aver that as many as eighty have been reckoned. The inhabitants of the East and the West are therefore really two distinct nations."

Yet something of an approximation may in time be made. We have seen that the Persians, influenced by the discernment of Abbas Mirza, the heir apparent, have been willing to adopt European tactics; for instructing them in which, we may perhaps one day repent. It seems, moreover, that the heir of that splendid monarchy has discernment enough to appreciate the superiority of more civilized states in other particulars; and that he has, on several occasions, shown an anxiety to introduce into his native country a taste for the more advanced stages of the ornamental and useful arts. We are told that he has ordered, through the mirza now resident in London, different specimens of that beautiful manufacture of china in which England now surpasses all other countries. We are fully aware of the exceeding beauty of colour, and of the transparent delicacy of material, for which the real Chinese ware is remarkable. Take the manufactory, however, as a whole, as an union of elegant forms, of skilful drawing, of beautiful colours, and of delicate materials, and we do not hesitate to say that the English china is the best. The mirza, before he decided, inspected the two best depositaries in Europe, that of Seves in France, and that of Messrs. Flight and Barr in England; and he decided in favour of the latter. The first order has been fo well executed, that we have no doubt it will create a demand for much larger supplies. It consists of two parts; a set of small portraits, or enamelled medallions, and a complete service of banquetting-cups. The medallions represent the Shah of Persia, and his heir apparent. The paintings are as well executed as oil or water-colour miniatures, and the material in which they are fet has all the appearance of the purest pearl, though, of course, it is nothing but porcelain. The cups are ornamented with portraits and bouquets of flowers, done in that style which has long made this manufactory rank among the fine arts. We may add, as a much stronger illustration of the prince royal's wish to adopt the advantages of more civilized states of society, that he has an English woman to instruct his daughters according to the plan of English education: thus declaring, perhaps for the first time in an oriental court, that a woman has a mind to be cultivated, as well as a body to be adorned.

In delineating the character of the Persians, we can scarcely have a better guide than Chardin, whose long residence in the country, and whose intercourse with the great, enabled him to make himself intimately acquainted with the character of the nation, rather than with that of the lower classes, the number of whose vices is increased by the want of education.

The Persians, as he informs us, are pre-eminent for intellectual qualities, while their moral character exhibits a compound of the most odious defects. They have a sound understanding, a quick imagination, a ready memory, and a happy capacity for the sciences and the liberal and mechanical arts. Under the appearance of a proud indifference, they derive information from the society of foreigners, and profit by their knowledge: they receive them kindly, patronize them, tolerate their religion, and regard them with pity rather than contempt. In illness and affliction they even solicit the prayers of infidels; but this may proceed from superstition rather than from toleration.

In conversation, the Persians affect elegant language, and are fond of introducing quotations from the works of their best poets, such as Saadi, Hafiz, and Djami. This love of quotations is common alike to persons of

distinction and to the dregs of the people; because those who have received no education, and cannot even read and write, take advantage of the readiness and retentiveness of their memory to learn by heart a great number of striking passages, which they omit no opportunity of bringing forward. They are also very clever at irony and punning. Endowed with a supple and intriguing disposition, they have agreeable manners and extreme politeness: but this politeness is little better than a jargon of high-flown compliments, and hyperbolic expressions, equally destitute of sense and feeling: hence it is, no doubt, that they have been denominated "the French of Asia."

Mr. Morier gives several examples of this propensity of the Persians to hyperbole and exaggeration; and he adds, that, however impertinent this sort of barefaced flattery may appear to Europeans, in the eyes of the Persians the omission of it would be a neglect of the common forms of politeness. Mr. M. was once present when the prime-minister gave instructions to a man who was sent to greet a Russian officer on his arrival; and his principal injunction was, "Be sure you give him plenty of flattery." They know, however, the real value of it as well as we; for at the same time he turned round to our countryman and said: "You know it is necessary *refsh-khundi/sh beku-neem*, to laugh at his beard, or, in other words, to humbug him." Among themselves they practise the same sort of deceit; and, though they are in general aware of the value of the praise they receive, yet it does not fail to stimulate their vanity, which, as far back as the time of Herodotus, appears to have been a national vice; for, he says, "they esteem themselves the most excellent of mankind."

I have repeatedly heard them compliment a person, observes Mr. Scott Waring, either in his hearing, or in the presence of some one who would convey this adulation to his ears; and, the instant that he has departed, their praises have turned into abuse, and they have, with malicious pleasure, exposed the character which not a moment before they praised with fervent servility. I recollect, says the same writer, that the Sheik at Bushire was declaiming against the rapacity of Chiragh Ali Khan, the governor of Shiraz; and just at that moment he was informed of the arrival of his principal secretary. He began by inquiring after the governor's health; and, when he was told that he had quitted the city, he readily observed, that "now Shiraz was worthless, and that it had lost the only ornament it possessed." Is not this something like an approximation to European manners?

The spirit of exaggeration and insincerity is not confined to their personal intercourse with one another: it insinuates itself into public affairs, as well as into the humbler relations between man and man. Not long after the arrival of the English embassy, under sir Gore Ouseley, at Teheran, the confidential secretary of the grand-vizir, accompanied by Mirza Abul Hassan Khan, who had been ambassador from Persia to the British court, came one morning in great agitation to announce a victory gained by the prince-royal over the Russians. Their account was, that the Persians had killed 2000, and taken 5000 prisoners and 12 guns. We soon afterwards heard the real truth, says Mr. Morier, which reduced their account to 300 killed, two guns taken, and 500 made prisoners. On questioning them why they exaggerated so much, when they knew how soon the falsehood must be discovered, they very ingeniously replied: "If we did not know that your stubborn veracity would have come in our way, we should have said ten times as much. This is the first time our troops have made any stand at all against the Russians; and you would not surely restrict so glorious an event in our history to a few dry facts." This, also, is a trait not quite unknown or unexampled in the West.

M. Olivier, who travelled in Turkey and Persia during the first six years of the French republic, by order of the

government, has drawn a very laboured parallel between the Turkish and the Persian character and usages. The whole of this we find translated to our hand in the Monthly Magazine; but we shall only quote a few passages.

"In Turkey every thing bears the stamp of barbarism and cruelty: in Persia every thing bespeaks a mild and civilized nation. The Turks are vain, supercilious, inhospitable: the Persians polite, complimentary, and obliging.

"The Persian loves to be informed, and to interrogate foreigners concerning the manners and customs of their respective countries, the sciences cultivated, and the arts practised, in them. He discovers in them that superiority of intelligence which causes him to esteem them, although they are of a religion different from his own. The Turk, on the other hand, is pleased with his own ignorance, and thinks it quite beneath him to receive instruction from other nations, all of which he despises. He believes that the Koran contains all that ought to be learned.

"The Turk is fanatical. The Persian is superstitious without having religion, and more tolerant, though more strongly attached to the trifling forms of worship. The Christians in Persia enjoy almost as much liberty as the Mussulmans of the lower classes. If they are insulted or struck, they may not only complain, but may also defend themselves. Of this we have already given an instance or two. In Turkey, and especially in Romelia, a Greek would be punished with death who should dare to lift his hand against a Mahometan. The Turk does not permit an infidel to enter his mosques, except with a supreme order, and bare-footed. The foreigner, accompanied by an officer of the government, has free access, in Persia, to the mosques, and may enter them in his boots; nay, in the course of our travels, lodgings were appointed us, in several villages, in these edifices consecrated to public worship. On the other hand, the Persian is superstitious in the highest degree. He never eats with a Christian, touches no food prepared by the hands of an infidel, and is fearful of desiling himself by drinking from the same cup or smoking with the same pipe. Taking a ride one day in Isphahan, and being extremely thirsty, I begged a Persian, who was passing on foot, to give me a little water from a neighbouring fountain: he filled me an earthen cup, which he broke immediately afterwards, because my impure lips had touched it. Now the Turk would have drank out of the cup after me without ever rinsing it. At his table he drinks, without reluctance, what a European may have left in his glass. Nevertheless, he speaks of a Christian with contempt. The Turkish flag bears the arms of the empire on a ground of green, which is the colour consecrated by their religious traditions: they have a term to express this naval ensign, but they take especial care not to use the same word when speaking of European colours: for their own they make use of the word *baïrue* (flag), and for those of foreign nations of *patchoura* (dishclout).

"The Persian barbers never shave an infidel. The Turkish ones serve an European with pleasure.

"The Persian distinguishes every people, whether tributary or not, by their national denomination; while the Ottoman confounds them all under the emphatic appellation of *Giaour*, which is continually in his mouth.

"Equally brave with the Turk, more active, but less patient, the Persian is, like the other, cruel in battle and implacable towards his armed foe; but more tractable after the combat, and more sociable after peace.

"In Persia, the first vizier is not expected to command the armies. In Turkey, he is most frequently a man who has risen from nothing, and is obliged to put himself at the head of the troops whenever war is declared.

"The Persian is as confident in politics as the Turk is suspicious. If an European, excited by the desire of information, or by mere curiosity, traverses any remote province of the Ottoman empire, the Turk sees in him nothing

thing but a spy, sent to reconnoitre his country, and to serve as a guide to an army coming to drive him from it. This distrust scarcely ever troubles the minds of the Persians. A stranger may go through the countries which they inhabit, and examine them with attention, without exciting the least suspicion by his curiosity. The government even carries its confidence so far, that, during the war subsisting against the Russians, the communications were not interrupted. The caravans continued to go from the interior of Persia into Georgia; the Russian vessels touched on the coasts of Guilan and Mazanderan; the Russians had secret correspondences with Armenians, and even with Persians; and yet the government testified no inquietude. To what is this tranquillity to be attributed? to the constitution of the government, or to its supineness? It is certainly a very remarkable difference, when we consider that these are two neighbouring empires, both absolute, and both professing the same religion.

"In commercial transactions the Turk is just, and rarely breaks his word; the Persian barter his oath like any other commodity. We read in Plato and Herodotus, that the ancient Persians had a horror of lying: how much their descendants have degenerated! The Persians of the present day are the most lying people upon earth. They are accustomed in their infancy to dissemble, and to get out of a scrape by any subterfuge. Cunning and deceitful, the Persian is never afraid to break his engagements: when he keeps his word, it is only because it is impossible to do otherwise. The crime of theft, which is very rare among the Ottomans, is frequent with the Persians, who commit it without scruple.

"The Turk is magnificent in his presents, whether guided by ostentation, gratitude, or humanity. But the hand of the Persian, always open to receive, is never open to give: when he cannot do otherwise than give, his gifts are confined within very narrow limits. He ruins himself only in promises, and in these he may, indeed, be said to be munificent. If you extol the beauty of a horse, a sabre, or any other article, he immediately says, 'I give it you.' If you are delighted with a field bearing a rich crop, or with a smiling valley, he says, 'I make you a present of it.' But this is all mere ceremony, and never turns out to mean any thing. The Spaniards have the same custom, which they have no doubt derived from the Arabs.

"The Persians and Turks of the present day are not, as their forefathers were, rigid observers of the precept which forbids the drinking of wine. Nevertheless, those who transgress are still obliged to do it in secret. In every part of Persia where the vine grows, the Armenians and Jews make the wine, and sell it to the Persians. The Turks are more addicted than their neighbours to the vice of drunkenness.

"Under an able government, the Persians would rebuild their cities, re-establish their commerce, and repair the injuries which their agriculture has sustained. With a vigorous, active, and intelligent, government, the Turk would perhaps once more strike terror into Europe.

"From these different traits we are authorized to conclude, that the society of the Persians is agreeable, if the connexion between the parties is disinterested; but we must not expect from them either sincere friendship, strict integrity, or refined delicacy." Monthly Mag. vol. liii. liv.

To judge from the Guebres, the relics of the ancient Persians, they were originally a coarse-looking race of people; but their blood has since been refined by the intermixture with that of Georgia and Circassia. There are few Persians of quality who are not sprung from women of those nations; and, as this intermixture has been practised for several centuries, both sexes have been greatly improved by it. The men are tall and well-proportioned, vigorous, active, and comely. The women,

without being qualified to vie with those of Georgia in beauty, are in general handsome in face and figure.

But the Persians differ as much from us in their notions of beauty as they do in those of taste. A large soft and languishing black eye constitutes with them the perfection of beauty, and diffuses an amorous softness over the whole countenance, infinitely superior to the piercing and ardent glance of majestic beauty. It is chiefly on this account that the women use the powder of antimony, which, while it adds to the vivacity of the eye, throws over it a kind of voluptuous languor which makes it appear dissolving, as it were, in bliss. Thus the chief characters of beauty with them are eyes like the antelope's, a full-moon face, and the stature of the cypress; but there are secondary ones which the poets are fond of celebrating. Ferdousee, in the Shah Nameh, thus describes the females of Touran: "Their stature is tall, like that of the cypress, and the locks of their hair black as musk. Their cheeks are covered with roses, and their eyes full of languor; their lips are sweet as sugar and fragrant as the rose."—"How admirable is thy form!" exclaims Hafiz; "how delightful thy converse! Thy heart is as tender as the bud of the rose is fresh; thy beauty is equal to that of the cypress of the eternal garden!"—Djami describes the charms of Leilah in these terms: "Her figure was tall and elegant, and in her graceful gait she resembled the partridge of the mountains. Beautiful without the assistance of art, nature had given the most delicate rosy tinge to her cheeks, radiant with freshness; her eyebrow was like a delicate bow, formed of precious amber, and her eyelashes, like so many little darts of musk, pierced all hearts; her lips had the lustre of rubies without their hardness. Her enchanting smile displayed teeth as white as the purest pearls; you would imagine you beheld the bud of the rose gemmed with the tears of morning."

Many of the women of Persia are as fair as those of Europe, but confinement robs them of that lovely bloom so becoming and so essential to female beauty. The Persian women have a curious custom of making their eyebrows meet; and, if this charm be denied them, they paint their forehead with a kind of preparation made for the purpose.

The Persian ladies not only dye their hair and eyebrows, but also stain their bodies with a variety of fantastic devices, not unfrequently with the figures of trees, birds and beasts, sun, moon, and stars, as we read was the practice of our ancient British ancestors. This sort of pencil-work spreads over the bosom, and continues down as low as the navel, round which some radiated figure is generally painted. All this is displayed by the style of their dress, every garment of which, even to the light gauze chemise, is open from the neck to that point, as may be seen in the figure of a Persian lady of the royal seraglio, in Plate I. in which, however, the appearance of the tattooing is omitted.

The occupations of the Persian women are more diversified than might be supposed. They spin, embroider, work with the needle, and make their own apparel. They superintend also whatever relates to the interior of the house; they keep an account of the daily expenditure, deliver out the provisions to the servants, pay their wages, adjust their disputes, and even see that proper attention is paid to the horses. In every house of any consequence, there is a eunuch, called *nazir*, steward, with whom the mistresses of the house daily consult, and decides on every thing relating to the servants and domestic concerns.

Sir Robert Porter gives the following lively picture of the employments of women belonging to what may be called the middling class. The originals after whom it was delineated, were the four wives of a man in whose house he was entertained. "From the hour of rising," says this traveller, "to that of going to rest, the house founded with one continual clatter of female voices, mingling

mingling with the cries of children, and the bustling clamour of varied occupation. These women do all the laborious part of the household establishment, each having her own especial department, such as baking the bread, cooking the meat, drawing the water, &c. and, though the latest espoused is usually spared in these labours and the best dressed, still the whole party seem to remain in good humour, no appearance of jealousy disturbing the amicable routine of their proceedings. When their lord shows himself among them, it is like a master coming into a herd of favourite animals: they all rush forward, frisking about him, pleased with a caress; or frisking still if they meet with a pat instead. The four wives of my worthy host retire at sun-set from their domestic toils, and each, taking her infant and cradle to the roof of her division of the house, not forgetting the skin of water she has brought from the spring or well, deposits her babe in safety, and suspends the water-case near her bed on a tripod of sticks, in order that the evaporation may cool it for the night or next day's use. To preserve the amity between these ladies, which had so excited my admiration, our communicative host told me, that himself, in common with all husbands who preferred peace to passion, adhered to a certain rule, of each wife claiming in regular rotation the connubial attentions of her spouse. Wherever this monopoly of many women exists, there we find the softer sex regarded by man with a contempt which gives the loveliest bride, or the most respectable mother of his children, scarcely a higher rank in his esteem than the best mare in his stud, or the dog that is his favourite to-day and totally neglected to-morrow. In proof of this Mahometan disparagement of women in general, it would be deemed the height of impropriety, while addressing a person of noble quality here, to hint at the female part of his family; and, were even the most beloved wife of his bosom at the extremity of some dangerous illness, if a male friend were to make the slightest inquiry after her health, it would be deemed the grossest insult."

To this remark we find a striking illustration in a subsequent part of the work of the same entertaining traveller. In his journey from Persia through Asiatic Turkey, he fell in with a party belonging to Abdul Hassan Khan, then Persian ambassador in London. These people were returning from England to Teheran; and under their charge, mounted on a sorry post-horse, was the *Fair Circassian*, whose appearance both in Paris and in London excited at the time so strong a sensation. She was noticed by our European ladies with much kindness; but the style in which our countryman now beheld her must have formed a sad contrast to what she had then experienced. "When the poor creature (says Sir Robert) discerned, on approaching, my Frangy (European) appearance, she was riding forward to address me; but in a moment the rough fellow who was her conductor laid his whip over her shoulders, with so terrible an admonition into the bargain, that, closing both her lips and her veil, she travelled on, doubtless with heavy recollections. To interfere in behalf of a woman so situated, would cast a sort of contamination on her, and only redouble her stripes."

DRESS.—"If the prudence of a nation (says Chardin) were manifested in a steadfast adherence to its costume, the Persians could not be too highly praised for that quality; for their dress never alters; they never make any change either in the colour or fashion of the stuff. I have seen dresses belonging to Tamerlane which are preserved in the royal treasury at Ispahan, and which are cut in the very fashion of the present day, without the slightest difference." Such was the remark of Chardin, nearly two hundred years ago: but we are not to suppose that fashions never alter; and, could the same traveller now revisit Persia, he would fancy himself in another country, such are the changes effected by the late revolutions in the state of the kingdom and the costume of its inhabitants. In Chardin's time, all colours, black excepted, were worn

indiscriminately. Under the dynasty of the Zends, light colours were preferred; but, since the family of the Cadjars has filled the throne, the darker hues have been the fashion. The form of garments also has undergone great change; inasmuch that we have been obliged to discard certain drawings and engravings which we had treasured up for the illustration of this article; and we again claim the help of Mons. Jourdain, who informs us, that the garments composing the dress of a modern Persian are the following:

1. The *zeer djameh*, a species of very wide trowsers, made of cotton cloth or silk, which reach down to the ankles, and are tied at the waist in front.

2. The *peerahum*, or shirt, of silk, comes over the trowsers and falls a little below the hips. It is shaped at top like a woman's chemise, having no collar, and is fastened by means of two buttons over the left shoulder.

3. The *erkalig*, a very tight vest, which falls to the bend of the knee; the sleeves descend to the wrist, but are open from the elbow. It is made of Mahometan chintz, or fine shawls.

4. The *caba*, a long robe reaching to the ankles, fits close down to the hips, and buttons on the sides. The sleeves of the caba cover those of the *erkalig*, and are held together from the elbow downward by a row of buttons, so that they may be opened for the performance of the prescribed ablutions previously to prayers. The caba is made of various kinds of cloth, some of which are very magnificent and expensive.

5. The *bagalee* is another kind of robe, which folds over the breast, and buttons on the side down to the hip. This garment is generally made of cloth, shawl, or cotton stuff folded; and is worn in winter only.

6. The outer robe is always of cloth; it is worn or not, according to the weather. The robe has as many names as there are forms of which it is susceptible. It is called *tikhme*, when the sleeves are open as high as the elbow, and when it is round, buttons before, and falls like a petticoat over the shawl that serves for a girdle; *omeh*, when it is open on both sides from the hips; and *biroone*, when it is loose, with wide sleeves hanging carelessly from the shoulders.

7. The *shalee-kemr*, or shawl-girdle, fastened round the waist over the caba. This girdle is, according to the circumstances of the wearer, either a real Cashmere, a Kerman shawl, or a piece of flowered muslin. In this girdle is stuck the *caudjar*, a kind of dagger, the handle of which is sometimes enriched with precious stones, and at others merely of ivory or wood.

8. The Persians have also pelisses of very rich stuff, trimmed with furs; such as the *catabee*, which covers the whole body, and is trimmed with fur down the back, at the shoulders, at the elbows, and in the inside. This is the richest and most showy garment of the whole Persian costume.

9. The *coordee*, a sort of jacket, which fits close to the body, and the skirts of which fall over the thighs. The *catabee* and *coordee* were worn in Chardin's time.

10. The *kolah*, or cap, worn by the Persians, while more convenient, keeps the head not less warm than the turban. It is made of lamb-skin, with short curly black wool, lined with a greyish skin of not so fine a quality, terminating in a skull-cap of red or azure-blue cloth, or merely of white sheep-skin. The only distinction there is in this species of head-dress, consists in a shawl wound about the *kolah*; and this distinction is reserved for the king, the princes of his family, and a few of the nobles, the great officers of state, and the magistrates.

11. The inhabitants of the town wear in winter socks of worsted or cotton. The country people wear no stockings in summer; and in winter they wrap pieces of cloth about their legs.

12. The Persians have three sorts of shoes or slippers, and two of boots. People of the higher classes wear green slippers with heels an inch thick. A low slipper



Persian Female, in-door Dress.



Persian Female, out-door Dress.



Gautier delin.



J. Pass. sc.

Persian of High Rank

Grande Sucking on Horsesback

Costume of the modern Persians.

of red or yellow leather, having an iron in shape of a horse-shoe at the heel, was formerly worn. The lower classes use strong shoes of leather or quilted cotton, with flat soles, and turned up at the toes. One of the sorts of boots has high heels, turns up at the toe, and covers the whole leg. The others are smaller, tighter, and only reach up to the calf.

13. When a Persian is going to ride, he puts on a pair of wide cloth trowsers, called *shalwar*, into which he introduces the skirts of the *erkalig* and the *zeer-djameh*. A Persian of distinction, thus equipped and mounted, is represented in the lower part of Plate III.

The drefs of the Persians of the superior classes is very expensive, frequently amounting to sixty or one hundred guineas. It is admirably calculated for either a hot or cold climate: it imposes no restraint on the limbs, and may be put on or thrown off in five minutes. The poor people wear no cap, and but little clothes, in summer; but, when the cold weather comes, they make dresses of sheep-skins. The merchants never wear scarlet or crimson cloths, or use silver or gold buttons to their robes: this may not possibly amount to a prohibition, but the effect is the same. Shah Abbas, who wished to make this class of his subjects very frugal, issued an order that they were always to wear shawl turbans and robes of broad cloth. This would be, in his opinion, the cheapest dress they could wear; as the shawl would serve them for their lives, and descend to their children; and the cloths would last several years.

It should be observed, that the wearing of silk is interdicted by the Mussulman law, on account of its being an excrement. The Persians, however, evade this prohibition by mixing with the silk a very small portion of cotton. A large quantity of this kind of cloth is imported into Persia from Guzerat.

The Persians have a high esteem for the beard, which is an object of their incessant care and attention. In Egypt it indicates a state of liberty; in Persia it is worn alike by master and slave: there the condition of the eunuch is too much despised for any one to wish to resemble him in any particular. Black bushy beards are held in the greatest estimation: accordingly all are of this colour; for men of a fair complexion dye their beards, as well to please the women as to give themselves a look of youth and vigour. It is more difficult to make them bushy: ointments, pomatums, drugs of all sorts, are early employed to impart to them this species of beauty; but nature is seldom to be overcome by such applications.

Of all the habits of a Persian, the most common is that of smoking. Whether he is with his women, or in the company of his friends; whether he is going abroad or to court; he is never without his pipe, which fills the intervals of silence, relieves him from the fatigue of talking, and frequently causes him to be deemed more intelligent than he really is. The Persian pipe, called *halioun*, or *nargally*, is totally different from ours, as may be seen in the portrait of the emperor, Plate II. It is shaped like a bottle terminated by the neck, at the top of which is a bowl for receiving the tobacco. The tube is attached to the bottom of this bowl, and frequently makes several windings in the bottle. The latter, which is of blown glass, has a curious appearance to a stranger: it is ornamented in the inside with representations of trees, flowers, and sometimes with small medallions. When the glass is just blown, these ornaments are fixed in the bottle with small pincers; and so neatly are the pieces joined together, as entirely to escape observation. A handsome *halioun* costs, we are told, nearly fifty guineas. To use this pipe, the bottle is filled with water, and the tobacco lighted. The smoke, after thus passing through the bottle, arrives at the mouth cool and disengaged from the coarser vapours.

The *poshkedmats* are a class of servants who take charge of the smoking apparatus when the master rides out. A

couple of cylindrical leather cases are fastened on each side of his saddle, at the places usually destined for the holsters; one contains the *kallioun* with its tubes, &c. and the other the tobacco. On the left side of the beast, and suspended by a chain long enough to clear the belly, hangs an iron pot with live charcoal, and as an opposite pendant we see a large leather bottle, holding water; fire and water being essentials to the enjoyment of the *kallioun*. The attendant must be ready to serve the *kallioun* instantly at the call of the master; and Plate III. represents a grandee smoking on horseback, attended by a servant on foot.

The drefs of the females is very simple, being composed of a much smaller number of garments than that of the European women. A Persian lady, when at home, does not load herself with clothes; and in her finery she seems to attach very little value to beauty of form. Very ample trowsers of thick velvet cover the whole of the lower part of the body down to the heels. Over these trowsers is worn a *peerahun*, or chemise of muslin, silk, or gauze, which is open in front nearly down to the waist, and buttons down the bosom by means of a number of loops and small buttons of silk, gold, or silver. Over the *peerahun* is generally fastened a girdle of skin, covered with cloth or silk, embroidered, and decorated with a plate of gold or silver and precious stones. Such is the summer costume. The winter drefs is the same, with the addition of a short upper garment resembling a jacket, and shawls in which the women wrap themselves as a protection from the cold. The covering for the feet is a kind of slipper, with a sole of ivory, metal, or some hard sort of wood. See the upper part of Plate III.

When they leave the house, they put on a cloak which descends from the head to the feet, and their faces are concealed with oriental scrupulosity. The veil which they wear, is sometimes worked like a net, or else two holes are made in the cloak for their eyes. It is curious to see a number of tall and elegantly-formed figures walking in the streets, and presenting nothing to your view but a pair of sparkling black eyes, which seem to enjoy the curiosity they excite. The veil seems to be essential to their virtue; for, as long as they can conceal the face, they care not how much they expose the rest of their person. The women in Persia are the only people who wear jewels and use perfumes; and this is a privilege in which they take much delight.

The hair is almost always arranged in tresses, which fall down behind. That in front is cut short and turned up from the forehead. On the sides it descends in ringlets over the ears and cheeks. The ends of the tresses are adorned with pearls, clusters of precious stones, or ornaments of gold or silver. The bandeaux, diadems, and caps, vary in form, according to the caprice of the inventor, or the taste of the wearer: they are more or less costly according to the circumstances of the individual. Shawls alike cover and adorn the head in a thousand different ways; they fall down the back over the shoulders, twist round the neck, or are fastened on the crown of the head, without any other rule than taste to determine their position, as may be seen on comparing the figures of the contiguous females on the same engraving.

In the foregoing account of the costume of the modern Persians, Mons. Jourdain has acknowledged his obligations to a small tract published at Paris in the year 1818, in the Persian, Armenian, and French, languages, by Myr Daoud Zadour, a native of Persian Armenia, who was envoy from the king of Persia to the court of France.

DOMESTIC HABITS.—The Persians have no other guide for the division of time than the sun. They divide the day into three parts; from sun-rise to noon, from noon till three o'clock, and from three till sun-set. Thus if you ask what time it is, a Persian will tell you how many hours have elapsed since sun-rise or mid-day. The *muezzin*, who summons the people to prayers, pro-

claims the arrival of noon ; but, as he waits till the shadow has traversed the whole length of the meridian, he is frequently an hour later than the real time.

A Persian, of what condition soever, rises as soon as it is light, and performs his morning devotions. Then comes the *nachtah*, or breakfast, which consists of grapes and other kinds of fruit that are in season, cheese, and goat's milk, and finishes with a cup of very strong coffee. The artisan then goes to his master's, and begins his work; the tradesman applies to business; the great man repairs to the apartment in which he receives company, and, while smoking his *kallioun*, chats with his inferiors or visitors; gives directions relative to his domestic affairs; adjusts the quarrels, or listens to the reports, of his dependents. At nine o'clock he visits the prince or the governor. At noon he returns home, and takes his *schacht*, or dinner, usually consisting of bread, cheese, butter, and different sorts of fruit. After dinner he says his noon-tide prayers, and retires to the inner apartments to enjoy the society of his women. At three o'clock he goes abroad to pay visits, or receives visitors at home. At four he recites the afternoon prayer. When night comes on, his carpet is spread in the open air, and he prepares to spend the evening in the company of his friends or dependents. They converse upon the events of the day, or the news of the court; they relate extraordinary adventures, for the Orientals are admirable story-tellers, or repeat passages of the most eminent poets. The hour for the fourth prayer arrives, but without causing the slightest interruption in the conversation. Each rises in turn, goes to a corner of the room, places himself on a small carpet with his face turned towards Mecca, and performs this religious duty with much greater dispatch than devotion. Such indeed is their precipitation, that the duty of prayer seems to be quite as irksome as it is indispensable. At ten o'clock a servant announces that supper, *shamee*, is ready: at the same time he brings with him a ewer of water; each of the party washes his hands; and they then seat themselves round the tray on which the dishes are placed. Eleven o'clock usually breaks up the company, and puts an end to the occupations of the day.

The Persians are too much addicted to etiquette and ceremony not to be fond of visiting. The dependent would not on any account allow a day to pass without paying his respects to his patron, the courtier without presenting himself before the sovereign, and friends without mutually visiting one another.

The ceremonies and compliments differ with the rank of the visitor. If an inferior is honoured with a visit from his superior, he does not sit down till the latter is seated, nor rise till he has risen. The master of the house commonly occupies the upper end of the cushion or carpet; but, if he wishes to do honour to the stranger, he gives up his place to him, or makes him take a seat by his side.

A visit between persons of distinction and of equal rank consists of three acts. In the first the visitor is furnished with a *kallioun*, or pipe, the smoke of which is cooled by water, and a cup of very strong coffee without sugar. In the second another pipe is given with *sweet* coffee, so called because it is composed of rose-water and sugar. A fresh pipe, sweetmeats, and sherbet, make up the third act. These sweetmeats are generally brought on silver, plated, or japanned, trays, adorned with painted flowers or other ornaments. The Persians are passionately fond of sweetmeats, and excel in the art of making them.

The manner in which the Persians take their meals is totally different from ours: they are strangers to the use of tables, knives, and forks; and such is the power of habit, that articles with which we cannot dispense are to them most troublesome and inconvenient. Thus Abu Taleb, in the Narrative of his Travels in Europe, complains bitterly more than once of the necessity of eating with a knife and fork.

The method of proceeding at a Persian entertainment will be best explained by the descriptions of some recent travellers.

At an entertainment given to Mr. Morier by Mohammed Nebbee Khan, the routine was as follows: "We did not go till the khan had sent to the envoy to say, that the entertainment was ready for his reception, a custom always observed on such occasions. When we arrived at his tent, the same ceremonies passed as in the morning, except that we sat upon the ground, where the inflexibility of our knees rendered the position more difficult than can be described. The khan, who seemed to commiserate the tightness of our pantaloons, begged that we would extend our legs at their full length: fearing, however, to be rude, we chose to be uncomfortable, and to imitate their fashion as faithfully as possible; and really, with respect to my own feelings, I thought complaisance was never carried further. The guests besides ourselves, were our mehmandar and the Persian secretary. After having sat some time, *kalliouns* were brought in, then coffee, then *kalliouns*, then sweet coffee (the composition already noticed of sugar and rose-water), and then *kalliouns* again. All this was rapidly performed, when the khan called for dinner. On the ground before us was placed the *soufra*, a fine chintz cloth, which perfectly entrenched our legs, and which is used so long unchanged, that the accumulated fragments of former meals collect into a musty paste, and emit no very savory smell; but the Persians are content, for they say that changing the *soufra* brings ill-luck. A tray was then placed before each guest; on these trays were three fine china bowls, which were filled with sherbets; two made of sweet liquors, and one of a most exquisite species of lemonade. There were besides, fruits ready cut, plates with elegant little arrangements of sweetmeats and confectionary, and smaller cups of sweet sherbet; the whole of which were placed most symmetrically, and were quite inviting, even by their appearance. In the vases of sherbet were spoons made of the pear tree, with very deep bowls, and worked so delicately, that the long handle just slightly bent when it was carried to the mouth. The *pillaus* succeeded, three of which were placed between each two guests; one of plain rice called the *chillo*, one made of mutton with raisins and almonds, the other of a fowl, with rich spices and plums. To this were added various dishes with rich sauces, and over each a small tincture of sweet sauce. Their cooking, indeed, is mostly composed of sweets. The business of eating was a pleasure to the Persians, but it was misery to us. They comfortably advanced their chins close to the dishes, and commodiously scooped the rice or other victuals into their mouths, with three fingers and the thumb of their right hand; but in vain did we attempt to approach the dish; our tight-kneed breeches, and all the ligaments and buttons of our dress, forbade us; and we were forced to manage as well as we could, fragments of meat and rice falling through our fingers all around us. When we were all satisfied, dinner was carried away with the same state in which it was brought; the servant who officiated, dropping himself gracefully on one knee, as he carried away the trays, and passing them expertly over his head, with both his hands extended, to the lacquey, who was ready behind to carry them off. We were treated with more *kalliouns* after dinner, and then departed to our beds." This was in 1809. We have the description of a banquet by Sir Robert Porter in 1819, in nearly the same words.

At a dinner given by the Ameen-ed-dowlah to Sir Gore Ouseley, that gentleman and his suite enjoyed better fortune, but at the expense of the *native* guests. An attempt was made to lay out the entertainment in the European manner. On a number of rude unpainted tables, some high, some low, arranged in the horse-shoe fashion, were heaped all the various dishes which compose a Persian feast, not in symmetrical order, for their number made that impossible, but positively piled one upon another;

ther; so that stewed fowl lay under roasted lamb, omelet under stewed fowl, eggs under omelet, rice under all, and so on. Every European was provided with knife, fork, napkin, and plate: but the poor Persians made useful work of it. Some were seated upon chairs so high that they towered far above the alpine scenery of meats and stews; others again were seated so low that they were lost in the valleys, their mouths being brought to about the level of the table. When a Persian eats his dinner in his ordinary way, the dishes are placed on the ground before him, and, crouching himself down, he brings his mouth so close to them as commodiously to transfer the victuals from the dish to his mouth: but here, his mouth being placed at a great distance from the good things, and his fingers being the only medium of communication between both, their commerce was but slow and uncertain. There was much amusement in observing how awkwardly they went to work, and the indignation expressed in the faces of the most ravenous, who, out of compliment to the British guests, were deprived of their full range over such a scene of good cheer."

Kotzebue has given a humorous account of the manner in which the gentlemen of the Russian embassy were entertained by the *ferdar* of Erivan. After describing the preliminary arrangements, he thus proceeds: "I shall only mention the things on the table which stood opposite to Dr. Müller and myself; from these some idea may be formed of the other dishes. First came a large pancake, which not only covered the whole table, but hung over it on all sides nearly half a yard deep; it is called *shurek*, and serves the Persians both for bread and napkin: then half a sheep, the leg of an ox, two dishes with various roasted meats, five dishes of ragouts sprinkled with saffron, two dishes of boiled rice, two of boiled fowls, two of roast fowls, two roasted geese, two dishes of fish, two bowls of four milk, a large quantity of sherbet, and four jars of wine; but with all these there was neither knife, fork, nor spoon. One dish was piled upon another with such rapidity, that Dr. Müller and myself suddenly found ourselves stationed behind an entrenchment of viands which concealed all view of the court, and only allowed us a peep at our friends opposite through the interstices of the multiplied dishes. Through one of these openings I endeavoured to observe what the *ferdar* was doing. With his left hand resting upon his dagger, for the Persians never eat with the left, he gravely stretched out his right into a dish of greasy rice, of which he kneaded a small portion with three fingers, and conveyed it with great address into his mouth, seldom soiling either his beard or his mustachios. After repeating this operation several times, he broke a piece off the enormous pancake, and having wiped his fingers with it, swallowed it with an air of placid satisfaction. In the same manner, he poked into a variety of dishes which he fancied; and at last seized a goblet of sherbet, and, drinking it off, smiled around upon his wondering guests. Very few of the party had tasted any of the dishes, from the impossibility of getting at them; for not one of them could have been removed from the middle without demolishing the structure of the whole. The signal for clearing the tables was at last given, and the removal of the dishes occasioned some curious scenes. The dish of ragouts could not be separated from the plate of sour cream, upon which it so conveniently reposed; the butter had entered into close alliance with the pancake; and the fish would not dissolve partnership with the roasted fowls. Force, however, succeeded at last in effecting the desired separation, and the eatables were delivered up to the persons waiting outside. It is the custom in Persia to give the remains of a feast to the attendants, or such persons as may happen to be in the way; for, in a great house, they daily cook treble the quantity consumed by its inmates."

At another entertainment given at Sultania, by the prime-minister, to the Russian ambassador and his suite, we are told by the same traveller, that "a mound of

earth had been raised in the middle of a tent, as a substitute for a table, but so very high, says he, that we could but just see the noses of those who sat opposite to us. This table, which was of immense breadth, was covered with different sorts of dishes and fruit. In the middle a narrow space had been left open, and I could not imagine for what purpose, until, when we were seated, I saw the servants jump upon the table, and stand there, handing round such dishes as might be agreeable to us. I would have given much to be allowed to laugh heartily; but we were obliged to repress our risibility. One of the men, however, having stepped into a dish of four milk, and his neighbour having, in the attempt to relieve him, nearly fallen over another dish, it was no longer possible to refrain from laughing outright; and, luckily, the conversation of the ambassador and the minister, who did not observe the accident, having turned upon a circumstance of a ridiculous nature, our laughter could not excite particular observation. The clumsy servant modestly withdrew, leaving marks of his footsteps on the table.

"The minister sent to several gentlemen *bonnes bonches* from his own plate, which is considered the highest honour that a person of distinction can show to a foreign guest. With the Persians that degree of ceremony is dispensed with: he throws the food at once into their mouths, and they evince much dexterity in catching it. Should a great man happen to take a liking to his neighbour, he nicely kneads a portion of greasy rice with three fingers into a lump, and with a condescending smile conveys it into the mouth open to receive the honour."

The furniture of a Persian house is extremely simple when compared with ours. We find in them neither beds sumptuously decorated, nor tables and chairs of costly wood, nor chandeliers and lustres, nor those numberless articles of various forms and materials with which European luxury decorates our apartments. In Persia the furniture consists of a thick coarse felt which covers the floor, and over which is spread a rich Persian carpet. People in middling circumstances content themselves with the felt alone. Instead of chairs, small mattresses about a yard wide are placed on the floor round the room, and covered with chintz, silk, or cloth of gold. Cushions set on end close to the wall serve to lean against. When it is time to retire to rest, a mattress is spread upon the carpet, with a blanket or counterpane, and two pillows of down. This is all the bed used by the Persians, and they lie in it without undressing. The mattress is of velvet, and the counterpane of silk brocade, or cloth of gold or silver. Articles of this kind are not changed perhaps for a century; for these velvets and brocades never wear out, owing in part to the extreme dryness of the atmosphere.

In Persia a native never enters a room in boots or slippers; and, when a foreigner attempts any transgression of this usage, it is looked upon as the height of ill-breeding, if not quite a premeditated insult. As these people use the carpet not merely for domestic purposes, but to kneel down on when they say their prayers, it is considered in some measure sacred, and hence arises the custom of a visitor leaving his slippers at the room-door. The term *door* here means whatever denotes the way of ingress to the apartment; for though, in general, there is a double door of carved or painted wood, which may be closed at pleasure, yet it is so seldom shut in the day, that we usually find a silk curtain filling the vacant space of the entrance; its light drapery being not only a cooler but a more elegant appendage than a thick heavy door. An attending servant raises the curtain at the approach of a visitor, and drops it on his having entered. That the custom of such draperies is of great antiquity we find in various authors. Plutarch, for instance, informs us that "Alexander, snatching a spear from one of his guards, and meeting Clytus as he was drawing back the *door-curtain*, ran him through the body."

The Persians have no candles for lighting their houses. For this purpose they use brass cups fixed upon rods of the same metal, which they fill with pure white tallow, having a cotton wick in the middle. Sometimes they burn scented tapers, the wax of which has been mixed up with oil of cinnamon or cloves, or some other aromatic.

The mode of warming houses is economical but unwholesome. The Persians are strangers to the use of fire-places and chimneys. In their stead, a sorry expedient presents itself in the shape of a large jar, called a *hourcy*, which is sunk in the earth, generally in the middle of the room, with its mouth on a level with the floor. This the people fill with wood, or, as that is very scarce, with dung, or any other combustible; and, when it is sufficiently charred, the mouth of the vessel is shut in with a square wooden frame, shaped like a low table. The whole is then covered with a thick wadded quilt, under which the family, ranged round, place their knees, to allow the hot vapour to insinuate itself into every fold of their clothing. When very cold, they draw the borders of the quilt up as high as their chins, and form a group something resembling our ideas of a wizard incantation. This mode of warming is very disagreeable, and often dangerous; owing to the immoveable position necessary to receiving the full benefit of the glowing embers, and to the nauseous and often deleterious effluvia from the smoke, which may cause dreadful head-aches. This singular kind of *chauffoir* answers also the purpose of preparing the frugal meal of the family, either as an oven, or to admit on its embers the pot which boils the meat or pottage. Barbarous as the usage may seem, the *hourcy* is not confined to the peasantry; it is found in the noblest mansions of the cities, only burning more agreeable fuel. (Jourdain iv. 266.)

EDUCATION.—Persians of high rank have their children instructed by *mollahs* (priests) and other preceptors, at their own houses. The lower orders, and often considerable Persians who are under the condition of nobles, send their sons to the public schools established in every town. They are commonly held in the mosques, and sometimes in the houses of the teachers, who are mostly *mollahs*. The expense of each child's education annually amounts to scarcely a toman, a price greatly in favour of the advancement of learning. The scholars sit round their master on the matted floor, all conning their lessons aloud as they learn them, and not stopping their noise even when the teacher is hearing one of the other pupils read. This little seminary presents a curious sight to an European; for, besides the rapid motion of their lips, they keep their bodies in one continued see-saw, without which movement a Persian conceives it would be impossible to learn anything. When idleness or any other misdemeanour requires chastisement, the young culprit undergoes the same punishment as that which royalty at times inflicts on any offending nobleman; namely, the bastinado on the soles of the feet. The children are taught reading and writing; and, as soon as they can commit to memory, they learn passages from the favourite poets of the country, many of which are fraught with the noblest sentiments and the most amiable feelings of human nature. At the same time they are taught prayers from the Koran in Arabic, a language which they do not in general understand; but the meaning of the prayer is explained to them, in the same manner as Latin prayers to ignorant Catholic Christians, and they are directed on what occasions to repeat it. Youth of the higher classes often add a knowledge of the Arabic, and also the Turkish language, to their deeper studies. The usual list is, arithmetic, geometry, moral philosophy, astronomy, and not infrequently astrology, all of which are cultivated with considerable assiduity and success by most of the Persian gentlemen, who never fail to add the manly exercises to these liberal acquirements. This being the case, it is difficult to comprehend the ruin and neglect into which

the colleges of nearly all the great cities have fallen: the once noble establishments of Ardebil, Casvin, Ispahan, Shiraz, &c. being mere shadows of what they were.

A youth quits his preceptor at the age of eighteen. He then learns to bend the bow, to wield the sabre, and to manage a horse. Marriage releases him from all restraint, but not from the respect which he owes to his father. The sacred rights of paternity are never violated in the east: there a son, whatever be his age or condition, never sits in the presence of his father; but his movements and whole demeanour are marked with filial submission.

The children of the lower classes are never seen running about the streets, getting corrupted by bad examples and bad language, contracting a fondness for play, quarrelling and fighting. They usually begin to go to school at the age of six years, and attend it twice a-day. On their return, their parents keep them at home to accustom them early to the business for which they design them.

The girls, however, receive no moral education whatever. When they have learned reading, writing, and embroidery, their education is finished; and those things they are taught either by females hired for the purpose, or at the schools, which they frequent till they have attained such an age as not to be permitted to go abroad without a veil. Neither dancing, music, and other accomplishments, nor reading and study, ever develop and heighten their natural graces, or enrich their minds. Destined to be shut up in a harem, visiting and being visited by none but females, society never forms their manners; the power of human respect opposes no barrier to their passions, to the vices of their hearts, and to the extravagancies of their disposition: the intercourse with women perverts rather than purifies their morals. The mother exclusively superintends the education of her daughter, and faithfully transmits to her defects which were not corrected when she was herself young: virtue and modesty are terms which she never utters in her hearing, for they are terms as unmeaning to the one as to the other. She familiarizes her with but one idea; that she is one day to belong to an absolute master, whose love she must strive to acquire, not by practising the virtues of her sex and condition, but by the arts of refined coquetry, which, though they may excite passion, are an antidote to true conjugal tenderness, which is founded on mutual esteem and regard. She does not teach her how to become a good wife and mother, or inculcate that modesty, and that chaste reserve in all her motions, language, and actions, which adorn beauty and embellish plainness; but she enjoins her not to go abroad without muffling up her face and her whole person; not to look at a man, nor to engage in any intrigues; if however she does not instruct her in the art which she has herself learned by experience, of bringing them to a fortunate conclusion. (Jourdain, tom. iv. p. 159.)

AMUSEMENTS.—The opinions of the Mahometans in general respecting music and dancing tend much to contract the circle of their amusements. They are strangers alike to the pleasures of the ball, the concert, theatrical exhibitions, and those sports in which the assembled youth of both sexes indulge the flow of gaiety natural to their time of life. Their disposition on the contrary is grave and taciturn; and, though the Persian may possess polished manners, extensive information, and a memory well stored with anecdote, yet his cheerfulness is never brisk and animated like ours.

Several *grandees* keep for their amusement a number of young Georgians who can sing, play on different instruments, and perform feats of tumbling and agility. Persons of inferior rank employ hired musicians and dancers. Besides these, there is a class of people called *looties*, who go from house to house, amusing their auditors with relating numberless stories, either true or fictitious, but always grossly indecent. They also perform a variety of tricks similar to those of our jugglers and tumblers. Though they have no theatre, the Persians are not with-

out

out a species of dramatic exhibition. There are persons who recite and act passages of the Shah Nameh of Ferdoufee, such as the battle between Roustam and Sohrab, and between the same hero and Isfendiar.

In summer, when the approach of night terminates the labours of the villagers, they assemble around a fountain or on the margin of a stream, spread their mats, and highly enjoy the supreme delight of breathing a fresh and pure air. To the Persian there is no enjoyment equal to this: yet there are other amusements which enliven the village circle, and banish from it lassitude and care. Sometimes an itinerant bard charms his auditors with the recital of the loves of Medjnoun and Leilah; at others a *kiffeh-kon*, or story-teller, declaims the history of the heroes of Persia. Here a dervise edifies his hearers with a delineation of the virtues, misfortunes, and miracles, of Ali and his family; there the *reisi-deh*, or village bailiff, relates the history of the great men of the province, and considers the motionless attitude, the fixed gaze, the stupefaction of his auditory, as the most flattering tribute to his rustic eloquence. In another place a *mollah*, at once a minister of religion and a priest of the muse, repeats, with due emphasis, pieces from the Gulistan of Saadi, or the Divan of Hafiz; while a few paces distant a buffoon by his sallies, or a juggler by his tricks, excites the laughter and admiration of the junior classes.

When night has shrouded the earth, and its refreshing coolness has succeeded the heat of day, the villagers join in the dance accompanied by instruments: at other times the peasants remain spectators, and leave the exercise to troops of dancers of both sexes who stroll about the country for hire.

Other amusements of the Persians consist in shooting with the bow, managing the sabre, and playing at *jureed-bazee*, a game very common among the military men. It is played in the following manner. A number of men on horseback, each armed with a *jureed*, or dart, three cubits long, divide into two opposite troops. Two or three gallop away from their troop, and are pursued by the like number of the other party, who throw the jureed at them while going at full speed. The person at whom the jureed is thrown, either catches it in his hand, or, slipping under the horse's belly, allows it to fly over him. This feat, which is by no means easy, at the rate the horse is going, they perform very expertly. The jureed comes with sufficient force to break an arm. They also amuse themselves with riding at full speed, throwing the jureed on the ground, and catching it as it rebounds.

The king's cavalry are also trained to an exercise called the *heykaj*, which consists of turning about on the saddle at full speed and firing a carbine backward. This they learn from their childhood, and it gives them great confidence and dexterity on horseback. It is probably a remnant of the old Parthian custom, so frequently alluded to in ancient authors; with this difference, that fire-arms are now used instead of bows and arrows.

The modern exercise of the bow is likewise performed on horseback: The horseman gallops away with a bow and arrow in his hand, and, when he has reached a certain point, he inclines either to the right or left, and discharges his arrow, which, to win the prize, must hit a cup fixed at the top of a pole one hundred and twenty feet high.

Another species of exercise, which seems to be less cultivated than the preceding, is thus mentioned by Kotzebue: "When the review was ended, the master of the horse came forward, standing upon a wild Arabian, and turned himself round while the horse was bounding about in every direction at full speed, not in the measured canter of our riding-schools. Sometimes he would suspend himself by either foot, while his head and arms hung down to the ground; then, swinging himself on the horse, he would stand in the saddle upon both legs or one: in short he went through a great variety of feats, the sight of which was really alarming. This man's perform-

ances certainly surpassed any thing of the kind that I had ever witnessed in my own country; and, when the minister asked my opinion of them, I assured him that we had nothing equal to them in Russia. 'And yet,' added he, 'that is not our best tumbler; the best is sick.' I did not, however, give much credit to this assertion; and I afterwards learned that this man was the only performer at the king's court, and indeed superior to any in Persia.

The game of the mall is also known to the Persians, who play at it on horseback. At the extremity of the place appropriated to this exercise, there are two posts which serve for a wicket. The ball is thrown down in the middle of the place, when the players, provided with a short stick, pursue and strike it while going at a gallop, and endeavour to drive it between the two posts. Scarcely any but people of superior rank play at these games, in which they display great skill as well in the sport itself as in riding.

In many cities of Persia, particularly at Shiraz, there are houses called *zour-kaneh*, where bodily exercises are practised. They may be compared with the gymnasiums of the ancients. The *zour-kaneh* consists of a room, the floor of which is sunk two feet below the level of the soil. They have no air or light but what is admitted at small apertures in the dome; and hence it is unwholesome to remain long in them. A broad smooth terrace is the arena where the exercises are performed, while the spectators and musicians are stationed in a kind of boxes or rather niches.

Niebuhr, who visited these gymnasiums, gives a faithful description of their different kinds of exercises, all of which were designed to develop the physical powers and natural dexterity. The champions enter the arena stark naked with the exception of a pair of light drawers. They begin with a short prayer and prostration, for the Mussulman never engages in any thing, not even amusement, without praying. Having performed this duty, some extend themselves at full length, but without allowing the belly to touch the ground, and in this posture describe a circle with the head, yet without stirring either hands or feet by which they are supported. Others take thick wooden clubs, about a foot and a half long, and cut into the shape of pears, place one on each shoulder, brandish them about in cadence with the music, at the same time stamping with their feet, and continuing this exercise for half an hour. Some stand on their hands, with their heels in the air, and leap up by a plank set against the wall, or even without the assistance of the plank; others dance to the sound of lively music, sometimes turning round, sometimes leaning against the wall, sometimes standing on one hand, sometimes on the other. Some lie down on their backs with cushions under the head and arms, and raise in cadence heavy pieces of wood; while others, standing upright, shake their bodies in every direction, up, down, forward, and backward. These postures are varied to infinity, and they are generally succeeded by wrestling. The combatants never try their strength till they have paid each other a thousand compliments. They first clap their hands one against another, then cross them over their foreheads; they next lie down on the ground, each seeking the means of attacking his antagonist to the greatest advantage. The contest is thus prolonged till the victory is decided, and the vanquished party kisses the hand of the conqueror. When the champion has beaten all his adversaries, he solicits some donation of the spectators. If he can prove that he has overcome the most eminent champions of the great cities, he has a right to have a lion placed on his tomb.

These gymnasiums, like those of antiquity, have each their gymnasiarch, who is called *pehlevan*, hero. Superior strength, skill, and dexterity, are the qualifications for this office. The *pehlevan* must have vanquished all competitors in the different exercises. He is then invested with the superintendence over them, adjudges the victory, encourages

encourages emulation, keeps good order, and in eloquent harangues, in which the names of Ali and Huseyn frequently occur, he reminds them of the good-humour, friendship, and respect, which, though rivals, they ought mutually to show to each other.

The Persians are passionately fond of the chase; it is an exercise to which they are addicted from their youth, and in which they excel. They, however, make but little use of dogs in hunting, considering them as the most impure of animals; hence they employ birds in their stead. They have brought their hawks to a great degree of docility, particularly one class which they call the *churkh*, and which is trained to catch antelopes. It is hunted with in this manner: When a herd of deer is discovered, one is separated from the rest by the dogs, and the bird, being let loose, almost immediately pounces upon it, flapping its wings over the eyes of the antelope. The animal endeavours to rid itself of the *churkh* by beating its head against the ground; but, as the bird is perched on the upper part of the head, this attempt is of no avail. As the antelope stops the instant the *churkh* pounces on it, the dogs soon come up to secure their prey. One of these birds will kill two, and sometimes three, antelopes in a day.

The wild ass is sometimes hunted, though rarely, on account of its very great speed. Whenever it is, horses are stationed in places where it is most likely to run, and by continually changing horses the hunter sometimes overtakes this surprisingly fleet animal.

Near Khoi are to be seen two pillars, called *kelleh minar*, or pillars of skulls, which are the memorials of an extraordinary hunt of Shah Ismael, who is said to have killed in one day a multitude of wild goats, the heads and horns of which were arranged round two massive pillars of brick, where they still remain. Some, less credulous, affirm, that these heads were the produce of the sport of a year, which seems much more probable; though it is allowed that the flocks of goats and antelopes on the mountains to the northward of Khoi are more numerous than it is easy to conceive.

Quails abound in some parts of Persia. This bird the Persians hunt in a very curious manner. They stick two poles in their girdle, and place upon them either their outer coat or a pair of trowsers, which are intended to look at a distance like the horns of an animal. They then with a hand-net prowl about the fields; and the quail, seeing a form more like a beast than a man, permits the hunter to approach so near that he can throw his net over it. The rapidity with which the Persians catch quails in this manner, is truly astonishing. Mr. Morier says, that, in one of his rambles with a gun, he met a shepherd-boy, who, laughing at the few birds he had killed, erected his horns, and presently caught more birds alive than he had shot.

The horse-races of the Persians are very different from ours. The horses start at the distance of perhaps fifteen miles, and pursue a direct course to the post. No care is taken to level the ground; and, as it often happens that more than twenty horses start together, there are frequent accidents. Purse of gold are given to the first, second, and third, horses. They take great pains in training their horses, which they do for a much longer time than is practised in Europe.

The Mahometan religion interdicts games of chance, and the police fines those who transgress this prohibition: the Persians, nevertheless, pay but little attention to this precept. They cannot, however, be charged with a particular fondness for gambling, which they never pursue to excess. The Persians are acquainted with tennis and dice; the game of backgammon is common among them, but they know little of chess. Their cards, called *hand-jafeh*, are of wood, ninety in number; they are very cleverly painted, and marked with eight colours. They have also a game which is common also in Turkey, by the name of *mangala*. Most of these games are confined

to the lowest classes of the people. The priests hold persons who play, especially if for money, in little estimation, and believe that they will suffer in a future world for these acts of impiety.

The ancient festival of *nouroos*, or new year's day, has been explained at p. 674. The conversion of Persia to Islamism was followed by the suspension of this festival, for the fanaticism of the first Mussulmans would not have suffered a solemnity commemorative of any other religion than that of Mahomet, which was to overturn all other creeds and to reign ever the whole earth. The Guebres alone continued to celebrate the *nouroos*. But, when Malek Shah resolved to reform the calendar, and instituted the era called after his name, the astronomers having observed to him that he ascended the throne on the first day of the spring equinox, and that it would be but right to revive the solemnity of that day in honour of such an important event, the Seljuk monarch, delighted with a proposal so flattering to his vanity, eagerly adopted the idea. Ever since his time, that is, since the end of the fifth century of the hejira, or the eleventh of our era, the *nouroos* has been celebrated with great pomp throughout all Persia.

This festival, though no longer connected, as in the early ages, with the religion of the country, has nevertheless retained many ceremonies similar to those of antiquity. On the day when the festival is to begin, the astrologers, magnificently dressed, repair to the palace of the king, or of the governor of the province, and station themselves on a terrace or in a belvedere, to watch the moment of the sun's entrance into the sign Aries. As soon as they have announced it, numerous volleys of musketry are fired; horns, kettle-drums, and trumpets, rend the air: all sorts of sports and amusements commence throughout the whole city; and high and low give themselves up to the wildest joy. During the three days that the *nouroos* lasts, there is nothing but feasting, horse-racing, exercises and exhibitions of various kinds; every one appears in his best apparel, pays and receives visits, makes presents to his acquaintance, and receives their's in return. The day before the *nouroos*, they mutually send one another eggs, painted and gilt, which sometimes cost two or three guineas. This practice of presenting eggs on new year's day seems to derive its origin from India. When the moment of the equinox is past, all the grandees repair to court, and present their offerings to the king; those of the princes, and the governors of provinces and cities, are presented by their agents. These presents consist of jewels, rich stuffs, precious stones, perfumes, horses, and even money. Their value is proportionate to the rank and fortune of the giver: for the lowest officer is obliged to make his present, just as well as the beglerbeg. Sir Robert Porter states, and, as he assures us, from unquestionable authority, that the personal present made every *nouroos* to the king by Hadjee Mohammed Houssein Khan, while he governed the province of Ispahan, amounted to not less than 200,000 tomans.

Bathing, though enjoined by the religious code, may be considered among the amusements of the Persians. The baths in this country are numerous and magnificent, and the price of admission to them is moderate. They are open to persons of all classes and of both sexes; to the men five days in the week, and to women the other two. These buildings consist of two very spacious rooms; the one where you undress, smoke, talk, and hear the news of the day; the other contains the bath. Along the walls of the former, are placed seats of marble or stone two feet high, covered with mats and carpets, on which the bathers sit to strip off their clothes. A narrow passage leads to the bathing-room, which is an octagon surmounted by a cupola, at which air and light are admitted, and paved with marble. At the upper end of this room is a large reservoir of water heated by means of boilers.

The process of the bath, when applied by either sex, is much

much the same: it is thus described by sir Robert Porter. The bather, having undressed in the outer room, and retaining nothing but a piece of loose cloth round his waist, is conducted by the proper attendant into the hall of the bath: a large white sheet is then spread on the floor, on which the bather extends himself. The attendant brings from the cistern, which is warmed from a boiler below, a succession of pails full of water, which he continues to pour over the bather till he is well drenched and heated. The attendant then takes the employer's head upon his knees, and rubs in with all his might a sort of wet paste of henna-plant into his mustaches and beard. In a few minutes this pomade dyes them a bright red. Again he has recourse to the little pail, and showers upon his quiescent patient another torrent of warm water. Then, putting on a glove made of soft hair, yet possessing some of the scrubbing-brush qualities, he first takes the limbs and then the body, rubbing them hard for three quarters of an hour. A third splashing from the pail prepares for the operation of the pumice-stone. This he applies to the soles of the feet. The next process seizes the hair of the face, whence the henna is cleaned away, and replaced by another paste, called *rang*, composed of the leaves of the indigo-plant; which brings the beard to a dark-blue or black colour. To this succeeds the shampooing, which is done by pinching, pulling, and rubbing, with so much force and pressure, as to produce a violent glow over the whole frame. Some of the natives delight in having every joint in their bodies strained till they crack; and this part of the operation is brought to such perfection, that the very vertebræ of the back are made to ring a peal in rapid succession. This has a very strange effect on the spectator; for, in consequence of both bather and attendant being alike unclothed, the violent exertions of the one and the natural resistance of the joints in the other, give the two the appearance of a wrestling-match. This over, the shampooed body, reduced again to its prostrate state, is rubbed all over with a preparation of soap, confined in a bag, till it is one mass of lather. The soap is then washed off with warm water, when a complete ablution succeeds, the bather being led to the cistern and plunged in. He passes five or six minutes, enjoying the perfectly-pure element; and, then emerging, has a large dry warm sheet thrown over him, in which he makes his escape back to the dressing-room.

The Persian ladies regard the bath as the place of their greatest amusement. They make appointments to meet there, and often pass seven or eight hours together in the carpeted saloon, eating sweetmeats, telling stories, &c. &c.

But, although the Persians bathe so often, says Mr. Scott Waring, they are a very dirty people. They very rarely change their garments, and seldom before it is dangerous to come near them. It is thought nothing in Persia to wear a shirt a month, or a pair of trowsers half a year. We are well justified, therefore, in considering bathing as one of the amusements, the luxuries, of a Persian, rather than as a religious duty. All ranks delight in it so much, that they have a saying, that "No man should visit a foreign country, where there is not a magistrate, a physician, and a bath." We have already seen the blessings they derive from the integrity of their magistrates; and, though rather out of place, we shall devote a very few lines to the skill of their physicians. The science of medicine among the Persians, not being founded either on anatomy or physiology, has nothing but conjecture for its guide. This profession, which is despised by the Turks, is considered honourable in Persia. It is not taught in academical institutions as in Europe, but each of its professors takes a number of pupils to whom he communicates the results of his experience. Their system of practice is derived from the Greeks, and has descended to them with very little alteration. According to their theory, things are either hot or cold in certain degrees; and the only question they have to resolve is, whether the disease proceeds from too much heat or

too much cold. Heat must be repelled by cold, and cold by heat; and hence, as Olivier remarks, the affusion of cold water, in cases of fever, appears to have been long practised among them, and he found that powerful diuretics were commonly prescribed to dropical patients. Tavernier mentions, that they give horse-flesh for the cholick; and Mr. Scott Waring was witness to nearly as curious an experiment. A poor man was violently afflicted with heart-burn; and, instead of prescribing an internal medicine, they heaped on his breast a great quantity of ice and snow, which they said was an effectual cure. Kotzebue relates a similar instance in the treatment of one of the musicians belonging to the Russian embassy. This man, being a Mahometan, had not sufficient confidence in the physician to the embassy, and desired that a Persian doctor might be called in. His disorder was an inflammatory fever. The Persian doctor appeared, and prescribed for the patient a large quantity of ice, which the poor fellow swallowed with ecstacy, and died on the third day.

MARRIAGES and FUNERALS.—"There is no celibacy in Islamism: your wives are to you, and you are to your wives, what the garment is to the body." Such are the terms in which the Koran speaks of marriage. Every male, on attaining the proper age, is therefore expected to take a female companion; whether it be a slave that he purchases, a woman whom he hires, or a legitimate wife whom he marries. His religion allows him the choice of these three modes; but at the same time forbids him to hold intercourse with loose women, or to covet the wife of another.

A female slave, when purchased by a man, becomes his sole and entire property: he can dispose of her life and even of her honour, as he pleases; and he may raise her from servitude to the condition of a free woman, and even of a legitimate wife, without incurring any censure: such is the custom.

The Persians have a connexion of a singular nature called *moutah*, which signifies "the use of any thing for a certain time." It is, in fact, a temporary marriage, the duration of which is fixed by the taker. A man whose circumstances do not permit him to form a jointure for a legitimate wife, takes one on lease. The contract is executed before the Cadi or the Sheik-ul-Islam. Legitimate marriage is called *nucnah*, and is contracted before the same magistrates. The Koran authorises a man to marry four lawful wives, provided he can maintain them. The same book proscribes marriages between relatives within a certain degree. A man may not marry his mother, his aunt, his daughter, his sister, his niece, his nurse, his foster-sister, his wife's mother or daughter, his son's wife, two sisters, or the wife of another.

The mode of matrimonial courtships in Persia does not allow the eyes of the parties to direct their choice till they are mutually pledged to each other. An elderly female is employed by the relations of the youth to visit the object selected by his parents or friends, or guessed at by himself; and her office is to ascertain the damsel's personal endowments, and all other subjects suitable to their views in the connexion. If the report be favourable, the friends of the proposed bridegroom dispatch certain sponsors to explain his merits and pretensions to the relations of the lady, and to make the offer of marriage in due form. If accepted, the heads of the two families meet, when the necessary contracts are drawn up; the presents, ornaments, and other advantages proposed by the bridegroom's parents, discussed and arranged; and, when all is finally settled, the papers are sealed, and witnessed before the cadi.

On the morning of the day fixed for the wedding, the lover sends a train of mules, laden with the promised gifts for his bride, to the house of her parents; the whole being attended by numerous servants, and preceded by music and drums. Besides the presents for the lady, the procession carries all sorts of costly viands on large silver trays, ready prepared to be immediately spread before the inmates

inmates of the house. The whole of the day is spent in feasting and jollity: towards evening, the damsel makes her appearance enveloped in a long veil of scarlet or crimson silk; and, being placed on a horse or mule splendidly caparisoned, is conducted to the habitation of her affianced husband by all her relations, marching in regular order to the sound of the same clamorous band which had escorted the presents. When alighted at the bridegroom's door, the lady is led to her future apartments within the house, accompanied by her female relations and waiting-maids. Her friends of the other sex meanwhile repair to those of the bridegroom, where all the male relations on both sides being assembled, the feasting and rejoicing recommences; with the drums and other musical instruments still playing the most conspicuous part. When the supper-feast is over, the blushing bride is conducted to the nuptial chamber; and there the impatient lover first beholds his love, and the marriage is consummated without farther ceremony. The bridegroom, not long after, returns to his party, and an ancient matron in waiting leads the lady back to her female friends. A prescribed time is allowed for both sets of relations to congratulate the young people on their union; after which they repair to the bridal chamber for the night, leaving their separate companies to keep up the revelry, which generally lasts for three days.

The marriage-contract stipulates the settlement on the bride of such jointure as may be agreed upon. It consists of a sum of money, proportionate to the fortune of the bridegroom, and other presents. If he is in middling circumstances, he presents her with two complete dresses, a ring, and a mirror. This jointure, called *mihir* or *kavin*, is destined for the support of the wife in case of divorce. The husband also supplies the requisite furniture, carpets, mats, culinary utensils, and other necessaries.

When any misunderstanding arises between husband and wife, they each choose an umpire out of their respective families, and refer the matter to his decision: but, if their dispositions or tastes cannot be reconciled, a divorce is solicited and granted by the judge. The wife then receives back her portion, and sometimes keeps half her jointure. A man may marry again after such separation, and be a second time divorced; but the third marriage, though allowed, must not be contracted till the woman has married another man. A wife who has been put away, cannot marry for three months after her repudiation; neither can a widow till four months and ten nights after the decease of her husband.

If a wife commits adultery, and the fact is attested by four witnesses, the husband has a right to keep her a prisoner for life; "but the chastity," says M. Olivier, "or the address, of the married women, renders the infliction of such punishment extremely rare." M. Olivier adds, that, though four wives are allowed, people in low circumstances seldom have more than one.

In Persia, and throughout the East, there is no such thing as illegitimacy: all the children are equal and legitimate in the eye of the law. The first-born is heir of right, even though he received life from a slave.

When a wife dies, half her property belongs to her surviving husband, if she has no children: in the contrary case he has but one-fourth. When the wife survives, she can claim one-fourth of her husband's property, but one-eighth only in case there are children.

Funerals are conducted with very little splendour; and the day of death is commonly that of sepulture. The dead are perfumed with incense, and buried in a kind of shroud open at both ends, that the deceased may be able to sit up and reply to the interrogatories of the angels of death. (See p. 702.) The burial-grounds are near the highways; and, as one grave does not intrude upon another, they are very extensive. Though the Mahometan religion forbids graves to be covered with any structure whatever, yet the ostentation of the great has violated this precept, and left the observance of it to the very low-

est class, who have only a piece of stone set up vertically at the end of the grave, with a moral inscription, or a passage from the Koran. The tombs of the middling sort of people are built with bricks, with a small piece of marble at the head to contain the epitaph. Stone lions and rams rudely sculptured are very frequently seen in Persian burial-grounds; and are placed over the tombs of soldiers, or those famed for their courage. The rich have over their tombs small cupolas resting on four pilasters: the largest and most considerable are called *takieh*, and are built over the remains of holy and learned men. Around these and such-like monuments, are in general to be seen collections of minor tombs; for it is a received opinion, that those who are buried in the vicinity of a holy personage will meet with his support at the day of resurrection. The Persians, however, do not take the same care of their dead as the Turks. Their tombs are trampled on; paths frequently lead directly over them; and epitaph, tomb-stone and all, are often carried away to be used as materials for building.

Mourning lasts forty days at the utmost. Black is not the livery of sorrow: that colour is abhorred by the Persians. They express grief, and mark the state of mourning, by sighs and moans, by abstaining from food for eight days, and by wearing garments of a brown or pale colour adapted to the state of the mind. For ten days their friends pay them visits, and afford them all the consolation in their power. They then go to the bath, have their heads shaved, and put on fresh clothes. Here ends the full mourning; but their lamentations continue till the fortieth day, and they renew them twice or thrice a-week, always at the hour when the deceased expired.

The grief of the women is more strongly expressed, and of longer continuance. Endowed by nature with keener sensibility than the other sex, and left by the death of a husband in a state of forlorn widowhood, to which they are generally doomed for the rest of their lives, they mourn for many months, paying daily visits to the grave, and watering it with their tears.

AGRICULTURE and COMMERCE.—We have repeatedly noticed the extreme dryness of the climate and the great deficiency of rivers. These circumstances have obliged the Persian husbandmen to turn all their ingenuity to the discovery of springs, and to the art of bringing their streams to the surface of the earth. When a spring has been discovered, they dig a well until they come to water; and, if they find that the quantity is sufficient to repay them for proceeding with the work, they dig a second well, at such a distance from the other as to allow a subterranean communication between them. They then ascertain the nearest line of communication with the level of the plain upon which the water is to be brought into use, and dig a succession of wells with a subterranean communication between the whole series, till the water at length comes to the surface, when it is conducted by embanked channels to the place of its destination. The extent of country through which such streams are sometimes conducted is truly astonishing; and such is the consequence of a new *kanaut*, or aqueduct, that the day when the water is brought to its ultimate destination is a day of rejoicing among the peasants. The astrologers are consulted to name a fortunate hour for the appearance of the stream; and, when it comes forth, it is received with songs and music, attended by shouts of joy and exclamations of *Mobatrek bashed!* "Prosperity attend it!"

The labour and expense of a *kanaut* of course depends greatly upon the distance whence the water is to be brought. The mode of making the well is very simple. A shaft is first dug, then a wooden trundle is placed over it, from which is suspended a leather bucket which is filled with the excavated matter by a man below, and wound up by another above. Where the soil is soft, the mouth of the well is secured by masonry. The mode of drawing water from these wells is as follows: Two posts support a cylinder which turns on an axis and is placed over

over the mouth of the well. From this cylinder descends a cord of a sufficient length to reach the bottom, having a bucket fastened to one end, and being tied at the other to the collar or yoke of an ox. To ease the labour of the animal as much as possible, he is made to go along a direct path down a slope; and, to prevent his deviating from it, the lateral ring of his collar runs upon a rope, one end of which is fastened to one of the posts mentioned above, and the other to a stake fixed at the farther end of the path. Thus when the ox draws, the slope naturally hurries him along, and the vessel full of water is raised with much less exertion of strength than would otherwise be required. The buckets are no other than large skins, the mouth of which is held open by a wooden hoop with two cross-bars. They are used of two shapes: some being formed almost like a funnel, terminating in a curved tube closed by a cock; the others resembling a large tub: but the use of the former requires a second contrivance, consisting of two upright posts and a cylinder on an axis, placed over a reservoir situated near the well. A cord fastened to the end of the tube winds round this smaller cylinder, passes over the larger, and is tied to the collar of the ox: the purpose of this cord is to draw the skin filled with water out of the well, to be emptied by the tube into the reservoir. M. Jourdain has furnished an engraving of this process.

In spots more favoured by nature, situated at the foot of snow-covered mountains, the industry of the Persian is successfully exerted. In the defiles of the mountains, wherever the situation permits, the snow-water and rain-water are detained by walls; and, when their quantity is sufficient to form streams, channels are dug by which they may be drawn off.

The ploughing is performed by means of a share drawn by two oxen, harnessed not by the horns but to a yoke that passes over the chest. This share is very short, and its coulter but slightly cuts the ground. As the furrows are made, the clods are broken with large wooden beaters, and the surface is smoothed with the spade and a harrow that has very small teeth. Thus prepared, the ground, divided into squares, looks like garden-beds, with borders a foot or more in height, according to the quantity of water required for irrigating it.

The sickle used in Persia is unlike ours, being scarcely bent in the blade. Threshing is performed by a machine composed of a large square wooden frame, which contains two cylinders, placed parallel to each other and having a rotatory motion. They are stuck full of spikes with sharp square points, but not all of a length. These rollers have the appearance of the barrel of an organ; and their projections, when brought in contact with the corn, break the stalk, and disengage the ear. They are put in motion by a couple of cows or oxen yoked to the frame, and guided by a man sitting on the plank that covers the frame which contains the cylinders. He drives this agricultural equipage in a circle round a heap of corn, keeping at a certain distance from its verge, close to which a second peasant stands, holding a long-handled pronged fork, shaped like the spread sticks of a fan; and with which he throws the unbound sheaves forward to meet the rotatory motion of the machine. He has a shovel also ready to remove at a distance the corn that has already passed the wheel. Other men are on the spot with the like implement, with which they throw the corn aloft in the air, when the wind blows away the chaff, and the grain falls to the ground. This process is repeated till the corn is completely winnowed; it is then gathered up and deposited for use in large earthen jars.

Sir R. Porter mentions one district, where he remarked as a singularity a very clumsy sort of cart employed for carrying corn. It moves on two solid wheels, while the body and pole take the shape of a long triangle; and is drawn by oxen or buffaloes. In no other part of Persia did he find so useful an assistant to husbandry as even this rude vehicle.

VOL. XIX. No. 1338.

The vale of Khoi, about fifteen miles in length and ten in breadth, is described as equal to any spot of similar extent, either in Persia or any other country, for richness of cultivation. It produces great quantities of corn, cotton, and rice. The soil is so stiff, that it sometimes requires ten pair of buffaloes to drag the plough-share through it. When the plough is at work, two or three men, according to the length of the team, are seated upon the yokes, exciting their cattle by a loud song, which, in the stillness of the morning, has a very pleasing effect. Their plough is an instrument of more mechanism than that of the south of Persia, and furrows the earth much more effectually. The corn grows thicker and better than in any other parts, owing, doubtless, to the superiority of this implement, and also to the abundance of water with which this plain is blessed.

Pigeon-houses are erected in Persia at a distance from human habitations for the sole purpose of collecting pigeons' dung for manure. There are many such in the environs of Ispahan. They are large round towers, rather broader at the bottom than at the top, and crowned with conical spiracles through which the pigeons descend. Their interior resembles a honeycomb, pierced with a thousand holes, each of which forms a snug retreat for a nest. More care appears to have been bestowed upon their outside than upon the generality of the dwelling-houses, for they are painted and ornamented. The extraordinary flights of pigeons, and the compactness of their mass, give them the appearance of clouds which actually obscure the sun in their passage. The Persians do not eat pigeons, keeping them solely for their dung, which is the dearest manure in this country; and, as they employ it entirely in the rearing of melons, it is probably on this account that the melons of Ispahan are so much finer than those of other countries. The revenue of a pigeon-house is about one hundred tomans per annum; and the great value of this dung, which rears a fruit indispensable to the existence of the natives during the great heats of summer, may probably throw some light upon that passage of Scripture which relates, that, during the famine in Samaria, *the fourth part of a cab of doves' dung was sold for five pieces of silver.* 2 Kings, vi. 25.

Sir Robert Porter describes a method by which the villagers who keep bees take the honey without destroying the industrious insects. The hives are constructed like long thin barrels thrust through the mud walls of the house; one end opens to the air for the entrance of the bees, and the other, which projects more than a foot into the inhabited rooms, is closed with a cake of clay. When the owner wishes to take the honey, he has only to make a continued noise for some little time at the closed end, which causes all the bees to take flight at the other. During their absence he removes the clay, and clears the hive of honey, leaving, however, sufficient for their winter-supply. The inner end is then re-closed; and the little labourers soon return to their home, and re-commence their operations. *Jourdain*, tom. v. p. 284.

The little commerce that Persia now enjoys is principally carried on by the Armenians, whose habits, migrations, and industry, bear some resemblance to those of the Jews. They are scattered over the kingdom, and are held in greater respect by the Persians than seems consistent with the intolerant precepts of the Koran. They seldom intermarry with any other sect, and preserve inviolate the religion and customs of their ancestors.

Persia, indeed, was never an essentially-commercial country at any period of its history, unless when under the dominion of the Arabs. The caravans from the western provinces of the Saracen empire then passed through it on their way to Tranfoxana and some parts of India. The laws of Zoroaster, which encouraged agriculture, naturally checked commerce; and, as most of the rivers were unnavigable, there was not much internal traffic. The soil produces few things in sufficient quantity to be exported: some wheat, barley, rice, dates, and

almonds, are, however, shipped at Bushire, Muscat, and other parts of the Persian Gulf. The principal manufactured articles are gold brocade, silks, cotton stuffs of different kinds, leather, shawls of inferior quality, and rich carpets. With respect to shawls, observes Kotzebue, "the Europeans are under a great mistake: those which are worn in Persia are the very worst I ever saw. We have seen people there admire shawls which no lady in our country would think of wearing; and I am therefore not surprised that the Persian ambassador at the court of Petersburg, who took a fancy to make a present of one to the countess Orloff, should have had the mortification to see it worn by her maid, while the countess herself had on a shawl of such value as absolutely astonished his excellency. The Persians cannot afford to pay the prices that are given for them at Constantinople and in Russia."

The cloths of Ispahan, Yezd, and Kasan, are exported to Russia by way of Astrachan, and exchanged for broad cloths, velvets, satins, and hardware. At Meragah and Shiraz there are glass-manufactories; and guns and pistols are made in almost all the large towns. The lances of Chorasan are in the highest estimation; they are made by descendants of those skilful cutlers whom Tamerlane transplanted from Damascus into that province.

Persia produces many species of gum and drugs, and among others *assa-foetida*, great quantities of which are exported to India: it receives in exchange sugar, indigo, spices, and several European commodities. The inhabitants of the Persian confines still extract a sweet oil from the fruit of the turpentine-tree; a practice to which Xenophon alludes in his narrative of the Retreat of the Ten Thousand. Excellent turpentine also is procured by the incision of the trunk, and forms a considerable article of commerce, as the tree abounds on all the heights.

The shah, or sovereign of Persia, is the chief merchant; and his agents must have the refusal of all merchandise, before his subjects are permitted to trade. It is computed that Persia produces yearly upwards of 22,000 bales of silk, chiefly in the provinces of Ghilan and Mazanderan, each bale weighing 263 lbs. Vast quantities of Persian silk are imported into Europe, especially by the Dutch, English, and Russians. The goods exported from Persia

to India are, tobacco, all sorts of fruits, pickled and preserved, especially dates, marmalade, wines, distilled waters, horses, Persian feathers, and Turkey leather of all sorts and colours, a great quantity whereof is also exported to Russia and other European countries. The exports to Turkey are, tobacco, galls, thread, goat's hair, stuffs, mats, box-work, &c. &c.

As there are no posts in the east, and trading by commission with the use of bills of exchange, is little known, traffic must proceed in a very awkward heavy manner, in comparison of that of Europe. The most current money of Persia are the *abassees*, worth about 1s. 4d. sterling; they are of the finest silver. An *abassée* is worth two *mahmoudes*; a *mahmoude*, two *shahees*; and a *shahee*, ten single or five double *casbeghes*: these last pieces are of brass, the others of silver; for gold is not current in trade. The *shahees* are not very common; but *mahmoudes* and *casbeghes* are current everywhere. Horses, camels, houses, &c. are generally sold by the *toman*, which is an imaginary coin, worth 200 *shahees*, 50 *abassés*, or 3l. 6s. 8d. sterling.

Though, in the progress of this article, we have mostly quoted our authorities, we shall conclude by bringing into one view the titles of the principal works to which we have been indebted. 1. Ancient and Modern Universal History. 2. Historical Register for 1727. 3. Aikin's General Biography. 4. Francklin's Observations on a Tour in Persia, in 1786, 7. 5. Olivier's Travels in Turkey, Egypt, and Persia, from 1793 to 1797. 6 vols. 8vo. the two last published at Paris in 1807. the two first only, we believe, have been translated. 6. Morier's Journey through Persia, Armenia, &c. in 1808, 9. 7. Second Journey, 1810 to 16. 8. Sir John Malcolm's Hist. of Persia, 2 vols. 1815. 9. La Perle, 5 tom. Paris, 1814. 10. Present State of Persia; Paris 1818. 11. L'Europe et ses Colonies en Decembre 1819, 2 vols. Paris, 1820. 12. Sir Robert Ker Porter's Travels in Georgia, Persia, &c. 13. Las Cafes' Journal of Conversations at St. Helena; Lond. 1823. 14. Richardson's Persian Dict. Wilkins's edit. 15. Times newspaper 1822, 3; together with sundry volumes of the Edinburgh and Quarterly Review, Monthly Magazine, Monthly Review; &c. &c.

INDEX to the Article PERSIA.

ADAKA, son of Hulaku the Mogul, 676.
 Abbas the Great, his successes and cruelties, 678; cruelties still more horrible, dies, 679; his character, 680.
 Abbas II. his reign, 680.
 Abbas III. 685.
 Abbas Mirza, prince royal of Persia, 693; improves the army, 696; protects the Christians, 705; has an English governess for his daughters, 711.
 Achmet Aga, kills himself, 682.
 Afghans, or Patans, 681; Mahometans of the sect of Omar, 682.
 Aga Mohammed, an eunuch, becomes king of Persia, and cruel like all before him, 688; crowned, and afterwards murdered, 689.
 Agriculture, 722, 3.
 Ahmed Khan, the first of the race of Gengis who became a Mahometan, 676.
 Alexander Severus, emperor of Rome, 664.
 Ali, the son-in-law of Mahomet, highly honoured by the Persians, 702, 3; festivals in memory of him and his son, 704.
 Amusements of the Persians, 718.
 Ardefer reigns seven months, 671.
 Armenian Christians, 705, 710; the chief traders in Persia, 723.
 Army, improvements in, 696; present state of, 696, 7.
 Arses, reigns two years, 663.

Artaxerxes Longimanus, the Ahafuerus of Scripture, subdues Egypt; his death, 661.
 Artaxerxes Mnemon, his wars in Greece, peace of Antalcidas, unsuccessful against the Egyptians, 662; vexations and death, 662, 3.
 Artaxerxes, otherwise Artaxares, the restorer of the Persian empire, 664.
 Artaxerxes, son of Sapor II. 666.
 Ashraf, dissembles with the deposed king, 683; defeated, 684; and killed, 685.
 Astyages, grandfather of Cyrus, 657.
 Attorneys unknown in Persia, 700, 701.
 Baba Khan. See Feth Ali Shah.
 Babylon, revolts from Darius, 660; recovered by a stratagem, 661.
 Bahram, or Varames, a famous Persian general, aspires to the crown, 670; expelled, and at length poisoned, 671.
 Baths, 720, 1.
 Beard, carefully dressed and anointed, 715.
 Bee-hives, how managed, 723.
 Beglerbegs, or governors of departments, 698.
 Beiram, festival of, 704.
 Belisarius, the famous general, opposes Chofroes in Palestine, 668.
 Cadi, a magistrate or judge, 700.
 Cadjars, or Runaways, the name of the tribe to which the reigning family belongs, 686.

Cambyfes king of Persia, his fruitless expedition against Ethiopia, and death, 659.
 Cavades king of Persia, deposed and restored, 667; his wars and death, 667, 8.
 Chamberlain of Persia, 694.
 Chofroes the Great, king of Persia, suppresses a conspiracy at the beginning of his reign, reduces Antioch and other places, 668; espouses the cause of the Lazi, whom he afterwards subdues, 668, 9; his reverses, death, and character, 669.
 Chofroes II. obliged to quit his palace, 670; reinstated, his successes in war, magnificence, pride, arrogance, and miserable death, 671.
 Christians in Persia, 710; the chief traders, 723.
 Commerce, not considerable, 723, 4.
 Courtisans taxed in Persia, 700.
 Cræsus, king of Lydia, his immense army to oppose the Persians under Cyus, 657; his empire destroyed, 658.
 Custom-duties on goods, 700.
 Cyus, the first king of Persia named in authentic history, 656; contradictory accounts of him by Herodotus and by Xenophon, 657; attacks Cræsus, and destroys the Lydian empire, 657, 8; his other conquests, 658; contradictory accounts of his death, 658, 9.
 Cyrus the Younger, 662.

Darius

- Darius Hiftaspis, elected king by the contrivance of his groom, 660; reduces Babylon, 660, 1; successful in Scythia and India, his death, 661.
- Darius Nothus, or Ochus, 662.
- Darius Codomannus, 663; subdued and deposed by Alexander the Great, 664.
- Dress, not according to Chardin's rule, 714; of the women, 715.
- Education of the Persians, 718.
- Euthalites, or White Huns, 667.
- Falconry in Persia, 709.
- Fasting in Persia, very strict, 703.
- Feasting, anecdotes of, 716, 17.
- Feridoun, one of the earliest monarchs of Persia, 656.
- Festivals and amusements of the ancient Persians, 674, 5; of the modern, 704.
- Feth Ali, chief of the tribe of the Cadjars, and great-grandfather of the present king, 686.
- Feth Ali Shah, adopted by his uncle as heir to the throne, 688; ascends the throne, and murders his benefactor, 689; his personal appearance, and character, 692; family, 693; officers of state, 694; women, 694, 5; brilliancy of his court, 695; liberal to the Christians, 705; but not to the Sosis, 705, 6.
- Fish plentiful in Persia, 709.
- Funerals, monuments, and mourning, 722.
- Gaming forbidden, but practised, 720.
- Gengis Khan, 676.
- Georgia, often conquered and re-conquered, at length given up to Russia by treaty, 689, 690.
- Guebres, or fire-worshippers, 648.
- Gymnastic exercises, 719.
- Hadjee Khan, prinie minister, 698.
- Harpagus, saves the life of Cyrus, and is betrayed to eat the flesh of his own son, but is afterwards revenged, 657.
- Havoufa, a Persian general, his avarice and treachery, 682.
- Heraclius, emperor of the East, 671.
- Heraclius, prince of Georgia, 689.
- Hormidas, king of Persia, his short and peaceable reign, 665.
- Hormidas II. 665.
- Hormidas III. defeats the Turks, 669; ascends the throne at the death of his father, his unjust behaviour occasions him to be deposed, 670.
- Horses and other cattle, 708.
- Horsemanship, feats of, 719.
- Horseracing, 720.
- Houses, 710, 11; how furnished, 717; how lighted and warmed, 718.
- Hulaku the Mogul, 676.
- Hunting in Persia, 720.
- Husfeyn the Weak, 681; betrayed by one general, and disgraces another, 682; his degradation, 683; and death, 684.
- Husfeyn, the son of Ali, 685, 702, 704.
- Jews, state of, in Persia, 710.
- Iran, the ancient name of Persia, 656.
- Idigertes, or Yezdegerd, king of Persia, 666.
- Idigertes II. the last king of the race of Artaxares, 671; his son and daughter, 672.
- Ismael Sefi, and Ismael II. and III. 678.
- Ispahan, made the seat of empire by Abbas the Great, 678; besieged by the Afghans, 682; dreadful sufferings of the people, 683.
- Julian, the Roman emperor, his foolish conduct occasions his death in the war against Sapor II. 666.
- Justinian, emperor of the East, 667; at war with Chofroes, 668, 9.
- Kerim Khan, after overcoming many opponents, becomes king of Persia, 686; his prosperous reign, 687.
- Khan, that title explained, 694; governor of a balook, or canton, 699.
- Khodah Bundah, son of Abbas the Great, 679.
- Khoi, remarkable hunt there, 720; noted for its fertility, 723.
- Koran, the source of law as well as of religion, 700.
- Kouli Khan. See Nadir Shah.
- Latif Ali, the last representative of the house of Kerim Khan, 688.
- Locusts in vast quantities, 709.
- Lotos, or lily, venerated by the Persians, as well as by the Egyptians, Hindoos, &c. 651.
- Magi, slaughter of, 660.
- Mahmud the Afghan, murders his brother, 681; besieges Ispahan, 682; his arrogance, insanity, and death, 683.
- Marriage-ceremonies, and treatment of wives, 721, 2.
- Master of the Ceremonies, 694.
- Medicine, as practised by the Persians, 721.
- Meer Aub, or prince of the waters, 707, 8.
- Mir-Weis, king of Candahar, 681.
- Mirza, that title explained, 693, 4.
- Mirza Sefi, a monster of cruelty, 680.
- Mirza Sheffea, late prime minister, 697, 8.
- Mohammed king of Persia, 678.
- Mohammed Hassan, grandfather of the present king, 686.
- Mountains of Persia, 707.
- Mufti, his office and authority, 700.
- Nadir Shah, or Kouli Khan, becomes commander-in-chief under the king Tahmasp, whom he restores to his crown, 684; but soon afterwards deposes him, and ascends the throne; his expedition to India, and is murdered on his return, 685; his character, 686; improvements made by him in the army, 696, 697; pretended moderation in religious matters, 702.
- Narfes king of Persia, 664, 5.
- Narfes, general of the troops of Varanes V. 666.
- New-year's day, as celebrated by the ancient Persians, 674; by the modern, 720.
- Ochus, brother of Sogdianus king of Persia, 661; murders Sogdianus, mounts the throne, his reign and death, 662.
- Ochus, son of Artaxerxes, his cruelty, successes against the Sidonians and Egyptians, poisoned, 663.
- Omar, second caliph from Mahomet, 671, 702; festival of imprecation, 704.
- Otanes, 659; occasions the detection of the impostor Smerdis, and lives independent of kings, 660.
- Peacock-throne built for Nadir Shah, 685; a similar one for Feth Ali Shah, 695.
- Peroses, killed by the White Huns, 667.
- Persees, or Parsees, a set of primitive Persians in British India, 648; their mild and benevolent habits, 649.
- Persepolis, 649; description of the ruins, 650; part of the sculptures brought to England, 651; supposed to be the ruins of a temple, rather than of a palace, 652; characters of the inscriptions, ibid.
- Persia, ancient and modern boundaries, 655; originally peopled by Elam, the son of Shem, 656; Cyrus, the first king of whom we have any authentic account, 657; the empire overturned by Alexander the Great, transferred to the Parthians, and at length restored by Artaxares, 664; end of that dynasty, 671, 2; manners and religion of the Persians to that period, 672;
- Mahometan dynasties, 675; present power and extent, 689; recent politics, 690; has no metropolis properly so called, 692; the king and his family, 692, 3; officers of state, 694; women of the harem, 695; army, 696; prime-minister, 697; other officers of the government, 698; divisions and subdivisions of the kingdom, 698, 9; revenue, 699, 700; laws, 700; administration of justice, 701; religion, 702; religious festivals, 704; climate, 707; produce, 708; population, 709, 10; character, 711; contrasted with that of the Turks, 712; of the women, 713; dress, 714; of the females, 715; domestic habits, 716; education and amusements, 718; medicine, 721; marriages, 721; funerals, 722; agriculture, 722; commerce, 723.
- Pigeons-dung, the chief manure, 723.
- Pilgrimage to Mecca, 703, 4.
- Population, 709, 10.
- Poultry and game, 708.
- Prayers and almsgiving, 703.
- Punishments, 701, 2.
- Purifications, 703.
- Ramazan, the principal fast, 703, followed by the feast of Bairam, 704.
- Religion of the ancient Persians, 674; of the moderns, 702.
- Russia, particularly anxious to conciliate the Persians, 691.
- Sadik Khan, brother of Kerim, deposes and blinds his nephew, and usurps the government, 687.
- Salt extremely plentiful, 708.
- Sapor king of Persia, his successes against the Romans, 664; reigns thirty-one years, 665.
- Sapor II. declared king before he was born, 665; his great success against the Romans, 666.
- Saracens, assist the Persians against the Romans, 666; lose a vast number of men, 667.
- Sculpture, advantages of, 651.
- Scythia invaded by Darius, 661.
- Seraglio, or harem, 694; how supplied, 695.
- Shahrokh, grandson of Nadir Shah, 686.
- Shawls, the Persian not equal to those from Turkey, 724.
- Sheik-ul-Islam, high-priest and chief justice, 700.
- Shiites and Sunnites, 702.
- Shiraz, particularly distinguished by Kerim Khan, 687; its climate, 707.
- Silk forbidden to be worn, 715.
- Siroes, son of Chofroes II. his short reign, 671.
- Smerdis the Magian, usurps the throne of Persia, 659; betrayed and killed, 660.
- Smoking used on foot and on horseback, 715.
- Sosis, an account of that sect, 705; ordered to be rooted out, 706.
- Sogdianus, murders the king his brother, and ascends the throne, 661; smothered in ashes, 662.
- Solyman, as cruel as his predecessors, 681.
- Tahmasp, king of Persia, reduces Georgia, 678.
- Tahmasp II. 683; escapes from the usurper Afshaf, and takes Nadir Khan into his service, 684; who first reinstates and then deposes him, murdered by Nadir's son, 685.
- Tamerlane, his rise and wonderful progress, he subdues Persia and Hindoostan, 676; destroys Sebaste, reduces Bagdad, defeats Bajazet emperor of the Turks, and plans the conquest of China, his death and character, 677.

Taxes, how raised, 699, 700.
 Teheran, the present metropolis of Persia, 692.
 Teribazus, his stratagem with the Cadusian kings, 662; conspires against Artaxerxes, 663.
 Turks, their character contrasted with that of the Persians, 712, 13.
 Vaca-neviz, or writer of occurrences, a very ancient post, 698.
 Valens, king of Persia, 667.

Valerian emperor of Rome, taken prisoner by Sapor king of Persia, and dies in captivity, 664.
 Varanes I. II. and III. 665. IV. 666.
 Varanes V. cause of his persecuting the Christians, 666; his prudent behaviour in war and peace, 667.
 Varanes VI. 667.
 Well-digging, &c. 722, 3.
 Willock, lieut. chargé d'affaires at the court of Teheran, 691.

Women, character and occupations of, 713, 14; dress, 715; education, 718; marriages, 721, 2.
 Xerxes, his reign and death, 661.
 Xerxes II. his short reign, 661.
 Zambades, king for a short time, 667.
 Zika Khan, an usurper at the death of Kerim, 689.
 Zopyrus, his stratagem to put Darius in possession of Babylon, 660, 1.

P E R.

PER'SIAH, a town of Hindoostan, in Baglana: eighteen miles east-south-east of Bassen.

PER'SIAN, *f.* A native of Persia. The language of the Persians. A kind of silk.

PER'SIAN, or PERSIC, *adj.* Belonging to Persia; distinguishing that order in architecture in which the statues of men are introduced instead of columns, as the Caryatic order has the figures of women for the same purpose. This was first used by the Athenians in token of a victory which their general Pausanias gained over the Persians. Le Clerc says, that Persian columns are not always made with the marks of slavery; but are frequently used as symbols of virtues and vices, of joy, strength, valour, &c. See the article ARCHITECTURE, vol. ii. p. 72.

PERSIAN GULF, a sea or inland lake, bounded on the north by Persia, and elsewhere by Arabia, except at the eastern extremity, where it communicates with the Arabian Sea: about 500 miles from east to west, and from 120 to 250 in breadth, from north to south; the principal river which runs into it is the Euphrates. The southern coast in particular is celebrated for its pearl-fishery. Most part of the coasts, both on the north and south, belong to colonies of Arabians.

PERSIAN LILY. See FRITILLARIA.

PERSIAN WHEEL. See the article MECHANICS, vol. xiv. p. 761.

PER'SICA, *f.* in botany. See AMYGDALUS.

PER'SICA TER'RA, *f.* An earth of the ochre kind, known in the colour-shops of London by the name of INDIAN RED. It is a very fine purple ochre, of a considerably compact texture, and great weight: while in the earth, it is of a pure blood-colour, and is not to be cut with the spade, but is dug with iron crows, and falls in irregular masses. It is of a rough dusty surface, and full of considerably-large bright glittering particles: these are white, and of a fine lustre. It adheres firmly to the tongue, is rough and harsh to the touch, stains the hands very deeply, and is of a rough astringent taste, and makes a very violent effervescence with acid menstruums. It is dug in the island of Ormus, in the Persian gulf, and in some parts of the East Indies.

PER'SICE SIM'ILIS. See MANGIFERA.

PERSICA'RIA. See POLYGONUM.

PERSICA'RIA SILOQUO'SA. See IMPATIENS.

PER'SIMON. See DIOSPYROS.

PER'SIS, a Roman lady, whom St. Paul salutes in his Epistle to the Romans (xvi. 12.) and whom he calls the *beloved*. He says she has *laboured much in the Lord*. Nothing else of her life is come to our knowledge, nor do we know that she is honoured by any church; which is something singular.

To PERSIS'T, *v. n.* [*persisto*, Lat. *persister*, Fr.] to persevere; to continue firm; not to give over.—Nothing can make a man happy, but that which shall last as long as he lasts; for an immortal soul shall *persist* in being, not only when profit, pleasure, and honour, but when time itself, shall cease. *South*.

PERSISTANCE, or PERSISTENCY, *f.* [from *persist*. PERSISTENCE seems more proper.] The state of persisting; readiness; constancy; perseverance in good or bad.—The love of God better can consist with the indeliberate

P E R

commitments of many sins, than with an allowed *perseverance* in any one. *Gov. of the Tongue*.—Obstinacy; obduracy; contumacy.—Thou think'st me as far in the devil's book, as thou and Falstaff, for obduracy and *persistency*. *Shakespeare*.

PERSISTANT, or PERSISTENT, *adj.* [*persistens*, Lat.] In botany; continuing a long while green with respect to the other parts of the same flower or plant.

PERSISTIVE, *adj.* Steady; not receding from a purpose; persevering:

The protractive trials of great Jove,

To find *persistive* constancy in men.

Shakespeare.

PER'SIUS, or AULUS PERSIUS FLACCUS, a Roman poet, is said to have been born at Volterra, in Tuscany, A. D. 34. Others have supposed Liguria to have been his native country, where he had a house at the Portus Lunæ. His family was of equestrian rank, and his education was that of a person of birth and fortune. He studied at Rome under the grammarian Palæmon, the rhetorician Virginius Flaccus, and the stoic philosopher Cornutus. He lived in intimacy with several of the most eminent persons of his time, and was generally beloved for the modesty of his disposition, and the suavity of his manners. He died at the early age of 28, and bequeathed to his preceptor Cornutus his library of 700 volumes, with a considerable sum of money; but the philosopher accepted only the books, and divided the money among Persius's sisters. These are all the circumstances of his life with which we are acquainted, and which are chiefly derived from a brief notice of him ascribed to Suetonius.

As a poet, Persius is only known by his Satires, six in number, which were in high reputation among his countrymen; for both Martial and Quintilian mention the applause he acquired by his *single* book. They are of the grave and sententious kind, chiefly turning upon topics of general morals. The philosophy of his excellent preceptor Cornutus, to whom one of them is dedicated, has given them an elevation and purity of sentiment, which in some parts places them in the first rank of moral poetry; but their extreme obscurity almost destroys the pleasure of a perusal. This may undoubtedly be partly ascribed to our incapacity of entering into many allusions to persons and things which would be plain enough to his contemporaries, but it is also to be imputed to his harsh and abrupt style, and extreme conciseness. There are supposed to be several strokes against Nero in his satires, and four bombast lines are thought by critics to be transcribed from that imperial poetaster; but this is mere conjecture, and not very probable. Persius is generally edited with Juvenal. Isaac Casaubon is his best commentator: his editions are Paris 1605, and London 1647, 8vo. Brewster's metrical English version is much esteemed.

PER'SKENSTEIN, a town of Silesia, in the principality of Neisse: three miles north-north-east of Ortmutchau.

PER'SO, a town of Italy, in the country of Friuli: ten miles north-west of Udina.

PERSOLA'TA, *f.* in botany, a word used by Pliny, as the name of a kind of burdock, different from the *personata*. He has, in the beginning of the chapter, spoken

ken of the *Arctium* of the Greeks, which he says the Latins sometimes called *perfonata*; and afterwards adds this *perfolata*; which, he says, was a plant vulgarly known, and called by the Greeks *arctium*. He seems to allow, that the Greeks called both these plants by the same name; but he distinguishes the *perfolata* from *perfonata*, by saying that the former has leaves like those of the great gourd, but larger and more hairy. It is probable, therefore, that he distinguishes, under these two names, the two different species of the great burdock common with us; the one with simple, the other with woolly, heads. See *ARCTIUM*.

PERSON, s. [*perfonne*, Fr. from *perfonna*, Lat.] Individual or particular man or woman.—A *perfon* is a thinking intelligent being, that has reason and reflection, and can consider itself as itself, the same thinking thing, in different times and places. *Locke*.—Man or woman considered as opposed to things, or distinct from them.—A zeal for *perfon*s is far more easy to be perverted than a zeal for things. *Sprat*.—To that we owe the safety of our *perfon*s, and the propriety of our possessions. *Atterbury*.—Individual; man or woman.—This was then the church, which was daily increased by the addition of other *perfon*s received into it. *Fearfon*.—Human being; considered with respect to mere corporal existence.—The father and son are reputed in law as the same *perfon*; an ambassador represents the *perfon* of his prince. *Chambers*.

'Tis in her heart alone that you must reign;
You'll find her *perfon* difficult to gain. *Dryden*.

Man or woman considered as present, acting or suffering.—The rebels maintained the fight for a small time, and for their *perfon*s showed no want of courage. *Bacon*.

If I'm traduc'd by tongues which neither know
My faculties nor *perfon*;
'Tis but the fate of place, and the rough brake
That virtue must go through. *Shakespeare's Hen. VIII*.

A general loose term for a human being; one; a man.—Be a *perfon*'s attainments ever so great, he should always remember that he is God's creature. *Richardson's Clarissa*.—One's self; not a representative.—When I purposed to make a war by my lieutenant, I made declaration thereof to you by my chancellor; but now that I mean to make war upon France in *perfon*, I will declare it to you myself. *Bacon's Hen. VII*.—Our Saviour in his own *perfon*, during the time of his humiliation, duly observed the sabbath of the fourth commandment, and all other legal rites and observations. *White*.

The king in *perfon* visits all around,
Comforts the sick, congratulates the sound,
And holds for thrice three days a royal feast. *Dryden*.

Exterior appearance:

For her own *perfon*,
It beggar'd all description. *Shakespeare*.

Man or woman represented in a fictitious dialogue.—All things are lawful unto me, saith the apostle, speaking as it seemeth, in the *perfon* of the Christian Gentile, for the maintenance of liberty in things indifferent. *Hooker*.—The name and part of an actor; or of him presented by the comedian.—The ancient tragedy was only a simple chorus: Thespis was the first who introduced a *perfon* to relieve the chorus; and Æschylus added a second. *Bosfu* observes, that, in the epic and dramatic poem, the same *perfon* must reign throughout; i. e. must sustain the chief part throughout the whole piece; and the characters of all the other *perfon*s must be subordinate to him. *Chambers*.—Character.—He hath put on the *perfon*, not of a robber and murderer, but of a traitor to the state. *Hayward*.—Character of office.—How different is the same man from himself, as he sustains the *perfon* of a magistrate and that of a friend! *South*.

VOL. XIX. No. 1339.

I then did use the *perfon* of your father;
The image of his power lay then in me:
And in th' administration of his law,
While I was busy for the commonwealth,
Your highness pleased to forget my place. *Shakespeare*.

[In grammar.] The quality of the noun that modifies the verb.—Dorus the more blushed at her smiling, and she the more smiled at his blushing; because he had, with the remembrance of that plight he was in, forgot, in speaking of himself, the third *perfon*.—*Sidney*.—If speaking of himself in the first *perfon* singular has so various meanings, his use of the first *perfon* plural is with greater latitude. *Locke*.—Formerly, the rector of a parish. See *PERSON*.—For all curates, *perfon*s, and vicars. *Lib. Festiv.*—Jerom was vicar of Stepnie, and Garrard was *perfon* of Honie-lane. *Hollinshed*.

PERSON, a county of America, in Hillsborough district, North Carolina; containing 6442 inhabitants, of whom 2573 are slaves.

PERSONABLE, adj. Handsome; graceful; of good appearance.—Were it true that her son Ninias had such a stature, as that Semiramis, who was very *perfonable*, could be taken for him; yet it is unlikely that she could have held the empire forty-two years after by any such subtily. *Raleigh*.

PERSONABLE in law, implies the being able to hold or maintain a plea in court. Thus they say, the defendant was judged *perfonable* to maintain this action. *Old Nat. Brev. 142*.—The tenant pleaded, that the demandant was an alien, born in Portugal, without the ligeance of the king: and judgment was asked, Whether he should be answered? The plaintiff said, he was made *perfonable* by parliament. *Kitch. 124*.

PERSONAGE, s. [Fr. from *perfonna*, Lat. which also signifies a mask.] A considerable person; man or woman of eminence.—It is not easy to research the actions of eminent *perfonages*, how much they have blemished by the envy of others, and what was corrupted by their own felicity. *Wotton*.—Exterior appearance; air; stature.—The lord Sudley was fierce in courage, courtly in fashion, in *perfonage* stately, in voice magnificent, but somewhat empty of matter. *Hayward*.

She hath made compare
Between our statures, she hath urg'd his height;
And with her *perfonage*, her tall *perfonage*,
She hath prevail'd with him. *Shakespeare*.

Character assumed.—The great diversion is masking: the Venetians, naturally grave, love to give into the follies of such seasons, when disguised in a false *perfonage*. *Addison on Italy*.—Character represented.—Some persons must be found out, already known by history, whom we may make the actors and *perfonages* of this fable. *Broome on Epick Poems*.

Our friend and correspondent the Etymological Gleaner reminds us, that the Latin word *perfonna* has its second syllable long, (*Eripitur perfonna, manet res, Perfus*;) although the word originally comes from *perfonnare*, "to sound through" the mask which the actors on the stage placed before their faces in order to increase the intensity of their voices. We, as well as the French, have retained, in the derivatives of this word, the ancient quantity, and pronounce the second syllable short, *perfonage, perfonal, &c.* The beautiful expression of the Roman satyrist has been most happily hit by J. B. Rousseau:

Le masque tombe; l'homme reste,
Et le héros s'évanouit.

PERSONAL, adj. [*perfonel*, Fr. from *perfonalis*, Lat.] Belonging to men or women, not to things; not real.—Every man so termed by way of *perfonal* difference only. *Hooker*.—Affecting individuals or particular people; peculiar; proper to him or her; relating to one's private actions or character.—It could not mean, that Cain as el-

der had a natural dominion over Abel, for the words are conditional: "If thou doest well," and so *personal* to Cain. *Locke*.—Public reproofs of sin are general, though by this they lose a great deal of their effect; but in private conversations the application may be more *personal*, and the proofs when so directed come home. *Rogers*.

I know no *personal* cause to spurn at him;
But for the general. *Shakespeare's Jul. Cas.*

Present; not acting by representative.—This immediate and *personal* speaking of God Almighty to Abraham, Job, and Moses, made not all his precepts and dictates, delivered in this manner, simply and eternally moral; for some of them were *personal*, and many of them ceremonial and judicial. *White*.

The favourites that the absent king in deputation left,
When he was *personal* in the Irish war. *Shakespeare*.

Exterior; corporal.—This heroic constancy determined him to desire in marriage a princess, whose *personal* charms were now become the least part of her character. *Addison*.

PERSONAL ACTION, in law, is an action levied directly and solely against the person; in opposition to a real or mixed action.

PERSONAL GOODS, or CHATTELS, in law, signifies any moveable thing belonging to a person, whether alive or dead.

PERSONAL VERB, in grammar, a verb conjugated in all the three persons; thus called in opposition to an impersonal verb, or that which has the third person only.

PERSONAL, *f.* Any movable possession; goods: in opposition to lands and tenements, or real estate.

PERSONALITY, *f.* The existence or individuality of any one.—Person belongs only to intelligent agents, capable of a law, and happiness and misery: this *personality* extends itself beyond present existence to what is past, only by consciousness, whereby it imputes to itself past actions, just upon the same ground that it does the present. *Locke*.—Reflection upon individuals, or upon their private actions or character.

PERSONALITY, or PERSONALTY, in law.—An action is said to be in *personality*, when it is brought against the right person. *Chambers*.

To PERSONALIZE, *v. a.* To personify. *Scott*.

PERSONALLY, *adv.* In person; in presence; not by representative.—Approbation not only they give, who *personally* declare their assent by voice, sign, or act, but also when others do it in their names. *Hooker*.—There are many reasons, why matters of such a wonderful nature should not be taken notice of by those Pagan writers who lived before our Saviour's disciples had *personally* appeared among them. *Addison*.

I could not *personally* deliver to her
What you commanded me, but by her woman
I sent your message. *Shakespeare's Hen. VIII.*

With respect to an individual; particularly.—She bore a mortal hatred to the house of Lancaster, and *personally* to the king. *Bacon's Hen. VII.*—With regard to numerical existence.—The converted man is *personally* the same he was before, and is neither born nor created anew in a proper literal sense. *Rogers*.

PERSONATA, *f.* in botany. See PERSOLATA and ARCTIUM.

PERSONATÆ, *f.* The fortieth natural order among the Fragmenta of Linnæus; nearly analogous to the Scrophulariæ and the Vitices of Jussieu, embracing more-over some that are subjoined to his Solanææ. Many of the plants are fetid and poisonous, few of them aromatic, though the flowers of some are fragrant. Giseke well observes, that there is no order in which so many genera bear the names of botanists as in this of the *Personatæ*. See the article BOTANY, vol. iii. p. 297, 8.

To PERSONATE, *v. a.* [from *persona*, Lat.] To represent by a fictitious or assumed character, so as to pass

for the person represented.—This lad was not to *personate* one that had been long before taken out of his cradle, but a youth that had been brought up in a court, where infinite eyes had been upon him. *Bacon's Hen. VII.*—To represent by action or appearance; to act:

Herself awhile she lays aside, and makes
Ready to *personate* a mortal part. *Cresshaw*.

To pretend hypocritically, with the reciprocal pronoun.—It has been the constant practice of the Jesuits to send over emissaries, with instructions to *personate* themselves members of the several sects amongst us. *Swift*.—To counterfeit; to feign. *Little in use*.—Piety is opposed to that *personated* devotion, under which any kind of impiety is disguised. *Hammond on Fundamentals*.—Thus have I played with the dogmatist in a *personated* scepticism. *Glanville's Scepssis*.—To resemble.—The lofty cedar *personates* thee. *Shakespeare's Cymbeline*.—To make a representation of, as in picture. *Out of use*.

Whose eyes are on this sovereign lady fixt,
One do I *personate* of Timon's frame,
Whom fortune with her ivory hand wafts to her. *Shakespeare*.

To describe. *Out of use*.—I will drop in his way some obscure epistles of love, wherein, by the colour of his beard, the shape of his leg, the manner of his gait, the expression of his eye, forehead, and complexion, he shall find himself most feelingly *personated*. *Shakespeare*.—To celebrate loudly; [*persono*, Lat.] *Not in use*.

They loudest sing
The vices of their deities and their own,
In fable, hymn, or song, so *personating*
Their gods ridiculous, and themselves past shame. *Milton*.

To play a fictitious character.—He wrote many poems and epigrams, sundry petty comedies and enterludes, oftentimes *personating* with the actors. *Sir G. Buck's Rich. III.*

PERSONATE, *adj.* in botany, applied to the corolla when it is irregular, having the mouth closed by a kind of palate, as in *Antirrhinum*, or toad's flax. The term is derived from *persona*, a mask; and its application in the present instance, whether intended or not by Linnæus, is peculiarly happy; the plants furnished with such a corolla being, as it were, of the regular pentandrous tribe, under a mask, which they occasionally lay aside. See PELORIA and PERSONATÆ.

PERSONATION, *f.* Counterfeiting of another person.—This being one of the strangest examples of a *personation* that ever was, it deserved to be discovered and related at the full. *Bacon's Hen. VII.*

PERSONATOR, *f.* One who personates a fictitious character.—Expressing a most real affection in the *personators*. *B. Jonson's Masques at Court*.—One who acts or performs.—The most royal princes, and greatest persons, are commonly the *personators* of those actions. *B. Jonson's Masques at Court*.

PERSONIFICATION, *f.* Profopœia; the change of things to persons: as, "*Confusion* heard his voice." Milton's P. L.—Boethius's admired allegory on the Consolation of Philosophy introduced *personification* into the poetry of the middle ages. *Warton's Hist. E. P.*—When words naturally neuter are converted into masculine and feminine, the *personification* is more distinctly and forcibly marked. *Louth*.

Dr. Blair in his Lectures on Rhetoric gives this account of personification. "It is a figure, the use of which is very extensive, and its foundation laid deep in human nature. At first view, and when considered abstractly, it would appear to be a figure of the utmost boldness, and to border on the extravagant and ridiculous. For what can seem more remote from the track of reasonable thought, than to speak of stones and trees, and fields and rivers, as if they were living creatures; and to attribute to them thought and sensation, affections and actions? One might imagine this to be no more than childish conceit,

PERSOONIA.



Persoonia pinifolia.

Persoonia hirsuta.

J. Pass 50

ceit, which no person of taste could relish. In fact, however, the case is very different. No such ridiculous effect is produced by personification when properly employed; on the contrary, it is found to be natural and agreeable; nor is any very uncommon degree of passion required in order to make us relish it. All poetry, even in its most gentle and humble forms, abounds with it. From prose it is far from being excluded; nay, even in common conversation, very frequent approaches are made to it. When we say, the ground *thirsts* for rain, or the earth *smiles* with plenty; when we speak of ambition's being *restless*, or a disease being *deceitful*; such expressions show the facility with which the mind can accommodate the properties of living creatures to things that are inanimate, or to abstract conceptions of its own forming.

“So strong is that impression of life which is made upon us by the more magnificent and striking objects of nature especially, that I doubt not in the least of this having been one cause of the multiplication of divinities in the heathen world. The belief of Dryads and Naiads, of the Genius of the Wood and the God of the River, among men of lively imaginations, in the early ages of the world, easily arose from this turn of mind. When their favourite rural objects had often been animated in their fancy, it was an easy transition to attribute to them some real divinity, some unseen power or genius which inhabited them, or in some peculiar manner belonged to them. Imagination was highly gratified, by thus gaining somewhat to rest upon with more stability; and, when belief coincided so much with imagination, very slight causes would be sufficient to establish it. From this deduction may be easily seen how it comes to pass that personification makes so great a figure in all compositions where imagination or passion have any concern.”

To PERSONIFY, v. a. To change from a thing to a person.—The poets take the liberty of *personifying* inanimate things. *Ld. Chesterfield*.—The poets have *personified* all the passions; and even made divinities of them, which were worshipped by the heathens; as the goddess Persuasion, the god Sleep, the Furies, Envy, and Discord, and Fame, Fortune, Victory, &c. *Chambers*.

To PERSONIZE, v. a. To personify.—Milton has *personized* them, and put them into the Court of Chaos. *Richardson's Notes on Milton*.

PERSOONIA, *f.* [so named by Sir J. E. Smith, M. D. president of the Linnæan Society, in honour of his friend and correspondent, Christian Henry Perfoon, author of many valuable works on Fungi. He has also edited a Synopsis of the vegetable kingdom, on the plan of the Linnæan Systema Vegetabilium.] In botany, a genus of the class tetrandria, order monogynia, natural order proteaceæ. Generic characters—Calyx: none, except a slight border. Corolla: petals four, equal, linear-oblong, recurved, deciduous; nectary of four distinct glands, at the base of the germen. Stamina: filaments scarcely any; antheræ four, inserted about the middle of each petal, linear, erect, prominent, at length reflexed. Pistillum: germen superior, stalked, ovate; style thread-shaped, on a level with the antheræ, permanent; stigma obtuse. Pericarpium: drupe ovate, pulpy. Seed: nut of one or two cells.—*Essential Character*. Petals four, recurved, bearing the stamens about their middle; nectary of four glands; germen superior, stalked; stigma obtuse; drupe with a nut of one or two cells.

This genus was instituted by Dr. Smith in the Linn. Transf. vol. iv. p. 215. anno 1798. and it may now be considered as firmly established. Mr. Brown, in a very long paper on the Proteaceæ of Jussieu, Linn. Transf. vol. x. 1807. has enumerated twenty-two species; and Mr. Rudge, in the same volume, has more fully described and figured two of them, which are copied on the annexed Engraving. These plants are for the most part shrubby or arborescent, with yellow flowers.

1. *Perfoonia teretifolia*: leaves thread-shaped, without

furrows; stalks solitary, single-flowered; antheræ pointed; style shorter than the germen. Gathered by Mr. Brown, on stony hills, at Lewin's Land, on the south coast of New Holland.

2. *Perfoonia microcarpa*: leaves thread-shaped, channelled; stalks solitary, in pairs, or ternate; antheræ pointless; style longer than the germen; stigma drooping. Native of marshy heaths, in the same country.

3. *Perfoonia pinifolia*: leaves thread-shaped, lax; spike pyramidal, elongated, leafy; floral leaves shorter than the rest, flowers yellow. Found by Mr. Brown on heaths, and about the banks of rivulets, at Port Jackson, New South Wales. This species is shown of the natural size at fig. 1. and, underneath, *a* exhibits the flower and its bractæ magnified; *b*, the petal; *c*, back and front view of the anther; *d*, the pistillum.

4. *Perfoonia juniperina*: leaves awl-shaped, straight, pungent, flowers axillary, solitary; germen smooth, with two kernels. Found on dry heaths and about the sides of hills, in Van Diemen's Land, as well as on the south coast of New Holland. The stem, according to Labillardiere, is a yard or more in height, determinately branched, round, and leafy; leaves rigid, above an inch long, rather hairy, as are the short axillary flower-stalks; petals clothed externally with rigid hairs, yellowish. Fruit red, eatable; its nut usually with two kernels.

5. *Perfoonia hirsuta*: leaves linear, hairy and rough; flower-stalks axillary; germen silky, single seeded. Native of moist heaths about Port Jackson, New South Wales. The flowers are yellow, very hairy externally, and full as long as the leaves. See fig. 2, which represents this plant of the natural size; *e*, the flower magnified; *f*, the petal; *g*, anther, front and back view; *h*, pistillum.

6. *Perfoonia mollis*: leaves lanceolate, elongated, villosous, very soft beneath; corolla bearded; germen smooth, with two kernels. Gathered by Mr. Brown near Port Jackson, about the sandy banks of rivers.

7. *Perfoonia linearis*: leaves linear, elongated, smooth; flower-stalks straight; corolla downy; stalk of the germen without a joint; stem arboreous; bark smooth. On hills and in open fields about Port Jackson, from whence specimens and seeds were first sent by Dr. White in 1792. The plant was raised by the late Mr. Robinson of Stockwell, in 1794. It proved a hardy greenhouse-shrub, flowering copiously in the latter part of summer. The young branches, as well as the flower-stalks, and backs of the petals, are downy. Leaves copious, spreading, two inches or more in length, and not a line wide. Fruit globose, smooth.

8. *Perfoonia lucida*: leaves linear, somewhat lanceolate, elongated, smooth; flower-stalks downy; straight; corolla downy; stalk of the germen without a joint; stem arboreous, bark flaky. Found near Port Jackson, by the sides of mountain-rivers, by Mr. Ferdinand Bauer. It seems nearly related to the preceding.

9. *Perfoonia virgata*: leaves linear, or somewhat oblong, scattered, vertical, very smooth in every part; flower-stalks smooth, straight; corolla smooth; stem arboreous; bark even. Gathered by Mr. Brown on the sea-shore near Sandy Cape, on the east coast of New Holland.

10. *Perfoonia flexifolia*: leaves nearly linear, pointed, crowded, twisted at the base, smooth on both sides, besprinkled with shining dots; their edges rough; corolla smooth; stem shrubby. Native of the stony sides of hills, on the south coast of New Holland.

11. *Perfoonia scabra*: leaves linear-lanceolate, pointed, rough on both sides, besprinkled with shining as well as minute opaque dots; corolla downy. In the same country and situations as the preceding.

12. *Perfoonia spatulata*: leaves lanceolate-spatulate, pointed, rather concave, very rough on both sides with crystalline points. Gathered by Mr. Brown in the same places as the two preceding species.

13. *Perfoonia nutans*: leaves linear, smooth; flower-stalks axillary, recurved, smooth as well as the corolla. Found by Mr. Brown near Port Jackson, in woods on a sandy soil, at the foot of the mountains.

14. *Perfoonia falcata*: leaves lanceolate, elongated, tapering at the base, somewhat stalked, falcate, reversed, coriaceous; antheræ pointed; stem arboreous; bark flaky. Gathered by Sir Joseph Banks, near Endeavour-river, on the east coast of New Holland; and by Mr. Brown, at Carpentaria, on the north coast, near the sea-shore.

15. *Perfoonia lanceolata*: leaves elliptic-lanceolate, pointed, smooth and even; stalks axillary, single-flowered; corolla silky, with close-pressed hairs; stalk of the germen without a joint. Native of fields and heaths towards the sea-coast at Port Jackson, from whence seeds were very early sent to this country. Plants are said to have been first raised in 1791, by J. Wilson, esq. at Ilington. The leaves are about two inches long. Flowers yellow, as in all the rest. Fruit globose, the size of a black currant.

β. *P. latifolia* (Andr. Repos. t. 280) is proposed, not without hesitation, by Mr. Brown, as a variety of this. It differs in having larger and obovate leaves, which in our native specimens, sent from Port Jackson by Dr. White, appear somewhat glaucous. The flowers exactly agree.

16. *Perfoonia falcata*: leaves lanceolate-oblong, unequal, reversed; stalks axillary or racemose; corolla nearly smooth; stem arboreous; bark flaky. Native of fields, hills, and woods, in the neighbourhood of Port Jackson. The leaves are three inches long, their sides more or less unequal, giving them a falcate aspect. Flower-stalks and young branches silky. Fruit elliptical; its nut with two kernels.

17. *Perfoonia ferruginea*; leaves elliptical, acute, veiny; stalks axillary, many-flowered, clothed, as well as the backs of the petals, with rusty silky hairs. Native of fields near Port Jackson, from whence it was originally sent dried by Dr. White. The stem is shrubby, three or four feet high, with smooth branches. Leaves for the most part nearly opposite, two or three inches long, and about one broad, smooth, shining. Flowers in short dense axillary clusters, accompanied by small bractes, which, as well as the stalks; and the backs as well as margins of the petals, are densely clothed with shining silky hairs of a deep rusty orange-colour. This shrub flowers in its native country in November.

18. *Perfoonia prostrata*: leaves oval, obtuse, downy at the margin; stalks axillary, with one or more flowers; stem procumbent. Gathered by Mr. Brown in fruit, the flowers being all past, near Sandy Cape, on the east coast of New Holland, growing in sand near the sea-shore.

19. *Perfoonia elliptica*: leaves elliptical, veiny; clusters lateral; petals smooth; stalk of the germen jointed. Gathered by Mr. Brown on the stony sides of hills at Lewin's Land, on the south coast of New Holland.

20. *Perfoonia articulata*: leaves lanceolate, elongated, equal, smooth; stalks axillary, with one or more flowers; corolla nearly smooth; lower joint of the stalk of the germen as long as the glands. Gathered by Mr. Brown in Lewin's Land, with the foregoing.

21. *Perfoonia longifolia*: leaves linear, elongated, falcate; stalks axillary, with one or more flowers; corolla downy, with close-pressed hairs; lower joint of the stalk of the germen longer than the glands. From the same country.

22. *Perfoonia graminea*: leaves of the branches linear, very long, revolute; clusters many-flowered, turned one way; corolla smooth; stem short, somewhat shrubby. Found by Mr. Brown, about the sandy margins of standing pools in Lewin's Land.

PERSOY'AH, a fort of Hindoostan, in Bahar: sixty-six miles south-south-west of Patna.

PERSPECTIVE, *f.* [*perspicivus*, Fr. *perspicio*, Lat.] The art of representing objects on a definite surface, so as to affect the eye, when seen from a certain position, in

the same manner as the object itself would, when the eye is fixed in the point in view.—Medals have represented their buildings according the rules of *perspective*. Addison on Medals. See the article OPTICS, vol. xvii. p. 663.—A glass through which things are viewed.—They turn about the *perspective*, and show it so little, that he can scarce discern it. Denham.—It may import us in this calm to hearken to the storms raising abroad; and by the best *perspectives* to discover from what coast they break. Temple.

You hold the glass, but turn the *perspective*,
And farther off the lessen'd object drive. Dryden.

Faith for reason's glimmering light shall give
Her immortal *perspective*. Prior.

View; visto:

Lofty trees with sacred shades,
And *perspectives* of pleasant glades,
Where nymphs of brightest form appear. Dryden.

PERSPECTIVE, *adj.* Relating to the science of vision; optical.—We have *perspective* houses, where we make demonstrations of all lights and radiations; and, out of things uncoloured and transparent, we can represent unto you all several colours. Bacon.

This vizard, wherewith thou would'st hide thy spirit,
Is *perspective*, to show it plainlier.

Beaum. and Fl. Hon. Man's Fortune.

PERSPECTIVELY, *adv.* Optically; through a glass; by representation. Hulot.—My lord, you see them *perspectively*, the cities turned into a maid. Shakespeare's Hen. V.

PERSPICABLE, *adj.* [*perspicabilis*, Lat.] Discernible. Not in use.—Albeit there be but nineteen pillars at this day extant, yet the fractures and bases of other one-and-twenty more are *perspicable*. Sir T. Herbert's Travels.—The sea rather stable, and to the eye without any *perspicable* motion. Ibid.

PERSPICACIOUS, *adj.* [*perspicax*, Lat.] Quick-sighted; sharp of sight.—It is as nice and tender in feeling, as it can be *perspicacious* and quick in seeing. South.

PERSPICACIOUSNESS, *f.* Quickness of sight.

PERSPICACITY, *f.* Quickness of sight.—He that laid the foundations of the earth cannot be excluded the secrecy of the mountains; nor can there any thing escape the *perspicacity* of those eyes, which were before light, and in whose optics there is no opacity. Brown.

PERSPICACY, *f.* [*perspicacia*, Lat.] Quickness of sight; discernment.—Lady, do not scorn us, though you have the gift of *perspicacy* above other. B. Jonson's Every Man out of his Humour.

PERSPICIENCE, *f.* [*perspicens*, Lat.] The act of looking sharply.

PERSPICIL, *f.* [*perspicillum*, Lat.] A glass through which things are viewed; an optic glass. Little used.—The *perspicil*, as well as the needle, hath enlarged the habitable world. Glanville's Scepstis.

Let truth be

Ne'er so far distant, yet chronology,
Will have a *perspicil* to find her out,
And, through the night of error and dark doubt,
Discern the dawn of truth's eternal ray. Crashaw.

PERSPICUITY, *f.* [*perspicuitas*, Fr. from *perspicuus*.] Transparency; translucency; diaphaneity.—As for diaphaneity and *perspicuity*, it enjoyeth that most eminently, as having its earthy and salinous parts so exactly resolved, that its body is left imporous. Brown.—Clearness to the mind; easiness to be understood; freedom from obscurity or ambiguity.—The verses containing precepts have not so much need of ornament as of *perspicuity*. Dryden.—*Perspicuity* consists in the using of proper terms for the thoughts which a man would have pass from his own mind into that of another's. Locke on Reading.

PERSPICUOUS, *adj.* [*perspicuus*, Lat.] Transparent; clear;

clear; such as may not be seen through; diaphanous; translucent; not opaque.—As contrary causes produce the like effects, so even the same proceed from black and white; for the clear and *perspicuous* body effecteth white, and that white a black. *Peacham*.—Clear to the understanding; not obscure; not ambiguous.—All this is so *perspicuous*, so undeniable, that I need not be over industrious in the proof of it. *Sprat*.

The purpose is *perspicuous* even as substance, Whose grossness little characters sum up. *Shakespeare*.

PERSPICUOUSLY, *adv.* Clearly; not obscurely.—The case is no sooner made than resolved; if it be made not unwrapped, but plainly and *perspicuously*. *Bacon*.

PERSPICUOUSNESS, *f.* Clearness; freedom from obscurity; transparency; diaphaneity.

PERSPIRABLE, *adj.* [from *perspire*.] Such as may be emitted by the cuticular pores.—In an animal under a course of hard labour, aliment too vapourous or *perspirable* will subject it to too strong a perspiration, debility, and sudden death. *Arbuthnot on Aliments*.—Perspiring; emitting perspiration. *Not proper*.—Hair cometh not upon the palms of the hands or soles of the feet, which are parts more *perspirable*: and children are not hairy, for that their skins are most *perspirable*. *Bacon*.

PERSPIRATION, *f.* The office of the skin, by which it forms and discharges various matters, principally fluids, from the blood; or the matters themselves so discharged. It is distinguished into *sensible* and *insensible*; and here sensible perspiration is the same with sweating, and insensible perspiration that which escapes the notice of the senses.—*Insensible perspiration* is the last and most perfect action of animal digestion. *Arbuthnot on Aliments*.

To ascertain the quantity of matter perspired through the skin, various experiments have been made, particularly by Sanctorius, who continued them for thirty years. More recently Lavoisier and Seguin instituted some very ingenious experiments in elucidation of this subject. Seguin was inclosed in a silk bag with a slit for the mouth, to which it was cemented; so that every thing was confined within the bag, except what passed off by the lungs. By weighing himself in a delicate balance at the beginning of the experiment, and again after he had been some time in the bag, he ascertained the loss by perspiration. By weighing himself without the bag, and repeating the operation after the same interval of time had elapsed as in the former experiment, he found the loss of weight by perspiration and respiration. By subtracting from this sum the loss of weight indicated by the first experiment, he obtained the quantity of matter which made its escape by perspiration in a given time. The following were the facts he ascertained. That the greatest average loss by perspiration in twenty-four hours was 4 lb. 4 oz. or fifty-two ounces, Troy. It was increased by drink, but not by solid food; at its minimum after a repast, at its maximum during digestion. The quantity perspired is greatly increased by heat, whether directly applied, or induced by exercise. The substances constantly perspired are water, carbon, an oily matter, and occasionally phosphoric acid, phosphate of lime, and urea.

Mr. Cruikshank introduced his hand into a glass jar, and tied a bladder, fixed to the mouth of the jar, round his wrist. In less than a minute the inside of the bottle was rendered dim, as if it had been held over the steam of warm water: small drops appeared in less than ten minutes, and a tea-spoonful of transparent and perfectly insipid fluid, weighing 30 gr. was collected in an hour. Assuming that the hand is to the whole body as 1 to 60, and that the whole surface perspires equally, the exhalation at this rate would be 7 lb. 6 oz. in 24 hours. When the experiment was repeated after taking exercise, 48 gr. were collected in an hour, which is at the rate of 12 lb. in 24 hours. By breathing into a bottle for an hour, this gentleman collected 124 gr. of insipid transparent fluid: the produce in 24 hours at this rate would be

6 oz. 1 dr. 36 gr. If this be added to the former statement of the cutaneous exhalation, the sum will be 8 lb. 1 dr. 36 gr. Mr. Abernethy collected from his hand and wrist, inclosed in a glass jar for six hours, about 3 dr. of fluid. He estimated the surface from which this was collected at $\frac{1}{2}$ th of the whole body: hence, if the perspiration be equal at all times and in all parts, the produce in one day would be about 2½ lb. This result is so different from that of Mr. Cruikshank, that there must be some signal error on one side or the other.

It appears, says Mr. Brande, that the function of the skin is in many respects analogous to that of the lungs; for in both cases, carbonic acid and water are evolved and oxygen absorbed. Some have doubted whether the skin does absorb. In favour of it, it is stated, that sometimes the quantity of urine passed is greater than the whole ingesta of solid and liquid food, as in diabetes. But it should be recollected, that in this disease the solid matter of the body is constantly consuming, and may be converted into urine. Captain Bligh ordered his companions, when deprived of fresh water, to bathe in the sea, and it always allayed their thirst and cooled their bodies. Here we might have presumed, that absorption must have taken place, as thirst was allayed by the application of water to the skin; but this effect may be accounted for by the collapse of the outer vessels of the skin; and it should be remarked, there was no increase of weight. Dr. Currie had a patient with stricture of the œsophagus, which prevented his swallowing; and his thirst was always alleviated by bathing; but no increased weight could be detected after coming from the bath. Seguin observed, that no effect was produced on a person that he submitted to a bath in which some mercurial salt was dissolved; but, when a part of the skin was abraded, the effects of mercury on his constitution were evident. Though these experiments appear decisive, that the skin cannot absorb water while in the fluid form, yet it does not follow that it may not be absorbed in the form of vapour, or that air may not be absorbed. Van Mons kept a patient alive for many days, who could not swallow, from a wound in the throat, by applying to different parts of the body with a sponge, strong soups, or wine. But Dr. Watson's experiment is more conclusive of the fact of absorption. A Newmarket jockey, that had been sweated down to a weight to qualify him for riding a race-horse, was weighed on the morning that he was to ride; he was weighed also an hour after the race, and was found to have gained thirty ounces of weight. In the interval, he had drank but half a glass of wine. Hence Mr. B. thinks, that the doctrine of absorption by the skin was just, although further experiments are required to establish this point upon satisfactory evidence. Brande's Lecture on Digestion and Perspiration, at Apothecaries' Hall, March 1814.

Bichat enquires whether the nerves have any influence on the cutaneous discharge. He observes, that in palsied patients sweat takes place on the diseased as well as on the sound side. "I lately," says he, "attended at the Hôtel Dieu a patient, in whom the left side of the body was rendered perfectly paralytic, in consequence of an apoplectic attack: yet he sweated only on this side. Examples of the opposite phenomenon are adduced; but they cannot invalidate the common observation, that the discharge is equal on both sides. Is it not well known, that when the nervous action is entirely annihilated in a paralytic limb, blisters affect it in the usual manner? Do convulsions, in which the nervous action is increased, augment the cutaneous exhalation? Have the states of acute sensibility, where there is in the cutaneous nerves so great a susceptibility of impressions, any known influence on perspiration? Let us then confess, that in cutaneous exhalation, as well as in secretion, we are entirely ignorant of the nature of the nervous influence, if any such exist."

The *Perspiration of Plants* takes place chiefly from the surface of their leaves. In order to collect the liquor perspired, it is only necessary to introduce a branch of the

plant into any sufficiently-capacious glass vessel; when the fluid which exudes will trickle down the sides of the glass in great abundance, especially if the experiment be made in sun-shine. The liquor thus obtained is of a clear watery nature, scarcely distinguishable to our senses, or to our chemical enquiries, from the sap of the same plant, whatever it may be, procured by wounding its branches before the foliage expands. This, which may be termed the insensible perspiration of plants, becomes in some cases sensible; as when it runs down, like a slight shower, from willow or poplar trees, in hot sunny weather; or when it collects in drops on the leaves of plaintain-trees in a stove.

Hales and others have made experiments to ascertain the quantity of insensible perspiration in various plants. The great annual sun-flower was found to perspire about seventeen times as much as the ordinary insensible perspiration of the human skin. The *Cornus mascula*, or cornelian cherry, is said to discharge, in twenty-four hours, as much fluid as is equal to twice the weight of the whole shrub. Succulent leaves perspire much slower than others, though they absorb in a far more rapid proportion.

This watery perspiration is the only excrementitious discharge of the vegetable body. The sap, being carried up into the leaves, where it is acted upon by air and light, for the most important purposes, yields those various and highly-curious secretions, which, being carried down into the bark, afford matter for the increase of the tree, as well as for the manifestation of its various qualities. The great bulk of the sap which remains, as it does not return to the root, like the blood of animals to their heart, can be disposed of no otherwise than by a copious evaporation. Dr. Darwin was of opinion that this watery perspiration rendered a further service to the plant, by being acted upon by light, so as to give out oxygen, which was immediately absorbed by the air-vessels. But this hypothesis is inadmissible on many accounts.

The sensible perspiration of many plants is of a far different nature from the above watery evaporation, and is to be considered as an actual secretion. Such are the mucilaginous exudation found on the leaves of the *Tilia europæa*, or lime-tree; the saccharine matter perceptible on orange-trees, hops, beech, and other plants, which is one kind of honey-dew, and either owing to some injury to their roots, or to the sudden influence of a cold, or otherwise noxious, atmosphere. The *Cistus* genus, and many other shrubs of warm countries, afford a resinous exudation from their leaves and young twigs. The *Distamnus albus*, or fraxinella, is very remarkable for a highly inflammable vapour, which in hot still weather issues from, and hovers around, the plant, exploding on the approach of a lighted taper. Manna is said to have been scraped from the leaves of *Fraxinus ornus*, though usually procured only from the sap of that tree. A kind of wax may in like manner be obtained, as some report, from the leaves of rosemary. A copious glutinous perspiration is observable on young leaves of many kinds, as the cherry, plum, various poplars, and abundance of aromatic herbs. *Pelargonium inquinans* is singular for its exudation of a soft oily matter, that stains the fingers with a red or vermilion-like tinge.

PERSPIRATIVE, *adj.* Performing the act of perspiration.

PERSPIRATORY, *adj.* Perspirative.—The finest capillaries and *perspiratory* ducts. *Bp. Berkeley's Siris.*

TO PERSPIRE, *v. n.* [*perspiro*, Lat.] To perform excretion by the cuticular pores. To be excreted by the skin.—Water, milk, whey, taken without much exercise, so as to make them *perspire*, relax the belly. *Arbutnot.*

TO PERSPIRE, *v. a.* To emit by the pores.—Firs grow and thrive in the most barren soil, and continually *perspire* a fine balsam of turpentine. *Smollet.*

PERSTAIN, a town of Bohemia, in the circle of Boheſlaw: fourteen miles north-west of Jung Buntzel.

TO PERSTRIN'GE, *v. a.* [*perstringo*, Lat.] To touch

upon; to glance upon.—In those verses of Callimachus he *perstringeth* the impiety of Eumerus. *Fotherby's Atheom.* 1622.—Men from this text of Scripture would *perstringe* philosophy. *More's Conj. Cabb.*—The womanishness of the church of Rome in this period is *perstringed*. *More on the Seven Churches.*

Look out, look out, and see,
What object this may be,
That doth *perstringe* mine eye. *Burton's Anat. of Mel.*

PERSUA'DABLE, *adj.* [from *persuade*.] Such as may be persuaded.

PERSUA'DABLY, *adv.* So as to be persuaded.
TO PERSUA'DE, *v. a.* [*persuadeo*, Lat. *persuader*, Fr.] To bring to any particular opinion.—Let every man be fully *persuaded* in his own mind. *Rom.* xiv. 5.—We are *persuaded* better things of you, and things that accompany salvation. *Heb.* vi. 9.—Joy over them that are *persuaded* to salvation. 2 *Esd.* vii. 61.—Let a man be ever so well *persuaded* of the advantages of virtue, yet, till he hungers and thirsts after righteousness, his will not be determined to any action in pursuit of this confessed great good. *Locke.*—Men should seriously *persuade* themselves that they have here no abiding-place, but are only in their passage to the heavenly Jerusalem. *Wake's Prep. for Death.*—To influence by argument or expostulation. *Persuasion* seems rather applicable to the passions, and argument to the reason; but this is not always observed. *Johnson.*—Philoclea's beauty not only *persuaded*, but so *persuaded* as all hearts must yield: Pamela's beauty used violence, and such as no hearts could resist. *Sidney.*—They that were with Simon, being led with covetousness, were *persuaded* for money. 2 *Mac.* x. 20.—To sit cross-legg'd, or with our fingers peffinated, is accounted bad, and friends will *persuade* us from it. *Brown.*—I should be glad if I could *persuade* him to write such another critick on any thing of mine; for when he condemns any of my poems, he makes the world have a better opinion of them. *Dryden.*—To inculcate by argument or expostulation.—To children, afraid of vain images, we *persuade* confidence by making them handle and look nearer such things. *Bp. Taylor.*—To treat by persuasion. *Not in use.*

Twenty merchants have all *persuaded* with him;
But none can drive him from the envious plea
Of forfeiture. *Shakespeare.*

PERSUA'DE, *f.* Persuasion. *Not in use.*

Indeed, Lucina, were her husband from her,
She happily might be won by thy *persuades*.
Soliman and Perseda, 1599.

PERSUA'DER, *f.* One who influences by persuasion; an importunate adviser.—The earl, speaking in that imperious language wherein the king had written, did not irritate the people, but made them conceive by the haughtiness of delivery of the king's errand that himself was the author or principal *persuader* of that counsel. *Bacon's Hen. VII.*

Hunger and thirst at once,
Powerful *persuaders!* quicken'd at the scent
Of that alluring fruit, urg'd me so keen. *Milton's P. L.*

PERSUASIBILITY, *f.* Capability of being persuaded.—It is sufficient that the Gospel suggests and offers such rational arguments and motives as are proper to beget belief in moral agents; but the *persuasibility*, or the act of being persuaded, is a work of men's own. *Hallywell's Saving of Souls*, 1677.

PERSUASIBLE, *adj.* [*persuasibilis*, from *persuadeo*, Lat.] To be influenced by persuasion.—It makes us apprehend our own interest in that obedience, makes us tractable and *persuasible*, contrary to that brutish stubbornness of the horse and mule, which the Psalmist reproaches. *Gov. of the Tongue.*—Having power to influence.—My speech and my preaching, was not with enticing

[in

[in the margin, *persuadable*] words of man's wisdom.
1 Cor. ii. 4.

PERSUA'SIBLENESS, *f.* The quality of being flexible by persuasion.

PERSUA'SION, *f.* [Fr. from *persuafus*, Lat.] The act of persuading; the act of influencing by expostulation; the act of gaining or attempting the passions:

It's prove thy fortune, Polydore, to conquer,
(For thou hast all the arts of fine *persuasion*,)
Trust me, and let me know thy love's success. *Otway.*

The state of being persuaded; or opinion.—The most certain token of evident goodness is, if the general *persuasion* of all men does so account it. *Hooker.*—When we have no other certainty of being in the right, but our own *persuasions* that we are so; this may often be but making one error the gage for another. *Gov. of the Tongue.*—The obedient and the men of practice shall ride upon those clouds, and triumph over their present imperfections; till *persuasion* pass into knowledge, and knowledge advance into assurance, and all come at length to be completed in the beatific vision. *South.*

PERSUA'SIVE, *adj.* Having the power of persuading; having influence on the passions.—In prayer, we do not so much respect what precepts art delivereth, touching the method of *persuasive* utterance in the presence of great men, as what doth most avail to our own edification in piety and godly zeal. *Hooker.*

PERSUA'SIVE, *f.* Exhortation; argument or importunity employed to direct the mind to any purpose or pursuit.—These were the arguments here used by this great Apostle; arguments, in comparison of which he knew that the most flowing rhetoric of words would be but a poor and faint *persuasive*. *South.*

PERSUA'SIVELY, *adv.* In such a manner as to persuade.—Many who live upon their estates cannot so much as tell a story, much less speak clearly and *persuasively* in any business. *Locke on Education.*

The serpent with me
Persuasively hath so prevail'd, that I
Have also tasted.

Milton's P. L.

PERSUA'SIVENESS, *f.* Influence on the passions.—An opinion of the successfulness of the work being as necessary to found a purpose of undertaking it, as either the authority of commands, or the *persuasiveness* of promises, or pungency of menaces, can be. *Hammond on Fundamentals.*

PERSUA'SORY, *adj.* [*persuasorius*, Lat. from *persuade*.] Having the power to persuade.—Neither is this *persuasory*. *Brown.*

PERSU'E, *f.* [used by *Spenser* for] Pursuit:

By tract of blood, which she had freshly seene
To have besprinkled all the grassy greene;
By the great *persue* which she there perceav'd
Well hoped she, the beast engor'd had beene,
And made more haste the life to have bereav'd. *F. Q.*

PERSULTA'TION, *f.* [from the Lat. *per* through, and *sulto*, to leap.] An eruption of blood through the vessels. *Scott.*

PERSUR', a town of Hindoostan, in Allahabad: ten miles east-north-east of Gazypour.

PER'SWAR, a town of Hindoostan, in the circar of Gurrah: fifteen miles south of Mahur.

PERT, *adj.* [Welsh and Dutch; *impertinent*, French.] Lively; brisk; smart.—Awake the *pert* and nimble spirit of mirth. *Shakespeare.*

From *pert* to stupid sinks supinely down;
In youth a coxcomb, and in age a clown. *Spectator.*

Saucy; petulant; with bold and garrulous loquacity.—All servants might challenge the same liberty, and grow *pert* upon their masters; and, when this sauciness became universal, what less mischief could be expected than an old Scythian rebellion? *Collier on Pride.*

She scarcely list'ned to their chat,
Further than sometimes by a frown,
When they grew *pert*, to pull them down. *Swift.*

PERT, *f.* An assuming, over-forward, or impertinent, person:

O then how blind to all that truth requires,
Who think it freedom when a *pert* aspires! *Goldsmith.*

PERTABGUR', a fort of Hindoostan: thirty miles north-east of Allahabad. Lat. 23. 58. N. lon. 82. 23. E.

PERTABPOUR, a town of Hindoostan, in Oude: fifty-two miles north-east of Manickpour.

PERTABPOUR, a town of Hindoostan, in Bengal: fifteen miles north-west of Midnapour. Lat. 22. 35. N. lon. 87. 10. E.

To PERTAIN, *v. n.* [*pertineo*, Lat.] To belong; to relate.—A chevron or rafter of an house, a very honourable bearing, is never seen in the coat of a king, because it *pertaineth* to a mechanical profession. *Peaeham.*

PER'TELS, a town of Austria: six miles north of Bohmish Waidhofen.

To PERTER'EBRATE, *v. a.* [from the Lat. *per*, through, and *terebo*, to bore.] To bore through. *Cole.*

PERTEREBRA'TION, *f.* The act of boring through.

PERTH, a royal burgh, and the county-town of Perthshire, Scotland, is situated in the middle of a verdant plain, on the western bank of the river Tay, at the distance of forty miles and a half north by west from Edinburgh. This plain is divided by the town into two parts, called the North and South Inches, or Islands, each of which measures about a mile and a half in circumference, and both are appropriated for the benefit and amusement of the inhabitants of the place.

Perth is a town of very high antiquity, and is generally allowed to have owed its origin to the celebrated Roman general Agricola, who penetrated into this part of the country about the year 70. He is said to have fixed on this spot as the site, originally of a winter-camp, and afterwards of a colonial town, from the resemblance its scenery bears to that in the vicinity of ancient Rome. So striking is the similitude, indeed, that the Roman soldiers, when they first saw the river Tay, and the adjacent plain, are recorded to have exclaimed with one consent, "*Ecce Tiber! Ecce Campus Martius!* Behold the Tiber! Behold the field of Mars." Hence the Tay was called *New Tiber* by the Italians for many centuries; and Fordun, a Scottish historian, gives the name of *Tyber-Mere* to an extensive moor which lies west from the town. An aqueduct, said to have been constructed here by Agricola, is still in existence, and supplies the mills and wells with water. In ancient times, when the town was fortified, it also supplied the ditches by which the latter was surrounded.

Of the history of Perth during its Roman occupation, and for several centuries after the retreat of that people from Britain, nothing certain is known. Neither is it recorded at what period it became a chartered town. Alexander Necham, an English writer, who read lectures on history at Paris in 1180, described Perth as a place of great opulence. In 1210, according to the Scottish historians, it was strongly fortified by king William, who also renewed its former charters, and granted it many additional privileges. At that time Perth was reckoned the capital city of Scotland; and even at the present day it ranks inferior only to Edinburgh and Glasgow. Between the years 1201 and 1459, no fewer than fourteen great national councils were held here. During the same period, Perth was also the usual residence of the Scottish monarch, and consequently of the nobility, many of whose ancient mansions still adorn its streets. It was then likewise, as it is still, an extensive commercial town. Fordun informs us, that the merchants of Perth visited, in their own ships, the Hanse-towns; and it is a part of the eulogium conferred on Alexander III. who died in 1286, that he devised successful measures for securing the trading-ships of

that nation against pirates, and against being detained on slight pretences in any foreign port. "In consequence of the care which he exercised about the trade of the kingdom, which, for some years during his minority had been on the decline, multitudes of ships soon came from divers regions loaded with goods of various kinds to be exchanged for the commodities of this country." The German merchants, or Flenings, also early frequented the port of Perth with mercantile views; and many individuals of that nation conversant in the linen and woollen manufactures, and in staining of cloth, appear to have fixed their abode in the town, and to have been received as burghesses. King William, however, following the example of his grandfather king David, put the foreign merchants of Perth under great restrictions; and, to prevent the settlement of foreign manufacturers there, granted in his charter already mentioned, that the burghesses might have a merchant-guild of their own, "fullers and weavers excepted."

Edward I. of England added greatly to the importance of Perth, by increasing the strength of its fortifications, and making it the residence of his deputies. King Robert Bruce, conceiving its occupation to be of signal importance to his cause, attacked this town in 1306, but was repulsed by the earl of Pembroke, who sallied out, and defeated the king at Methven. In 1311, however, Bruce renewed the attack; and, after an obstinate siege of six weeks, succeeded in storming the fortifications, which he levelled with the ground. After the battle of Duplin, these were re-edified by Edward Baliol, but were soon again razed by the patriotic Scots. In 1335 king Edward III. took possession of Perth, and resided in it for a considerable period. According to the English historians, John earl of Cornwall, brother to that monarch, died here, in October 1336; but they omit a singular circumstance mentioned by Fordun, which is, that he received his mortal wound from the king's own hand. In 1339 Perth stood a long siege against the regent Robert, but was taken by draining the ditch. In 1437 king James I. of Scotland was murdered at the Black Friars monastery, by Robert Graham, who wounded him in twenty-eight different places, and the queen twice, during the scuffle between them. At this period the town-walls seem to have been in a state of demolition; as we find them repaired, at a very considerable expense, by king James II. from whose reign nothing of a political nature worthy of notice occurs on record, till the year 1600, when the earl of Gowrie's house here was the scene of one of the most problematical events in Scottish history. We allude to the execution of what is commonly designated the "Gowrie conspiracy," by John Ruthven, the then earl, and his brother Alexander. These two young men, according to the story published by the court, having prevailed upon king James VI. to visit Perth, (on the pretence of showing him a suspicious person whom they had apprehended,) attempted to murder him, but were foiled in the attempt and both slain by his majesty's attendants.

After the battle of Tibermoor, in 1644, Perth was seized by the marquis of Montrose; and in 1651, it was taken by Cromwell, and fortified with a citadel on the South Inch, capable of containing a garrison of five hundred men. In 1715 the earl of Marr, at the head of a detachment of the rebels, obtained possession of it, and occupied it as a place of arms till after the battle of Dunblane, on Sheriffmuir, when they were dislodged by the duke of Argyle, and compelled to retreat further to the north, with the Pretender. The same party likewise held this town in 1745, when prince Charles was proclaimed king, and new magistrates were appointed. The modern prosperity of Perth may be dated from this period; for, being the centre of the rebellion, it was the resort of all the disaffected from the north during a considerable length of time. Thus its ancient activity was in some degree revived. The march and residence of the contending armies produced a market here for all sorts of goods;

capital was gained by industrious persons; and advantage taken of its favourable situation to render it a place of trade. Hence it has been remarked, that Perth is a singular instance of a town that owes its prosperity in a great measure to the calamities attendant on rebellion and civil war. Since that turbulent period it has increased nearly one half in extent and population.

Perth, in its municipal capacity, is a royal borough, and joins with Dundee, Forfar, Cupar of Fife, and St. Andrew's, in sending one member to parliament. It is governed by a provost, three bailies, a dean of guild, a treasurer, and nineteen counsellors, most of whom are elected from the incorporated trades. The funds of the corporation are very considerable, and of late years have been expended with great judgment in various improvements. Perth being the county town, the sheriff's court meets here; and the lords of justiciary hold a court here every six months, when they go on their circuits. The provosts have been sheriffs within the town since the time of king Robert III. They bear also the office of coroner, which office however is never exercised in Scotland.

This town, considered in reference to its buildings, is one of the handfomest in Scotland. It occupies a site which might, indeed without impropriety, be selected as the seat of government, and the emporium of commerce. The Tay, which is navigable up to the quays at common tides for sloops and small craft, and in spring-tides for vessels of large burden, admits of great extension of trade. This river flows here in a direction nearly north and south; but at a short distance below Perth it runs to the westward, and is lost behind the hill of Kinnoul. Over it is a handsome bridge of ten arches, which cost about 25,000*l.* It is 906 feet 9 inches in length, and 22 in breadth, with the parapets. The piers are founded ten feet beneath the bed of the river, upon oaken and beechen piles. The architect of this magnificent structure was Mr. Smeaton. It connects Perth with Kinnoul, which is a borough of barony under the superiority of the nobleman who holds that title.

The two chief streets in Perth are called the High-street and South-street, both of which run from east to west, and are nearly parallel to each other. Along the side of the river runs another considerable street. The new town, which was begun in 1798, contains a circus and a terrace of very handsome appearance. This portion of Perth is situated on a plot of ground, where formerly stood the monastery of black friars, in which James I. of Scotland was murdered, as has been already mentioned. The king was buried in a very stately monument in this place, which was called *monasterium vallis virtutis*, one of the most magnificent buildings in the kingdom, which with the rest was destroyed by the populace. James VI. created George Hay commendator of the Carthusian priory, giving him all its emoluments, with a vote and seat in parliament; but, these not being sufficient to support the title, he surrendered it back to the king. The only remains of this magnificent structure is to be seen in the carved stones with which the south-east porch of St. John's church is built, now greatly decayed. The king's garment full of stabs was preserved here after the reformation.

Among the public buildings are several worthy of attention. The town-house, which forms the eastern termination of High street, is a large well-built structure, as is likewise the guildhall, which stands about the middle of the same street. Several of the incorporated trades have halls, of which that of the glovers is the most elegant. The parish-church, which was formerly the property of the abbey of Dumfermline, is a large and ancient edifice, but now separated into three divisions, called the East, Middle, and West, Kirks; besides there is another parish-church, dedicated to St. Paul, a chapel of ease, and a variety of chapels and meeting-houses appropriated to the public worship of dissenters. St. John's church is remarkable from the circumstance of the reformation in Scotland

land having first publicly broke out here, on the 11th of May, 1550, when John Knox preached a sermon against idolatry; after which, the priest being imprudent enough to display his images and relics, he was attacked by the audience, who broke the images in pieces, tore the pictures, overthrew the altars, and entirely defaced every implement of Catholic superstition in the church. This done, they proceeded to the different monasteries in the town and its neighbourhood, and pillaged or demolished every edifice that had given shelter to the worshippers of the church of Rome: it being one of his maxims, "to pull down the nests, and then the rooks would fly away." The venerable remains of this kirk, supposed to be the most ancient stone church in Scotland, were levelled to the ground, by order of the inspectors of public works, in the month of November, 1817. Perth was very anciently called *St. Johnston's*, from this church, which was dedicated to St. John, as the patron of the place.

The castle of Perth stood near the red bridge, which terminated the narrow street called Skinner-gate. At the end of the Castle-freet another narrow street leads west to the black-friars, called *Couure-feu-row*, where the curfew-bell was. The kings of Scotland before James II. were crowned at Scone, only two miles north, and resided at Perth as the metropolis of the nation. James resided and was educated in the castle of Edinburgh, and was crowned there 1437. The parliaments and courts of justice were removed from Perth to Edinburgh; but Perth kept its priority till 22 James III. 1482. It gave the title of *Earl* to the family of Drummond, which is now forfeited. James Drummond, 4th earl, was created Duke of Perth by James II. for adhering to whose interests he was outlawed. His two grandsons were attainted in 1745.

The chief institutions in Perth of a public nature are a grammar-school, an academy, and a literary and antiquarian society. The grammar-school has long been regarded as one of the best in Scotland. Many celebrated statesmen and scholars have received the early part of their education here; and, among others, the admirable Crichton, and the late celebrated and excellent William earl of Mansfield. The academy is of much more recent establishment than the school, having been commenced about the year 1761. It is, however, in a very flourishing condition, and is usually attended by from eighty to a hundred students, who are instructed in various branches of learning. The literary and antiquarian society was founded 16th December, 1784. Belonging to this institution is a general library, besides a large collection of rare books, original essays, ancient manuscripts, coins, medals, and other subjects of antiquity, suitable to the design of the establishment; and sir David Moncrieff, bart. has presented the Literary and Antiquarian Society of Perth with a very handsome donation of two beautiful coins of Robert II. two gold (St. Andrew's) of Robert III. and six silver coins of Robert III. two of the latter struck at Perth, and all in the finest preservation. They were turned up by the plough on the farm of Balgony, in the parish of Abernethy, belonging to the baronet.

Perth at present is a place of very considerable trade. There is a constant intercourse by water between Perth and London. Every four days, during the fishing-season, a smack sails, and usually makes the passage within a week. A number of merchant-vessels likewise frequent this port; and those of heavier burden are loaded or discharged in the river, by means of hoys. In 1806 there belonged to the port of Perth 35 vessels, of 2635 tons in all, with 155 seamen. The staple manufacture of the town is linen; but the cotton-trade is rapidly on the increase. The number of looms employed in the town and suburbs is estimated at about two thousand. Cotton-mills, bleach-fields, and print-fields, have been established in different situations. Leather is also one of the manufactured products of Perth; and great quantities of that article are made into boots, shoes, and gloves, for foreign

consumption. From the vicinity of the Highlands, the manufacture of doe-skins and buck-skins has long been established in this town. Here is a respectable banking-establishment, under the firm of the Perth Bank; besides a branch of the Bank of Scotland.

We copy the following from Cruttwell's Gazetteer: "In the river here are found pearls, of which 10,000l. worth were sent to London between the years 1761 and 1764, and sold from 10s. to 36s. per ounce; but the avarice of the owners exhausted the fishery."

In 1801, the number of inhabitants was 14,878; of whom 3535 were employed in trade and manufactures. According to the parliamentary returns of 1811, it was divided into four parishes, and contained in the aggregate 4510 houses, and 16,948 inhabitants; in 1821 the population had increased to 19,068. The markets are well supplied with all kinds of provisions and luxuries. The annual fairs are eight in number, and are usually well attended. Lat. 56. 54. N. lon. 3. 26. W.

Of the ancient importance of Perth, while it was a royal residence, few traces remain; with the exception of the parliament-house, and some modernized mansions of the old nobility; such as the houses of the bishop of Dunkeld, earl of Errol, and earl of Athol. The original fortresses belonging to the town is now a ruin; and not even the scites of its monastic institutions are discoverable to the eye. Gowrie-castle, already mentioned as the residence of the earls of Gowrie, is situated on the south-east side of the town. It was built, or, perhaps more properly speaking, rebuilt, in 1520, by the countess of Huntly. After the forfeiture of the Gowrie estates, it became the property of the corporation, and was presented in 1746, by the magistrates, together with the freedom of the burgh, to William duke of Cumberland, who afterwards sold it to the board of ordnance for the sum of 5000l. and it has ever since been appropriated as barracks for a company of the royal artillery. In the pleasure-grounds attached to this house is a curious structure, called the Monk's Tower, the origin and former uses of which are not correctly ascertained. This structure is of an oval figure, and measures internally 24 feet by 13. The roof is very lofty, and vaulted; and on the ceiling are coarsely painted the twelve signs of the zodiac, the heathen gods and goddesses, and the arms, crest, and ciphers, of the Hay family. From its style, this painting does not appear to be more ancient than the reign of Charles I. and some even think it has been executed by the same artist who painted the ceilings of the palace of Scone: hence it is conjectured, that the tower has been erected for a banquetting-house, at that period. But others refer its origin to the 14th century, and assert that it obtained its appellation of Monk's Tower from having been built at the expense of the monasteries of Lindores, Balmerinnoch, Aberbrothick, and Coupar-in-Angus; which expense, Fordun says, "in a manner ruined these monasteries."

In digging the foundation of the house here, belonging to colonel Mercer of Aldie, the remains of an ancient British temple were discovered. This edifice is mentioned by Holinshed, and by Jeffrey of Monmouth; the latter of whom says, it was erected by a British king, son to Regan, the second daughter of king Lear. It was dedicated to Mars; and, as we presume, must have been of later date than the Roman invasion, as the architecture of its ruins exhibited considerable advancement in the building art.

The parish of Perth, without the town, extends about four miles in length, and three miles in breadth. The soil varies, but is extremely fertile, and well cultivated. The adjacent scenery is highly beautiful; but, owing to most of the estates here being entailed, gentlemen's seats are less numerous than otherwise might have been expected. The most remarkable houses are the Castle of Balhousie, an ancient seat of the earls of Kinnoul; the Castle of Pit-theveles, an ancient seat of the lords Olliphant; and Few-house, a seat belonging to Mr. Marshall

of Hill-Cairney. The barracks, in the immediate vicinity of the town, likewise deserve to be mentioned among its ornaments. *Beauties of Scotland*, vol. iv.

PERTH AMBOY'. See AMBOY, vol. i.

PERTHES, a town of France, in the department of the Seine and Marne: six miles south-south-west of Melun.

PERTHES, a town of France, in the department of the Upper Marne: six miles north-west of St. Dizier.

PERTHSHIRE, a county in Scotland, having the shire of Inverness and Aberdeen on the north; Angus or Forfar, Fife, and Kinross, on the east; Clackmannan and Stirling on the south; and Dunbarton and Argyle on the west; contains, according to the latest authorities, 2638 square miles, of which 50 are occupied by lakes; or, in all, 1,688,320 English acres; being, next to Inverness-shire, the largest county in the mainland of Scotland. It is situated between $56^{\circ} 7'$ and $56^{\circ} 35'$ north latitude, and between $3^{\circ} 6'$ and $4^{\circ} 47'$ west longitude, from Greenwich. Its greatest extent, from east to west, is about 77 miles, and from north to south 68. It was anciently, and is still, popularly divided into eight districts: Atholl on the north, Stormont on the north-east, Perth Proper and Gowrie on the east, Strathearn on the south, Monteith on the south-west, Breadalbane on the west, and Rannoch on the north-west. It is under the jurisdiction of one sheriff, who has substitutes in the towns of Perth and Dunblane, and is divided into seventy-nine parishes.

In a general view, this extensive county may be divided into Highlands and Lowlands; the former occupying a space so much greater than the latter, that not quite so much as a third part of the whole is fit for cultivation. This last portion is chiefly, though not without considerable exceptions, situated on the eastern and southern extremities, which contain some of the richest tracts in Britain; and in the great plain of Strathmore which has the Grampians on the north-west and the Ochils and Sidlaw Hills on the east; varying in breadth from ten to fifteen miles, and extending through this and the contiguous counties, from sea to sea, a distance of 100 miles. To the west, where the Grampians, at first rising gently, rear their rocky or heath-covered summits to the height of 4000 feet, and for almost the whole breadth of the county, the high grounds are penetrated by straths and glens, some of them of considerable extent, each traversed by its own mountain-streams, and diversified by numerous lakes, many of which, having their wild and lofty banks covered with natural wood, present scenes singularly romantic and beautiful. At least seven of these mountains are upwards of 3000 feet high: the three highest being Benlawers, on the west side of Loch Tay; Benmore, south-west; and Scheshallion, north-east: the latter noted as the station chosen by Dr. Maskelyne, Astronomer Royal, to make observations on the attraction of mountains. The most considerable lakes are, Loch Tay, almost in the centre of the Highland district, about fifteen miles long, and one broad, with a depth varying from fifteen to one hundred fathoms; Loch Erich, on the north-west, extending into Inverness-shire, still longer, but not so broad; Loch Rannoch, south-east of the former, twelve miles long; Loch Earn, south from Loch Tay; and Lochs Vennachar, Achray, and Katrine, on the south-west: the last of which, with the wild mountain scenery around it, has acquired deserved celebrity, from Sir Walter Scott's *Lady of the Lake*. Most of the streams either have their source in these lochs, or receive, as they flow through them, a great accession to their waters. The rivers are the Tay, the Forth, the Earn, the Teath, and the Isla; of which the two first are by far the most considerable, though the Forth does not attain its full size till it has left this county. The Tay, the largest river in Scotland, and the Earn, belong exclusively to Perthshire. The Tay, under the name of the *Dochart*, has its source on the western confines, and soon after entering Loch Dochart, flows from thence north-east till it

falls into Loch Tay. After leaving Loch Tay, from which it now takes its name, it pursues first a north-easterly and then a southerly course towards Dunkeld, from which it proceeds eastward, and then south, through a very rich country, till it falls into the Frith of that name, a little below the town of Perth; having been joined by the Almond and many other streams in its course, which, with all its windings, is not less than ninety miles. The salmon-fishery on this river yields a rent of about 7000*l.* a-year. South of Loch Tay is Loch Earn, where the river of that name has its source, and which, flowing east and south, through Strathearn and by the town of Crieff, after a course of twenty-four miles, falls into the Frith of Tay at Rhind. On the banks of this river, near its confluence with the Tay, is the village of Pitcaithly, long celebrated for its mineral springs, which have lately found a rival at Dunblane, on the southern side of the county.

The climate of this extensive district, so different in elevation and exposure, varies considerably. In the central parts, the winters are stormy and very severe, the snow lying long, attended with keen frost; and on the banks of the rivers in this quarter, hoar-frosts are frequent in summer, and very injurious to the crops. On the east, the climate is mild and salubrious. At Longforan, in the Carse of Gowrie, on the banks of the Frith of Tay, the thermometer on an average of twelve years, stood at 50° , and the mean annual quantity of rain was $24\frac{1}{2}$ inches; and at Belmont, in Strathmore, for a period of ten years, the average height of the thermometer was $46\frac{3}{5}$, and the yearly quantity of rain during thirty years' observation $30\frac{1}{4}$ inches.

Perthshire, as far as yet known, does not abound in useful minerals. There is no coal but at Culrofs, on a small detached tract lying on the Forth, south-east from the rest of the county; and, for want of coal, limestone, which is found in many parts, is of little value, though it is sometimes imperfectly calcined by means of peat. Some years ago, a machine was erected for pounding limestone, with the view of employing it in that state as a manure; but the experiment was not persisted in. In the higher grounds, the prevailing rock is granite, and, in the lower, sandstone. Slates are found in many parts of the Highlands, but none in the low country. Copper, lead, and ironstone, occur in some parts; and mines of the two former were once worked, but are now abandoned. Shell-marl, which has been long used as a manure, abounds in Stormont and Strathearn, on the east side of the county. The hill of Kinnoul has been long known as a repository of those nodules of agate and chalcidony which are commonly called *Scotch pebbles*. Dr. Mac Culloch, who has surveyed it with his usual sagacity as well as with his usual freedom from pre-conceived theories, traces the outlines of its singular structure, which is reconcilable to the conditions either of the Huttonian or the Neptunian hypothesis. It results from his observations, that this ridge is principally composed of trap-rocks, of which the least abundant is a black amorphous basalt, and the most prevalent an amygdaloid, which assumes various aspects according as it contains green earth, calcareous spar, quartz, or chalcidony. Heliotrope, without the red spots for which it is so much prized, and a green quartz, occasionally approaching to the nature of the plasma, have been detected in the same repository: the portion of a bed of trap-conglomerate rests on the top of the mass of trap. At the eastern end of Kinnoul a sandstone breccia may be observed, apparently lying below the trap, and similar to that which is the lowermost of the secondary strata throughout the whole of this district. See *Transf. of the Geological Society*, vol. iv. part 2. 1818.

On so great a variety of surface, every description of soil occurs that is to be found in Scotland; and the methods of cultivating it must be also various. In these respects, then, Perthshire is naturally divided into three districts, which differ from each other very materially.

These

These divisions are termed the Highland District, the Lowland District, and the District of the Carse of Gowrie.

1. The Highland District, which comprehends by far the larger portion of the county, is included within, or rather formed by, the Grampian mountains. In relation to the whole extent of the Scottish Highlands, it constitutes what are usually denominated the Central or *Southern* Highlands, in contradistinction to those of Argyleshire, or the *Western* Highlands, and those of Invernessshire, or the *Northern* Highlands. It may also be regarded as the central district of the whole kingdom of Scotland; and is subdivided into small portions, marked by glens or valleys, called Rannoch, Glenlyon, Glenlochie, Glendochart, Glenqueich, Glenshee, the environs of Loch Tay, and Strath-Tay. Throughout this vast tract of country, contrary to what might be supposed from its northern latitude, the elevation of its valleys, and the altitude and naked aspect of its towering mountains, the climate is not less mild than in the moor-lands of York-shire. Indeed, the mountains of Perthshire may even claim an equality in temperature with those of Cornwall and Devonshire, and certainly surpass them in dryness of climate, excepting on the western margin of the district, where the quantity of rain which falls is immense. The soil in the valleys here consists in general of a brown loam, of uncommon fertility, lying on a sound, dry, gravelly, or sandy, bottom. A similar soil prevails on the sides of the hills to a considerable height, and is not unfrequently found under the black moory earth of the heaths. What is remarkable, the slopes of the mountains facing the north are much more productive than those which possess a southern exposure. This phenomenon is accounted for, by the supposition that the soil suffers more exhaustion on the south than on the north, because of the greater alternation of rain and snow, and of heat and cold, to which the surface of the former is liable, from the action of the sun-beams, and the greater frequency of southern rains. In this district few of the valleys contain large areas of free cultivable land, like those found in the south; and even the scanty areas that do exist have required in general the aid of human industry to clear them of the rocks which have been torn from the impending mountains. Yet, as the glens are numerous, it happens here, as in most parts of the Highlands where modern sheep or cattle farming is not prevalent, that each farm possesses its pittance of hill and dale, and its share of every description of land, as arable, meadow, green pasture, and moor. The arable lands have a two-fold distinction, the infield and outfield lands; the first of which, lying near the farm-yard, is kept constantly in tillage, and receives all the manure the possessor can collect; while the latter, consisting of such plots at the lower parts of the valleys, are level enough to be ploughed, are kept in corn and natural ley, or weedy wastes alternately, without the smallest assistance of manure. The wet plots in the vales are termed "meadow," and kept uniformly under the scythe, for a scanty supply of hay. The faces of the "braes," the roots of the hills, the wood or rough stony wastes of the bottoms, and a small plot near the house, are generally appropriated to cattle in summer, and sheep in winter; the sheep and horses being kept in summer "above the head-dyke," upon the hill or moor lands.

Such is the general description of the Highland farms of Perthshire; whence it may reasonably be concluded, that the husbandry of this district is not in a very advanced state. This, however, does not arise from a want of knowledge, or even of industry, among the farmers, but from the peculiar constitution of society in the more northern portions of our island. Before it can be remedied, the farms, now in general small, would require to be increased greatly in extent, and the farmer assisted with capital, should he be deficient in means of his own. The pride of clan-ship among the proprietors ought to be laid

aside, and the eventual interests of the country studied, instead of the misapplied philanthropy which constitutes the ruling motive for continuing the small-farm system. That useless and idle race of occupiers or sub-tenants, called acre-men or crofters, must likewise be extirpated, to facilitate the agricultural improvement of this district. The only crops raised here are oats, bear or bigg, flax, and potatoes, and on some spots pease. Wheat is never sown. The business of the flax-harvest, in particular, is well conducted. Indeed, in the management of that article, the Highlanders may be said to excel.

2. The Lowland District includes all that portion of Perthshire which lies to the south of the Grampians, with the exception of the Carse of Gowrie, to be afterwards noticed; viz. part of Strathmore, and those districts of the county the streams of which flow into the Forth, or the Earn. Along the Forth, for an extent of eighteen miles from Garthmore to the bridge of Allan, the soil of the level lands is a deep rich clay, of various degrees of fertility. This soil, however, is still covered, for about four miles, by a tract of moss from six to fifteen feet deep, called the *Moss of Kincardine*, because chiefly situated in the parish of that name. The moss is supposed to have once covered the whole valley, and was well worthy the investigation of the naturalist. By the exertions of the late lord Kaimes, however, and by the judicious liberality of its proprietors, it now rapidly diminishes in size, and will doubtless be entirely cleared in a few years. (See vol. xi. p. 723, 4.) In the low grounds of Strathearn, wheat is the great object of husbandry, generally after summer-fallow, but frequently also after clover-ley. In the upper parts of the district, barley and oats are the principal crops. The culture of flax is universal over the whole district, but is not carried to a great extent in any one place. Potatoes are raised in vast quantities on the light soils; as are likewise turnips, especially within the last ten years. Farms here vary in size, from 30 to 400 acres. The greater part of this district, however, is yet uncultivated. The manures chiefly in use here are lime and marle, of which last article there is great abundance found in the small lakes, and in the landlocked bogs and mosses.

3. The third agricultural district of Perthshire, or the Carse of Gowrie, is situated along the northern shore of the frith of Tay. It is a long narrow plain, and extends sixteen miles in length: it contains about 18,000 acres of extremely rich and fertile soil. This district, indeed, may be justly styled the boast of Great Britain for natural productiveness, and yields to no portion of the globe in the intelligence and skill of its farmers. Like the Delta-land of Egypt, and those fertile tracts adjacent to the mouths of the Ganges, the Indus, and the Mississippi, the Carse of Gowrie has been formed in a long course of ages, and has grown rich by the spoils of the Highlands. The heavy rains which fall near the sources of the Earn, the Tay, the Tummel, the Garry, the Isla, and their tributary streams, have washed down great portions of soil, and have laid bare the rocks of the highest mountains to give exuberance to the banks of the Tay. The Carse, in fact, is evidently nothing more than what is called, in other quarters, sea-mud, or slesch, consolidated by time and gradual deposition. The substrata here are various, and might form a subject of curious and interesting investigation. The soils also differ. On the banks or braes of the Carse, which slope gently with a southern aspect, the soil is a hazle-coloured loam, except in the higher part of the ascent, where it is a sharp gravelly kind. In the Low Carse, clay is the prevailing soil. Here the farms are classed into six divisions, as nearly equal as the nature of the ground will admit, and the following rotation is that most generally approved of: 1st year, summer-fallow, the land dunged; 2d, wheat; 3d, pease, or pease and beans; 4th, barley, with clover and rye-grass; 5th, clover; 6th, oats. Sometimes, however, fallow is excluded, and some green crop substituted. This happens al-

most universally on the banks or braes of the Carse; and on the higher grounds the raising of wheat is only very partial, and the third, fourth, fifth, and sixth years are generally appropriated to hay or pasturage, the seventh to oats, and the eighth to barley. The climate of this district is mild, and favourable to vegetation, beyond perhaps any other in Scotland, as it is completely sheltered, on all sides, by lofty mountains, and by plantations of various kinds of trees. Farms are generally from 100 to 300 acres in extent, and are let on leases of nineteen years, at as high a rent as any field-land in Great Britain. The only artificial manure used is lime; for which nearly 2000*l.* is paid annually to the lime-works in Fife or in England.

In ancient times a great proportion of this county was covered with thick forests of oak. In the mosses are found vast collections of trees, some of them of immense size, which have evidently been cut from their trunks by the hand of art, and, as tradition reports, by the Romans, when they first crossed the Forth under Agricola. The Forest of Blackironside, on the banks of the Earn, is particularly noted in history, as the scene of many of the exploits of the celebrated sir William Wallace and his gallant followers. In the Highland district was the forest of Manlorn, now converted into sheep-farms, besides other large forest tracts, which it is unnecessary to particularize, as the whole of them have been in a great measure destroyed. Perthshire, however, still contains many extensive woods, formed within the last fifty years, of which those of the duke of Athol, in the Highlands, are by far the largest and most valuable, and abound with deer and a variety of other game. Most of the gentlemen's seats in the county are also shaded by plantations. Indeed the spirit of planting has gone abroad here, with a degree of energy seldom paralleled in any country in Europe; and will, no doubt, eventually produce the happiest effects.

Perthshire, like every other county in Scotland, is placed under the jurisdiction of a lord lieutenant or high-sheriff, and a sheriff depute, who has the privilege of appointing a substitute to hold courts in his absence. The whole is ecclesiastically divided into sixty-seven parishes, of which nineteen belong to the Highlands and forty-eight to the Lowlands. Of these, nineteen are included in the presbytery of Dunkeld, twenty-one in the presbytery of Perth, fifteen in that of Auchterarder, and eleven in that of Dunblane; all in the synod of Perth and Stirling. In this county are two royal boroughs, Perth and Culrofs, and a number of considerable towns and villages, of which the principal are, Downe, Callender, Scone, Dunblane, Comrie, Crieff, Auchterarder, Dunning, Abernethy, Dunkeld, Alyth, Cupar, Angus, Blairgowrie, and Longforgan. The county of Perth sends one member to parliament; and the towns of Perth and Culrofs have a share in the election of other two for the burghs; Perth being classed with St. Andrew's, Cupar, Fife, Dundee, and Forfar; and Culrofs with Stirling, Dunfermline, Inverkeithing, and Queensferry.

The manufactures of Perthshire are linen, cotton, leather, paper, and a variety of minor articles. It has extensive bleachfields, printfields, and cotton-mills, with mills for extracting oil from the seeds of flax and rape, and for the spinning of flax and wool. Its exports are corn, linen, and linen-yarn, cottons, boots and shoes, salmon, with coals from the ports of Kincardine and Culrofs on the Frith of Forth; and it imports some of the materials of its manufactures, lime in great quantities, and articles required for domestic consumption.

The territory of Perthshire was divided, in 1811, into 755 estates, of which 621 were under 500*l.* Scots of valuation, and 95 above 2000*l.* the valuation of the whole being 339,892*l.* 6*s.* 9*d.* Scots, the highest of any of the Scottish counties excepting Fifeshire. The real rent, as returned under the property-tax act in 1811, was, for the lands, 460,738*l.* 13*s.* 11*d.* sterling, and for the houses, 36,697*l.* 19*s.* 7*d.* This land-rent, which is more than that of any

of the other counties by almost one-third, is equal to about a tenth part of the rent of all Scotland; yet it is only at the rate of about 5*s.* 6*d.* the English acre. In the same year, the number of freeholders entitled to vote in the election of a member for the county was 178. The duke of Athol is the patron of the county; and his son-in-law, James Drummond, esq. of Strathallan, represents the duke in the house of Commons. The number of inhabitants, according to the government census, is 135,093 persons, consisting of 64,034 males, and 71,059 females; houses, 27,290.

Perthshire displays a field of great interest to the antiquary, as well as to the historian. Lying north of the Roman wall, it was the scene of many conflicts, fought in support of the last gleam of Caledonian independence in the Lowlands. From a passage in Claudian, we learn, that the Earn was frequently dyed with blood; "*Scotorum cumulos flevit glacialis Ierne.*" And Tacitus informs us, that, at the foot of mount Grampius, Agricola encountered and overthrew the heroic Galgacus. The precise spot on which this battle took place is not certain; but a variety of conjectures have been hazarded upon the subject, of which the most probable is that which fixes it in Stormont, where a large Roman encampment is still visible, together with a numerous collection of cairns, the indubitable memorials of Caledonian strife. At Ardoch is another encampment, probably the most perfect example of ancient castrametation in Great Britain; and near it are two smaller ones, less perfect in their construction. There is likewise a Roman encampment at Ochil, which communicates with Ardoch by a raised road, or causeway. Vestiges of a strong military earthen work are also to be traced about two miles from Monzie; and on the hill of Dunmore is another fortification, said to have been Fingal's place of residence, after the destruction of his house in the vale by Gara. This fort is defended by a deep ditch and rampart; and is double walled, each wall measuring twenty feet in thickness, and consisting of immense stones piled up without cement of any kind. A similar fort, of still larger dimensions, is situated two miles eastward from Fienteach; and on the moor adjacent to it are numerous cairns and tumuli, one of which is assigned to Comhal, the father of Fingal. Near Culloquhey is a small fort, called in Gaelic *Comhal Kulte*, i. e. Comhal's Battle. At this place, tradition reports that Ossian was buried; and a stone vault, or coffin, is still visited as his.

Druidical monuments are frequent in this county; such as circles, rocking-stones, and single upright stones, denominated "*Stones of Worship*," to which the common people yet pay no inconsiderable degree of superstitious regard. Indeed some remnants of the druidical worship may be said to linger here, as many of the Highland customs have an unquestioned reference to that religion. The first day of May, held sacred by the worshippers of the Sun, continues to be distinguished by the appellation Beltan, or Baal-tein, "*The Fire of Baal*;" and in some parts of the country is still celebrated by festivals of milk and eggs.

In the church-yard of Meikle are the remains of the grand sepulchral monument of Vanora, also called Vanora, Wanor, and Guinevar, the British Helena, according to Prideaux. This princess was the wife of Arthur; but, being taken prisoner by the Scots and Picts, she lived for some time, in miserable captivity, on Barry-hill. Some assert that she was one of the most abandoned debauchees of her sex; and that, having been torn to pieces by wild beasts, this tomb was raised to perpetuate her infamy, and the manner of her death. The truth of this story, however, is extremely doubtful; and has perhaps arisen from the symbolic characters on the monument, most of which are of the monstrous kind, and represent various acts of violence on the person of a woman. This tomb is described in Pennant's Tour, and the description is accompanied by several plates.

Religious houses were frequent in this county; some of which still exhibit fine specimens of ancient architecture. At Culrofs are the ruins of a Cistercian abbey, founded in 1217 by Malcolm earl of Fife; and at Scone was a celebrated Augustine monastery. The cathedral of Dunblane stands on an eminence above the town; and part of it is kept in repair as the parochial church. That of Dunkeld is one of the finest piles of ancient building in Scotland, and is now undergoing a thorough repair. It is of mixed architecture, having been erected at different periods.

Perth, Scone, and Abernethy, having been early royal residences, were each adorned with stately palaces, which are now entirely demolished. Those of the two first mentioned towns fell a prey to the fanatical fury of the reformists. Many castellated mansions, however, yet exist in different districts of the county, and would be well worthy of description, would our limits allow. The most remarkable among them are Castle Campbell, Finlanrig Castle, Castle Comrie, Doune Castle, Ballumbri Castle, Garth Castle, Elcho Castle, Kinnaird Castle, Gowrie House, Murthly House, Kinfaun's Castle, Macbeth's Castle of Dunfinnan, Hunting-Tower, or Ruthven Castle, Balloch Castle; Blair Castle and Dunkeld House, seats of the duke of Athol; Taymouth Castle, seat of the earl of Breadalbane; Dupplin Castle, of the earl of Kinnoul; and Dunira, belonging to lord Melville. Some of these are in ruins; and some have been so much modernized as to alter in a great measure their original appearance. *Beauties of Scotland*, vol. iv. *Ency. Brit. Supplement*.

PERTI (Gio. Antonio), a composer of church-music *alla Palestrina*, was born in 1656. With his theatrical style we are unacquainted; but, as he long continued to be employed, not only for the operas of Bologna, but Venice and other cities of Italy, we may reasonably imagine that it was good. Paolucci has printed a good duet by this master, in the church-style; and Padre Martini has given several admirable specimens of his science in his *Saggio di Contrappunto*. This great harmonist, however, does him still more honour, by calling himself his disciple. Perti, before his decease, must nearly have attained the age of 100; for his name appears as the composer of *Atide* in 1679, and, according to Quadrio, he was living in 1744. *Burney*.

PERTICA, *f.* [Latin.] A pole or perch; a pole to beat down fruit. A tall candlestick to be set on an altar in a church.

PERTICATA, *f.* in our old law-books, is the fourth part of an acre, or a piece of ground containing one perch in breadth, and forty in length.

PERTICI, a comic singer and admirable actor, came hither in 1748 with Larchi, another excellent comic singer and actor, and Guadagni for the first time, when he was very young, as serious man in a troop of burletta singers, brought over upon speculation by Sig. Croza, whose calculations were so erroneous, that he became a bankrupt and a fugitive in a year's time. *Burney*.

PERTICULAS, *f.* [Latin.] In old records; a pittance, a small portion of alms, a small portion of victuals. *Cole*.—The same term is used for certain poor scholars of the Isle of Man. The king granted to "L. Macguin de Infula de Man, scholari quendam elemosynam vocatam *Perticulas*, ad sustentationem cujusdam pauperis scholaris, de infula predicta ad exercend. scholas, per progenitores nostros quondam reges Angliæ datam et concessam." Pat. Hen. IV.

PERTIGI, a town of the island of Sardinia: nineteen miles south-east of Castello Aragonese.

PERTINACIOUS, *adj.* [from *pernix*, Lat.] Obstinate; stubborn; perversely resolute.—One of the dissenters appeared to Dr. Sanderfon to be so bold, so troublesome and illogical in the dispute, as forced him to say, that he had never met with a man of more *pertinacious* confidence and less abilities. *Walton*.—Resolute; constant; steady.—Diligence is a steady, constant, and *perti-*

nacious, study, that naturally leads the soul into the knowledge of that, which at first seemed locked up from it. *South*.

PERTINACIOUSLY, *adv.* Obstinate; stubbornly.—They deny that freedom to me, which they *pertinaciously* challenge to themselves. *King Charles*.—Others have sought to ease themselves of all the evil of affliction by disputing subtilly against it, and *pertinaciously* maintaining that afflictions are no real evils, but only in imagination. *Tillotson*.—Metals *pertinaciously* resist all transmutation; and, though one would think they were turned into a different substance, yet they do but as it were lurk under a vizard. *Ray*.

PERTINACIOUSNESS, or PERTINACITY, *f.* Obstinate; stubbornness.—In this reply was included a very gross mistake, and, if with *pertinacity* maintained, a capital error. *Brown*.—Resolution; constancy.—Fearing lest the *pertinaciousness* of her mistress's sorrows should cause her evil to revert. *Bp. Taylor's Holy Dying*.

PERTINACY, *f.* [from *pernix*, Lat.] Obstinate; stubbornness; persistency.—Their *pertinacy* is such, that, when you drive them out of one form, they assume another. *Duppa*.—It holds forth the *pertinacy* of ill fortune, in pursuing people into their graves. *L. Éstrange*.—Resolution; steadiness; constancy.—St. Gorgonia prayed with passion and *pertinacy*, till she obtained relief. *Bp. Taylor*.

PERTINAX, Emperor of Rome after the death of Commodus. See ROME.

PERTINENCE, or PERTINENCY, *f.* [from *pertere*, Lat.] Justness of relation to the matter in hand; propriety to the purpose; appositeness.—I have shown the fitness and *pertinency* of the apostle's discourse to the persons he addressed to, whereby it appeareth that he was no babbler, and did not talk at random. *Bentley*.

PERTINENT, *adj.* [*pertere*, Lat.] Related to the matter in hand; just to the purpose; not useless to the end proposed: apposite; not foreign from the thing intended.—I set down, out of experience in business and conversation in books, what I thought *pertinent* to this business. *Bacon*.—Here I shall seem a little to digress; but you will by and by find it *pertinent*. *Bacon*.

My caution was more *pertinent*
Than the rebuke you give it. *Shakespeare's Coriol.*

Relating; regarding; concerning. In this sense the word now used is *pertaining*.—Men shall have just cause, when any thing *pertinent* unto faith and religion is doubted of, the more willingly to incline their minds towards that which the sentence of so grave, wise, and learned in that faculty, shall judge most sound. *Hooker*.

PERTINENTLY, *adv.* Appositely; to the purpose.—Be modest and reserved in the presence of thy betters, speaking little, answering *pertinently*, not interposing without leave or reason. *Bp. Taylor's Rule of Holy Living*.

PERTINENTNESS, *f.* Appositeness.

PERTINENTS, *f.* [*pertere*, Lat.] The Scotch term for APPURTENANCES, which see.

PERTINGENCE, or PERTINGENCY, *f.* The state of being *pertingent*. *Scott*.

PERTINGENT, *adj.* [*pertere*, Lat.] Reaching to; touching.

PERTISTA'GNO, a town of Italy, in Friuli: seven miles north-north-west of Friuli, and nine north-east of Udina.

PERTLY, *adv.* Briskly; smartly.—I find no other difference betwixt the common town wits and the downright country fools, than that the first are *pertly* in the wrong, with a little more gaiety; and the last neither in the right nor the wrong. *Pope*.—Saucily; petulantly.—Yonder walls that *pertly* front your town. *Shakespeare*.

When you *pertly* raise your snout,
Flee, and gibe, and laugh, and flout;
This, among Hibernian asses,
For their wit and humour passes.

Swift.

PERT'

PERT'NESS, *f.* Brisk folly; sauciness; petulance:
Dullness delighted ey'd the lively dunce,
Remembring the herself was *pertness* once. *Pope.*

Petty liveness; sprightliness without force, dignity, or solidity.—There is in Shaftesbury's works a lively *pertness* and a parade of literature; but it is hard that we should be bound to admire the reveries. *Watts on the Mind.*

PERTRAN'SIENT, *adj.* [*pertransiens*, Lat.] Passing over.

PERTUI'S, a town of France, in the department of the Mouths of the Rhône, near the Durance: nine miles north of Aix, and twelve south-south-east of Apt.

PERTUIS D'ANTIO'CHE, a strait or narrow part of the sea, between the Isle of Oleron and the Isle of Rhé.

PERTUIS BRETON', a narrow strait of the sea, between the Isle of Rhé and the coast of France.

PERTUIS DE MAUMUSSON', a strait between the Isle of Oleron and the coast of France, south of the island, about one mile wide.

To PERTUR'B, or PERTURBATE, *v. a.* [*perturbo*, Lat.] To disquiet; to disturb; to deprive of tranquillity.—Rest, rest, *perturbed* spirit. *Shakespeare's Hamlet.*

His wasting flesh with anguish burns,
And his *perturbed* soul within him mourns. *Sandys.*

To disorder; to confuse; to put out of regularity.—The accession or secession of bodies from the earth's surface *perturb* not the equilibration of either hemisphere. *Brown.*

Corruption
Hath then no force her blifs to *perturbate*.
More's Immortal. of the Soul.

PERTURBA'TION, *f.* [*perturbatio*, Lat.] Disquiet of mind; deprivation of tranquillity.—The soul, as it is more immediately and strongly affected by this part, so doth it manifest all its passions and *perturbations* by it. *Ray on the Creation.*

Love was not in their looks, either to God
Nor to each other, but apparent guilt,
And shame, and *perturbation*, and despair. *Milton's P. L.*

Restlessness of passions.—Natures that have much heat, and great and violent desires and *perturbations*, are not ripe for action till they have passed the meridian of their years. *Bacon's Essays.*—Disturbance; disorder; confusion; commotion.—Although the long dissensions of the two houses had had lucid intervals, yet they did ever hang over the kingdom, ready to break forth into new *perturbations* and calamities. *Bacon.*—Cause of disquiet:

O polish'd *perturbation!* golden care!
That keep'st the ports of slumber open wide
To many a watchful night: sleep with it now,
Yet not so sound, and half so deeply sweet,
As he, whose brow with homely biggen bound,
Sleeps out the watch of night. *Shakespeare's Hen. IV.*

Commotion of passions:

Restore yourselves unto your temper, fathers;
And, without *perturbation*, hear me speak. *B. Jonson.*

PERTURBA'TOR, *f.* [Latin.] Raifer of commotions.
PERTURBA'TRIX, *f.* A woman who breaks the peace. *Scott.*

PERTUR'BER, *f.* A disturber.—It was high time for the archbishop and state to look strictly to these *perturbers* of our church's happy quiet. *Sir G. Paul's Life of Abp. Whitgift.*

PERTU'SED, *adj.* [*pertusus*, Lat.] Bored; punched; pierced with holes.

PERTU'SION, *f.* [from *pertusus*, Lat.] The act of piercing or punching.—The manner of opening a vein in Hippocrates's time was by stabbing or *perfusion*, as it is performed in horses. *Arbuthnot.*—Hole made by punching or piercing.—An empty pot without earth in it, may be put over a fruit the better, if some few *perfusiones* be made in the pot. *Bacon.*

PERTUS'SIS, or WHOOPING COUGH. See the article PATHOLOGY, p. 183, 4, of this volume.

P E R U.

PERU', a considerable province of South or Spanish America.

Peru, when first discovered by the Spaniards, was a large and flourishing empire, including two kingdoms, Peru and Quito. It extended along the shores of the South Pacific Ocean from Chili even to Popayan, embracing the vast chain of mountains which, arising in the Terra Magellanica, passes onwards to Mexico, and thus unites South and North America. Peru, therefore, when first reduced to the obedience of the crown of Spain, was the largest of any of the governments founded in America. It has since been reduced, at two periods, in order to give such extension to other provinces as should entitle them to the rank of viceroalties. In the year 1718, the province or kingdom of Quito was separated from Peru, and added to the government of New Granada. In the year 1778, when the court of Madrid had resolved on erecting the province of Buenos Ayres into a viceroalty, the province of Potosí, the district surrounding it, the cities of La Paz, La Plata, and the fertile district of Cochabamba, were separated from Peru, to form a part of the newly-extended government. As, during the civil wars, which have raged from 1810 to the present time, those provinces have been wrested from the dominion of Spain, they are likely, in future, to appertain to that division of South America which will be included in the territories of Buenos Ayres or La Plata, rather than to that which will include either Peru or Chili.

The present boundary of Peru to the north is the small river Tumbes, in latitude 3. 26. south, and longitude 80. 6. west from Greenwich; which river divides it from

New Granada. To the south the boundary is the chain of mountains of Vilca-Nota, which terminates at the river Loa in latitude 15. The extent of the coast of Peru is thus about 700 geographical miles; but, as the sinuosities of the shore are considerable, the whole frontage to the ocean is upwards of 1000 miles. The eastern boundaries of Peru are not clearly defined. They extend to the vast plains claimed by Portugal, as a part of Brazil, denominated the Pampas del Sacramento, and farther north to Colonna, or the Land of the Missions, inhabited by unreclaimed Indian tribes. The medium breadth is about 80 leagues, according to Humboldt, who estimates the whole area of Peru to be 30,000 square leagues.

Peru may be considered as divided into three districts. The first, called *Lower Peru*, is a narrow slip of sandy plain, varying in breadth from six to twenty leagues, which bounds the whole of the western coast. It is extremely barren except in the neighbourhood of rivers, which, though few and small, are in some places met with. They are chiefly formed by torrents from the high lands. This sterility is however remedied in a great degree by the vast quantities of manure which are deposited on the shore by aquatic birds, and conveyed thence over the country to the inlands. This ordure, which is peculiar to the coast of Peru, is said by Sir H. Davy to contain a greater quantity of ammonia than any other known species of manure. This is partly to be attributed to the total absence of rain; for, in the district under consideration, the lofty mountains to the eastward intercept the clouds from the Atlantic Ocean, and the constant winds from the south drive the clouds that collect in the Antarctic

arctic Circle beyond the limits of Peru before they discharge their waters. Now this want of moisture of course prevents that dilution and washing-away of the saline particles which is detrimental to the manures of our own and other wet climates. It is said that the quantity of this manure used by the Peruvians is very small, and is minutely divided; but that its effects on vegetation, particularly in regard to the *capsicums*, is astonishing. The lack of rain in this district is in some measure compensated by the fall of very heavy dews during the night. The medium heat of Lower Peru throughout the year is 64°, and the thermometer rarely rises to 75°. Thunder and lightning are unknown. Most of the tropical plants flourish here. The plantain, banana, pine-apple, sugarcane, vine, cocoa, olive, coffee, and cotton, as well as the most delicious fruits, some, such as the chiremoia and the frutilla, peculiar to the country, arrive at great perfection.

The next division of Peru consists of that range of the Andes nearest to the Pacific Ocean, commencing generally with hills of moderate elevation, but in some parts with bold projecting and abrupt precipices. The sides of these hills are covered with forests, rendered almost impenetrable by the numerous parasitical plants which twine round the lofty trees; and, we meet with acacias, mangotrees, arboresecent brooms, and ferns; aloes and other succulent plants; cedars, cotton or Cuba trees of gigantic magnitude, many kinds of ebony and other useful woods, many species of palms, and the *maria*, a tree of enormous size, used in ship-building. The valleys between these hills afford most of the trees which are natives of the tropics; few of them are well calculated for the purposes of building.

This district, called *Higher Peru*, commencing at the termination of the sands on the shore, continues increasing gradually in height towards the eastward, till the ridge of the Andes or the Cordilleras is attained. The line of perpetual snow is about 14,000 feet above the level of the sea, and from that line upwards vegetation necessarily ceases; below it, the plants, by regular gradations, display the nature of the climate, and its adaptation to the various families of vegetables; and, in different parts, exhibit every species of production which can be found, from the dwarf plants of Lapland to the odoriferous spices of Sumatra; but extensive and fertile plains occur at 9000 feet above the level of the sea.

This portion of Peru contains the sources of those vast rivers which traverse the whole continent of South America. Their streams, for the most part, run to the Atlantic Ocean. The few that run to the Pacific are of short course, and do not yield copious supplies.

This mountainous district is the chief seat of the mineral wealth of Peru. The mines are, for the most part, situated at great elevations, and consequently in a climate so severely cold as to be unfavourable both to the health of the labourers, and to the raising food for their subsistence. The most abundant silver mines, those of Pasco and Guancavelica, are between 13,000 and 14,000 feet above the level of the sea. Baron Humboldt asserts, that beds of coal have been found near Guanaco, at an elevation of 14,700 feet above the level of the sea; and fossil shells at the height of 14,120 feet, where they are also accompanied with sandstone; but granite is scarcely known in Peru.

The third district of Peru commences on the eastern summit of the Andes, and proceeds eastward till it reaches the territories of Portugal, towards their northern part; and the provinces of La Plata, or Buenos Ayres, towards the south. The descent from the Andes, on the eastern, is much more abrupt than on their western side. They terminate in vast plains called sometimes *Pampas del Sacramento*, or more usually, collectively, *Colonna*, or the Land of the Missions. The Jesuits succeeded in collecting in villages many of the rude inhabitants of this country; and, according to the relation of one of that body, Father Girval, the tribes are numerous, small, and scatter-

ed; with as many various languages as tribes, and differing much from each other in the degree of civilization to which they had attained. These Pampas are represented as being covered with trees and verdure; and yielding balsams, oils, gums, resins, cinnamon, cocoa, cascarilla, and many valuable drugs, spices, and other rare productions. The trees are lofty, and form impenetrable forests, in which wander all the animals peculiar to the torrid climate of America. The heat is excessive, and accompanied with humid fogs.

Amidst the other circumstances which distinguish Peru, we have to mention the most terrific earthquakes. These are frequently felt in every part, and are sometimes accompanied with most extensive and fatal effects. The lofty chain of the Andes is a collection of volcanos, some in constant activity, others occasionally ejecting inflammable substances; while there are many whose fires, in the lapse of ages, seem to have been burnt out.

DISCOVERY AND CONQUEST OF PERU.

To the dauntless and persevering spirit of three Spanish adventurers of the sixteenth century we are indebted for the discovery of Peru. Their names were Francisco Pizarro, Diego de Almagro, and Hernando Luque. Pizarro, however, has the chief glory of the discovery. The talents of Almagro were exerted chiefly in sailing to his associate with supplies and reinforcements. The part which Luque performed was that of furnishing money, with which the double employment of priest and schoolmaster had amply furnished him. The last was however not the least efficient agent in the discovery, since Pizarro, a bastard (and in early life a swine-feeder), and Almagro a foundling, could not have raised the funds requisite for so arduous an undertaking without his assistance.

Pizarro set sail from Panama on the 14th of November, 1524, with a single ship and 112 men; and, so little was he acquainted with the peculiarities of the climate, that he spent two years in sailing from Panama to the northern extremity of Peru, a voyage which is now frequently performed in a fortnight. He landed, and found that the wealth of the country was as great as he imagined; and that the resistance he was likely to meet in endeavouring to possess himself of it would be full as considerable. At *Tumbes*, a place about three degrees fourth of the line, Pizarro and his companions feasted their eyes with the first view of the opulence and civilization of the Peruvian empire. This place was distinguished for its stately temple, and a palace of the *incas*, or sovereigns of the country. But what chiefly attracted their notice was such a show of gold and silver, not only in the ornaments of their persons and temples, but in several vessels and utensils for common use, as left no room to doubt that they abounded to profusion there. Having explored the country sufficiently to satisfy his own mind, Pizarro procured two of their *llamas*, or tame cattle, to which the Spaniards gave the name of sheep, some vessels of gold and silver, and two young men whom he intended to bring up as interpreters; and with these he returned to Panama towards the close of the third year from the time of his departure. No adventurer of the age suffered hardships or encountered dangers which equalled those to which he was exposed, during this long period. The patience with which he endured the one, and the fortitude with which he surmounted the other, are said to exceed whatever is recorded even in the history of the New World, where so many romantic displays of those virtues occur. But neither Pizarro nor his associates were deterred from the prosecution of their scheme.

The confederacy of the three adventurers had originally been sanctioned by Pedrarias, the governor of Panama; but, cold and cautious, he now refused further assistance. With his characteristic boldness, Pizarro repaired to the court of Spain; and conducted his suit with so much address, that he obtained from Charles (king of Spain and emperor

emperor of Germany) the most liberal concessions. He was made chief governor of all the country he subdued; Almagro *adelantado*, or king's lieutenant; and Luque was appointed the first bishop of Peru.

Thus encouraged, Pizarro returned to Panama, whence he soon after sailed with three small vessels, containing only 186 soldiers, and arrived at the bay of St. Matthew in thirteen days. He advanced by land as quickly as possible towards Peru. At the province of Coaque he surprised the natives, and seized their vessels of gold and silver to the amount of several thousand pounds sterling. He continued his march along the coast, meeting with scarcely any resistance till he arrived at the island of Puna in the bay of Guayquil. Here he spent six months in reducing the inhabitants to subjection. From Puna he proceeded to Tumbes, and from thence to the river Piura, near the mouth of which he established, A.D. 1532, the first Spanish colony in Peru, to which he gave the name of St. Michael. Before, however, this colony was founded, Pizarro received two reinforcements amounting to about thirty men each; the one commanded by Benalcazar, the other by Soto; both distinguished officers.

At the time when the Spaniards first visited Peru, Huanca Capac was seated on the throne. He was the twelfth of a line of *incas*, or kings, of whom Mango Capac (the founder of a city and inventor of many useful arts) was the first. In the course of his reign, Huanca Capac subjected to his rule the kingdom of Quito, a conquest of such extent and importance as almost doubled the power of the Peruvian empire. He married the daughter of the vanquished monarch of Quito, by whom he had a son named Atabalipa, whom, on his death at Quito, he appointed successor in that kingdom, leaving the rest to Huascar, his eldest son, by a mother of the royal race. Huascar, discontented with his father's will, required his brother to renounce the government of Quito, and to acknowledge him as his lawful superior, which Atabalipa refused, and marched against Huascar in hostile array. Victory declared itself in favour of Atabalipa, who made a cruel use of his success, seizing the crown of Peru, and attempting to exterminate the royal race by putting to death all the children of the Sun descended from Mango Capac.

When Pizarro landed in the bay of St. Matthew, this civil war raged between the brothers with the greatest fury. His alliance and assistance were sought by Atabalipa, which he readily promised, and thus was allowed to march his troops in safety across the sandy desert between St. Michael and Motupe, where their career might easily have been stopped. He then sent messengers inviting Atabalipa to visit him in his quarters; which he readily promised. On the return of these messengers, they gave such a description of the wealth which they had seen, as determined Pizarro to seize upon the Peruvian monarch, in order that he might more easily come at the riches of his kingdom.

The next day the inca approached Caxamalca without suspicion of Pizarro's treachery. But, as he drew near the Spanish quarters, Vincent Valverde, chaplain to the expedition, advanced with a crucifix in one hand, and a breviary in the other, and in a long discourse attempted to convert him to the catholic faith. This the monarch declined, avowing his resolution to adhere to the worship of the Sun; at the same time he wished to know where the priest had learned the extraordinary things which he had related. "In this book!" answered Valverde, reaching out to him his breviary. The inca opened it eagerly, and turning over the leaves raised it to his ear: "This," says he, "is silent, it tells me nothing," and threw it with disdain to the ground. The enraged monk, running towards his countrymen, cried out, "To arms, Christians, to arms! the word of God is insulted; avenge the profanation on these impious dogs." Pizarro immediately gave the signal of assault, which terminated in the destruction of 4000 Peruvians, without the loss of

a single Spaniard. The plunder of the field was rich beyond any idea which even the conquerors had yet formed concerning the wealth of Peru.

The inca, who was taken prisoner, quickly discovered that the ruling passion of the Spaniards was avarice; he offered, therefore, to recover his liberty by a splendid ransom. The apartment in which he was confined was 22 feet long by 16 in breadth; this he undertook to fill with vessels of gold as high as he could reach. Pizarro closed with the proposal, and a line was drawn upon the walls of the chamber to mark the stipulated height to which the treasure was to rise. Atabalipa performed his part of the contract, and the gold which his subjects brought in was worth between three and four hundred thousand pounds sterling. When they assembled to divide the spoils of this innocent people, procured by deceit, extortion, and cruelty, the transaction began with a solemn invocation to heaven, as if they expected the guidance of God in distributing those wages of iniquity. In this division, above eight thousand pesos, at that time not inferior in effective value to 10,000. sterling in the present day, fell to the share of each horse-soldier. Pizarro and his officers received dividends in proportion to the dignity of their rank.

The Spaniards having divided the treasure among them, the inca insisted that they should fulfil their promise of setting him at liberty. But nothing was further from Pizarro's thoughts; he was even at that very moment planning schemes to take away his life: an action the most criminal and atrocious that stains the Spanish name, amidst all the deeds of violence committed in carrying on the conquest of the New World. In order to give some colour of justice to this outrage, and that he might not stand singly responsible for the commission of it, Pizarro resolved to try the inca with all the formalities observed in the criminal courts of Spain. The charges exhibited against him were "the deposition and death of his brother; the permission of offering up human sacrifices; the keeping of a great number of concubines; and the exciting his subjects to take arms against the Spaniards." On these he was found guilty, as his infamous judges had predetermined, and condemned to be burnt alive. Friar Valverde prostituted the authority of his sacred function to confirm the wicked sentence, and by his signature warranted it to be just. Pizarro ordered him to be led to execution; and the cruel priest offered to console, and attempted to convert, him. The dread of a cruel death extorted from the trembling victim a desire of being baptized. The ceremony was performed; and Atabalipa, instead of being burnt, was strangled at the stake. (A.D. 1533.)

The death of the inca was no sooner known, than the principal nobility at Cuzco proclaimed the brother of Huasca as his successor: but Pizarro set up a son of Atabalipa; and two generals of the Peruvians claimed the sovereign power for themselves. Thus was this wretched country torn to pieces at once by foreigners, and by a domestic war among themselves. The Peruvians, however, gained some considerable advantages over the Spaniards even in this distracted condition, which induced Pizarro to make peace with them, which he knew how to violate when his affairs required it. Accordingly, he shortly after renewed the war; and made himself master of Cuzco, then the capital of the empire. New grants and supplies now arrived from Spain, by which Pizarro obtained 200 leagues along the sea-coast to the southward of his former government; and Almagro a grant of 200 more to the southward of Pizarro's. It soon became a contested point in whose territory the city of Cuzco lay; but it was at length awarded to Pizarro, and a reconciliation was effected between these two ruffians.

Almagro then set out on an expedition against Chili; and the Indians, seeing the Spaniards thus divided, gained courage to attack them. The inca, under pretence of holding a sacred festival, repaired to an assembly

of the state of the kingdom, and excited his countrymen to avenge themselves of the Spanish wrongs and cruelty. They laid siege to Cuzco with a large army; but the garrison under Ferdinand Pizarro, though it consisted of only seventy men, was victorious; chiefly by means of their artillery.

News was brought to Almagro of the danger to which Cuzco was exposed, and the general insurrection of the Peruvians. Relinquishing his new conquests, he hastened back with great expedition. At his approach the Indians raised the siege, to the joy of the garrison, who were almost exhausted by the length of the defence. Almagro resolved to renew his claims to Cuzco; he had now a fort of right to it by having raised the siege, and he had strength sufficient to support that right. Ferdinand and Gonzalo, the two brothers of Pizarro, making some opposition, were thrown into prison; and their little army either joined the conqueror, or shared the same fate.

Pizarro, unacquainted with the arrival of Almagro, had got together an army for the relief of Cuzco, who were near the town before they found that they had any other enemy than the Indians to contend with. Almagro, after having in vain tried to seduce their fidelity, engaged and routed them. His friends represented to him that now was the hour of his fortune, and that he was bound to employ it by establishing himself beyond all possibility of being removed. That he ought to put the Pizarros, his prisoners, to death, and march directly to Lima, and seize his rival. Almagro rejected this advice; and, while he was deliberating what course he should pursue, Gonzalo Pizarro made his escape, with a hundred of those who were affected to his cause. Shortly after, by the solicitations and art of Pizarro, he released his brother Ferdinand. The treaty which they entered into with Almagro was now forgotten: they attacked him, gained a complete victory, and took him prisoner. In spite of Almagro's age, which ought to have excited pity; in spite of their common warfare, their dangers and triumphs; in spite of every sentiment of gratitude, for what this unfortunate man had contributed to his greatness; and in spite of his late mercy to his brother; all which were pathetically and strongly urged by Almagro; Pizarro had him formally tried, condemned, and strangled in prison. He left one son by an Indian woman of Panama, whom, though at that time a prisoner at Lima, he named successor to his government, pursuant to a power which the emperor had granted him.

Pizarro, considering himself now the unrivalled possessor of that vast empire, proceeded to parcel out its territories among the conquerors, but with an unequal hand. Of course, all who were disappointed in their expectations exclaimed loudly against the rapaciousness and partiality of the governor. The partisans of Almagro murmured in secret, and meditated revenge. This party was yet numerous, though dispersed about the country. Their frequent cabals did not pass unobserved, and the governor was warned to be on his guard against men who meditated some desperate deed. He disregarded the admonitions of his friends: "Be in no pain," said he, "about my life; it is perfectly safe, as long as every man in Peru knows that I can, in a moment, cut off any head which dares to harbour a thought against it." This security gave the Almagrians full leisure to ripen every part of their scheme; and Juan de Herrada, an officer of great abilities, who had the charge of young Almagro's education, took the direction of their consultations, with all the zeal which this connexion inspired, and with all the authority which the ascendant that he was known to have over the mind of his pupil gave him.

On Sunday the 26th of June, 1541, at mid-day, the season of tranquillity and repose in all sultry climates, Herrada, at the head of eighteen of the most determined conspirators, sallied out of Almagro's house in complete armour, and, drawing their swords as they advanced hastily towards the governor's palace, cried out, "Long live

the king, but let the tyrant die!" Though Pizarro was usually surrounded by such a numerous train of attendants as suited the magnificence of the most opulent subject of the age in which he lived; yet, as he was just risen from table, and most of his domestics had retired to their own apartments, the conspirators passed through the two outer courts of the palace unobserved. Pizarro, with no other arms than his sword and buckler, defended the entry of his apartment; and, supported by his half-brother Alcantara, and a little knot of friends, he maintained the unequal contest with an intrepidity worthy of his past exploits, and with the vigour of a youthful combatant. But the armour of the conspirators protected them, while every thrust they made took effect. Alcantara fell dead at his brother's feet; his other defenders were mortally wounded. The governor, receiving at length a deadly thrust full in his throat, sunk to the ground, and expired.

As soon as he was slain, the assassins conducted young Almagro in solemn procession through the city of Quito; and, assembling the magistrates and principal citizens, compelled them to acknowledge him as lawful successor to his father in his government. But the officers who commanded in some of the provinces refused to recognize his authority until it was confirmed by the emperor. In others, particularly at Cuzco, the royal standard was erected, and preparations were begun in order to revenge the murder of their ancient leader.

In this state of things, the new governor, Vaca de Castro, appointed by the court of Spain, arrived. This man had been chosen to the important trust, at the instance of the emperor alone, on account of his high reputation for justice and integrity. He immediately assumed the supreme authority; and, by his influence and address, soon assembled such a body of troops, as not only set him above all fear of being exposed to any insult from the adverse party, but enabled him to advance from Quito with the dignity that became his character. Encouraged by the approach of the new governor, the loyal were confirmed in their principles, and avowed them with greater boldness; the timid ventured to declare their sentiments; the neutral and wavering, finding it necessary to choose a side, began to lean to that which now appeared to be the safest, as well as the most just.

De Castro had scarcely landed, when Almagro sent an embassy to him, proposing terms; to which the governor replied, that he was come under the emperor's authority, to do justice to all; of which, if a good subject, he could have no room to complain; if a bad one, he must prepare for the result. This was new language to those who held the supreme power in this part of the world, who almost forgot that they had a superior. Almagro resolved to abide the fortune of war; but victory was on the side of Castro, not however without considerable loss. The superior number of his troops, his own intrepidity, and the martial talents of Francisco de Carjaval, his principal officer, triumphed over the bravery of his opponents, though led on by Almagro with a gallant spirit, worthy of a better cause, and deserving another fate. The carnage was great, in proportion to the number of combatants. Of fourteen hundred men, five hundred lay dead on the field, and the number of wounded was still greater.

If the military talents displayed by De Castro, both in the council and the field, surprised the adventurers in Peru, they were still more astonished at his conduct after the victory. He proceeded directly to try his prisoners as rebels. Forty were condemned to suffer death, others were banished from Peru. Their leader made his escape from the field of battle; but, being betrayed by some of his officers, he was publicly beheaded at Cuzco; and in him the name of Almagro and the spirit of the party became extinct.

During the above-mentioned violent commotions, the attention of the emperor-king and the statesmen of Spain

had been naturally directed to the growing importance of the colony in Peru. It became obvious, that, governed by a band of rapacious, ignorant, and cruel, adventurers, the arts or manufactures could not flourish; and consequently that Peru could form no important, or at least permanent, addition to the power and revenues of the mother-country. It was also apparent that the Indians suffered much from their horrid task-masters; and fortunately they found a warm advocate in Bartholomew de las Casas, who, both in his writings and in his appeals to the emperor, set forth in the strongest colours their misery and depopulation. Independent of the natural pity which was excited in Spain by the accounts of the cruelty of the invaders towards the native Indians, it was urged that, in consequence of this ill usage, the slaves who worked at the mines died so rapidly, and bred so slowly, that it was apprehended they might in a short time be totally extinct. The natural consequence of a continuance of this treatment would have been that no one would be left to work the mines or cultivate the lands; and therefore the newly-acquired territory would be a perpetual drain on the population and resources of Spain. Impressed with these facts, the emperor, with decision, but perhaps with too much abruptness, framed a system of government for Peru, which went the length of enfranchising the native Indians; for it enacted that "the stated tribute due by them to their superior should be ascertained, and that they should be paid as servants for any work they might *voluntarily* perform." Considering, moreover, that the vast tracts of land possessed by the early adventurers might, when cultivated and peopled, render their proprietors too powerful for subjects, the emperor further ordained that they might, where excessive, be reduced to a moderate extent by the court of royal audiences, and that they should revert to the crown on the decease of the possessor, and not descend, as before, to his wife and children. Besides these important regulations, the emperor appointed Blasco Nunez Vela viceroy of Peru; and established, under the title of "royal audience," a council which might strengthen his administration.

The enfranchisement of their slaves, and the dismemberment and eventual confiscation of their estates, were not measures to be tamely submitted to by the fierce and ungoverned settlers of Peru. They did not fail to exclaim loudly and fiercely against a government which tore from them those possessions which had been granted as the reward of hardships and dangers almost unparalleled; the women also, who saw the inheritance of their children torn away, and themselves liable to be plunged from the highest prosperity to the deepest poverty, fanned with their stimulating voices the flame of rebellion. This disaffection was rather increased than diminished by the haughty conduct of the new viceroy; and, the malcontents having found a skilful leader in Gonzalo Pizarro, (brother of the discoverer,) a civil war broke out. The rebellious party soon overpowered that of the Spanish government; for, in the latter, dissensions arose even between the viceroy Nunez Vela and the judges. The viceroy interfered with the decisions of the judges; they in their turn thwarted all his measures, and even went so far as to justify the general disaffection his conduct excited, and to imprison him on a desert island until he could be sent to Spain.

The vicerealty thus broken up, the judges in vain endeavoured to exact obedience from Pizarro. He marched boldly to Lima; and Carjaval, the prompter of all his actions, entered the city in the night and hanged several persons who were obnoxious to his party. The next day the court of audience appointed Pizarro governor and captain-general of the province.

But in the mean time Nunez Vela again appeared in arms. The officer who had been intrusted to convey him to Spain, influenced either by fear or remorse, gave up to

his prisoner the command of the vessel, and promised to follow his fortunes and support his authority. The viceroy landed at Tumbes, and was soon joined by numbers who were well affected towards the mother-country, or were dissatisfied with the harsh and arbitrary sway of Pizarro. Vela obtained at first some advantages; but the decisive battle was fought at Quito in January 1545, which ended in his defeat and death.

The companions of Pizarro now advised him to throw off all allegiance to Spain; to marry the *Coya*, or Daughter of the Sun next in succession to the crown, (by which measure he might insure the fidelity of the native Peruvians,) and to declare himself sovereign of the country. But Pizarro had not a soul fashioned to pursue this brilliant course; a course which, if pursued in, would in all probability have detached Peru for ever from Spain, even at that early period. Pizarro was not formed to be a king, but a robber: he confined his views to obtaining a confirmation of his authority from the Spanish court, that he might enrich himself by plunder. This was hopeless. The first impulse of the Spanish ministry was to declare Pizarro a traitor; and it was only the consideration of the great skill and power of the rebel, the remoteness of the seat of warfare, the difficulty of transporting troops, and the absence of the Spanish veterans who were engaged in Germany, that determined them to adopt a milder and more temporizing plan. Without replying directly to Pizarro, they dispatched to Peru, under the title of President of the Court of Audience at Lima, an old and infirm man named Pedro de la Gasca. He was merely a priest in the Inquisition, and until this occasion had been employed only in offices of negotiation. To Gasca was entrusted full and unlimited power, not only to act as circumstances might require in regard to Pizarro, but to punish with death, to pardon, or to reward, any one as he might judge expedient; and moreover to call to his assistance all or any of the governors of the settlements in Spanish America. With this authority, but without either money or troops, he set out to quell a rebellion which already had baffled a brave and distinguished commander. On his arrival at Nombre de Dios, July 27, 1546, he found Herman Mexia, an officer of note, posted there, by order of Pizarro, with a considerable body of men to oppose the landing of any hostile forces; but Gasca appeared in such pacific guise, with a train so little formidable, and with a title of no such dignity as to excite terror, that he was received with much respect. From Nombre de Dios, he advanced to Panama, and met with a similar reception from Hinojosa, whom Pizarro had entrusted with the government of that town, and the command of his fleet stationed there. In both places he held the same language, declaring that he was sent by their sovereign as a messenger of peace, not as a minister of vengeance; that he came to redress all their grievances, to revoke the laws which had excited alarm, to pardon past offences, and to re-establish order and justice in the government of Peru. His mild deportment, the simplicity of his manners, the sanctity of his profession, and a winning appearance of candour, gained credit to his declarations. The veneration due to a person clothed with legal authority, and acting in virtue of a royal commission, began to revive among men accustomed for some time to nothing more respectable than an usurped jurisdiction. Hinojosa, Mexia, and several other officers of distinction, to each of whom Gasca applied separately, were gained over to his interest, and waited only for some decent occasion of declaring openly in his favour.

This was not long wanting. Pizarro opposed the entry of the new president into Lima; offered him 50,000 pesos to go back to Spain; and instructed Hinojosa, that, if he refused, he should forthwith assassinate him. But this officer, fearing to oppose the orders of the king of Spain, and disgusted at the atrocious mandate of Pizarro, publicly recognised the title of the president. His officers followed

followed his example; and Gasca suddenly became master of the fleet, of Panama, and of all the troops stationed there.

The insinuating manners of Gasca, his mildness, and his clemency, failed not to increase his party in a rapid and astonishing manner. This prosperity seemed somewhat obstructed by the defeat of Centeno, to whom the chief of his force was entrusted. This officer was beaten in a most bloody battle at Huarina, Oct. 20, 1547; and, as this was effected by Pizarro at the head of a comparatively small force, it raised his reputation, and consequently the number of his adherents, in no mean degree. Still, however, the good qualities of Gasca contrasted in so favourable a manner with the profligacy and unrelenting cruelty of Pizarro, that he scarcely passed a day without some addition to his force.

After spending some months in thus strengthening his party, Gasca began to move towards Cuzco, Dec. 29, 1547. Pizarro, confident of victory, suffered the royalists to pass all the rivers which lie between Guamanga and Cuzco without opposition, and to advance within four leagues of that capital, flattering himself that a defeat in such a situation as rendered escape impracticable would at once terminate the war. He then marched out to meet the enemy; and Carjaval chose his ground, and made the disposition of the troops with the discerning eye and profound knowledge in the art of war conspicuous in all his operations. As the two armies moved forwards slowly to the charge, the appearance of each was singular. In that of Pizarro, composed of men enriched with the spoils of the most opulent country in America, every officer, and almost all the private men, were clothed in stuffs of silk, or brocade, embroidered with gold and silver; and their horses, their arms, their standards, were adorned with all the pride of military pomp. That of Gasca, though not so splendid, exhibited what was no less striking: he himself, accompanied by the archbishop of Lima, the bishops of Quito and Cuzco, and a great number of ecclesiastics, marching along the lines, blessing the men, and encouraging them to a resolute discharge of their duty.

When both armies were just ready to engage, Cepeda, one of Pizarro's chief officers, set spurs to his horse, galloped off, and surrendered himself to the president, Garcilasso de la Vega, and other officers of note, followed his example. The revolt of persons in such high rank struck all with amazement. The mutual confidence on which the union and strength of armies depend, ceased at once; distrust and consternation spread from rank to rank. Some silently slipped away; others threw down their arms; and the greatest number went over to the royalists. Pizarro, Carjaval, and other leaders, employed authority, threats, and entreaties, to stop them, but in vain. In less than half an hour, a body of men which might have decided the fate of the Peruvian empire was totally dispersed. Pizarro, seeing all irretrievably lost, with a tameness disgraceful to his former fame, surrendered to one of Gasca's officers. Carjaval, endeavouring to escape, was overtaken and seized. Gasca, happy in this bloodless victory, did not stain it with cruelty. Pizarro, Carjaval, and a small number of the most distinguished or notorious offenders, were punished capitally. Pizarro was beheaded on the day after he surrendered. He submitted to his fate with a composed dignity, and seemed desirous to atone by repentance for the crimes which he had committed. Carjaval, a more able warrior, and more ferocious than Pizarro, was quartered. This man, when he was expiring, boasted that he had massacred with his own hand 1400 Spaniards and 20,000 Indians.

Such was the last scene of a tragedy, of which every act had been marked with blood; and such was the fate of all those who had taken a lead in the reduction of Peru. Almagro beheaded; his son sharing the same fate; Pizarro murdered in his own palace; his brother Ferdi-

nand kept a prisoner twenty-three years; and his other brother Gonzalo suffering death as a traitor.

The new governor, having by these few necessary severities quieted his province, took effectual care to heal its disorders by the arts of peace. He settled the civil government, the army, and the mines, upon such a basis, as to ensure, under a wise administration, the most important advantages to his country. He issued regulations concerning the treatment of the Indians, well calculated to protect them from oppression, and to provide for their instruction in the principles of religion, without depriving the Spaniards of the benefit accruing from their labour.

Having now accomplished the object of his mission, Gasca, wishing to return to a private station, committed the government of Peru into the hands of the court of audience, and set out for Spain, (Feb. 1, 1550,) carrying three hundred thousand pounds of public money to his native country. And yet, such was his disinterestedness, that, while he brought this vast recruit to the royal treasury, he was obliged to apply by petition for a small sum to discharge some petty debts which he had contracted during the course of his service. Charles was not insensible to such merit: he received Gasca with the most distinguishing marks of esteem; and, being promoted to the bishopric of Palencia, he passed the remainder of his days in the tranquillity of retirement, respected by his country, honoured by his sovereign, and beloved by all.

Notwithstanding Gasca's wise regulations, the tranquillity of Peru was not absolutely permanent. Successive insurrections desolated the country for some years. During these contests, many of the first invaders of Peru, and many of those licentious adventurers whom the fame of their success had allured thither, fell by each other's hands. Each of the parties gradually cleared the country of a number of turbulent spirits, by executing, proscribing, or banishing, their opponents.

With regard to the Peruvians, the most cruel measures were taken to render it impossible for them to rebel. Tupac Amaru, the heir of their last king, had taken refuge in some remote mountains, where he lived in peace. There he was so closely surrounded by the troops which had been sent out against him, that he was forced to surrender. The viceroy Francis de Toledo caused him to be accused of several crimes that he had not committed, and for which he was beheaded in 1571. All the other descendants of the incas shared the same fate, under pretence that they had conspired against their conquerors. The horror of these enormities excited so universal an indignation both in the Old and the New World, that Philip II. thought himself obliged to disavow them; but the infamous policy of this prince was so notorious, that no credit was given to this appearance of his justice and humanity.

For the space of upwards of 200 years, Peru offers nothing worthy of notice to the historian. No country, perhaps, ever enjoyed so long a period of tranquillity as Peru has experienced; for though occasionally, when Spain has been at war with England, a few places on the coast have suffered from predatory attempts, and the navigation may have been interrupted by our cruisers, yet in the interior, so complete was the subjugation, so passive was the obedience, that nothing but a few trifling local dissensions occurred, after the events we have just mentioned, till the year 1781, when an insurrection of an extensive and alarming nature suddenly burst forth.

Jose Gabriel Condercanqui was a descendant of the last sovereign of the Peruvian race. He had been carefully educated by his father, and exhibited considerable talent. The title of Marquis of Oropesa had been conferred on one of his ancestors. On the death of his father, he petitioned to have that title renewed in him; but, being refused, he retired to the mountains, and announced himself by the name of *Tupac Amaru*, which the last of the incas had borne, as the true sovereign of Peru. The Indians

Indians flocked to him in crowds, the sacred fillet was bound on his brow, and he was proclaimed emperor, by the title of Tupac Amaru the Second. An overwhelming army was speedily collected by him, which subdued the country, and invested Cuzco. At the commencement of his reign, though he declared vengeance against every native of Old Spain, he professed to favour equally the ecclesiastics and all of the white race who were born in America. Adhering to this system, he continued to prosper; but his followers, elated with the success that everywhere attended them, and being in an undisciplined state, commenced a war of extermination against all who were not of the Peruvian race, which was attended with scenes of the most horrid barbarity. Diego his brother, and Andres his nephew, favoured the cruel disposition of the Indians, and perpetrated deeds which Jose Gabriel vainly strove to prevent. The insurrection continued two years, and extended over most of the districts around Cuzco. But the proceedings against the Whites, Mulattoes, and Negroes, at length united these castes against the Indians. Jose was surprised, and, with his family, taken prisoner; and, shortly after, the whole were executed in the city of Cuzco. So great was the veneration in which this Tupac Amaru was held by the Peruvians, that, when he was led to execution, they prostrated themselves in the streets, and uttered the most piercing shrieks and execrations whilst the last of the Children of the Sun was torn to pieces by his executioners. With this event terminated the struggles of the Peruvians for independence; and on late occasions they are reported to have shown more disposition to adhere to the government of Spain than to the newly-created independent states that have sprung up around them.

During the recent events which have caused the division of Spanish America into separate republics, Peru long maintained her allegiance to Spain. When the revolution in New Granada began in 1810, the first steps were such as threatened no disturbance to the neighbouring provinces; but, its spirit at length approaching the confines of Peru, the viceroy dispatched an army towards Quito, under the command of general Molina, who had been nominated president by the Junta of Cadiz. As the revolutionists were divided among themselves, he easily gained that city; but, after practising some cruel measures, the army was compelled to retreat before the different partisans, who were previously at variance, but who had united in their operations against the Peruvians. After a bloody contest, they were driven from the viceroyalty of New Granada by the republican general Marino; but, as his attention was strongly engaged in watching the events in the north, he could not follow up his victory by pursuing the royalists; who, on their part, had such calls for their exertions towards the frontiers of Buenos Ayres, and in Chili, that, without any formal treaty, hostilities ceased between Peru and New Granada in 1814, and have not been since renewed.

As soon as the inhabitants of Buenos Ayres had formed an independent government, an army of 5000 men was marched to invade Peru, under the command of general Balcarce. He was opposed before he had reached the frontiers by Goynche, a royalist commander. Before hostilities were begun, a treaty for an armistice was made, but soon broken, when the Peruvians repulsed their invaders, became invaders in their turn, and overran the country as far as Salta; having in their possession, in 1812, the rich mining countries of Potosi and La Paz; while the republicans, being embroiled among themselves, and invaded by the Portuguese, had no means of recruiting, till early in the year 1813, when their general Belgrano attacked the royalists near Salta, and gained a complete victory, which compelled them to abandon their conquests, and retire within their own territory. In November of the same year, the Peruvians, being reinforced, fought another battle on the frontiers, near Potosi, with such decided success, that they again occupied

those rich districts, which, in the early part of the year they had been compelled to abandon.

The unfortunate republican general Belgrano was, in 1814, superseded by the celebrated San Martin, who collected the fugitives, organized a new army, formed various corps of Guerillas, and compelled the royalist general Pezuela once more to retreat from the contested country, and concentrate his forces in High Peru. In the year 1815, the contests among the different parties of republicans having weakened their army on the frontiers, Pezuela again attacked them, on the 14th November; gained a hard-fought battle at Sipe-sipe; and, in consequence of it, the mining-districts of Buenos Ayres, for the third time, came into the hands of the royalists.

The calls on the viceroy of Peru for troops to maintain the royal cause in Chili weakened his frontier forces at the time that San Martin was collecting his army to invade that country on the part of the republicans. By the course of events, the theatre of the war thus became changed. The republicans kept up a small force to watch the motions of the royalists, whose troops and stores were so much diminished, that they ultimately withdrew from the conquered countries; which, by the operations of the remorseless contest, had become reduced to the extreme of misery, and the mines, once so highly productive, had nearly ceased to be worked.

Chili had thrown off the government of Spain, and declared its independence. It was torn by factions, violently irritated against each other, and a civil war had commenced. The viceroy of Peru thought the occasion favourable for bringing it again under the royal authority. A force of 4000 men, under general Paneja, was dispatched to that country. Helanded at Talcahuano early in the year 1813, and took possession of Concepcion and Chillan. The Spanish troops appear to have remained in the positions they occupied, in a state of great inactivity; whilst the Chilians, divided into rancorous factions, were exhausting their means, and impoverishing their country. The Spanish commander availed himself of the circumstances to make an attempt on the capital, in the beginning of March 1814; but, not succeeding; entered into a treaty for evacuating the country. Before the treaty was concluded, general Oforio arrived, as commander from Lima, with considerable reinforcements. This changed the face of affairs. The Chilians were wearied with the evils they had experienced; the forces of the king gave them confidence; and after a few skirmishes, rather than battles, with the different parties, who never ceased hostilities towards each other, the whole country submitted to Oforio, who entered the capital in October 1814. The royalists were in quiet possession of Chili till the beginning of the year 1817. The fugitive republicans had retreated over the Andes, and found an asylum in Mendoza. There others joined them, in the following years. The government of Buenos Ayres supplied them with stores; and at length general San Martin, with the addition of some tolerably disciplined troops, was appointed to the command. This force passed the Cordilleras in January 1817, and descended towards the level country; and, after a most complete victory over the Peruvian army at Chacabuco, in which their commander was made a prisoner, and his troops dispersed, occupied, with little difficulty, the whole of Chili. The government there having assumed a more consistent and regular form than before, became a collecting point to which adventurous spirits, from Europe and from America, resorted. Armaments were equipped there, both naval and military. The former were successful in making prizes; and, in combination with the latter, Valdivia, the only remaining fortrefs in Chili, under the command of the viceroy of Peru, and ultimately Lima itself, was captured.

The conquest of Peru seemed to be indispensably necessary to the preservation of that independence, and those republican institutions, which the inhabitants of Chili had established. It had early attracted their regards; and

and the project for achieving it, which was widely circulated, drew to them many of those military adventurers who, by the peace in Europe, were deprived of occupation. Among others, lord Cochrane and several English officers who had distinguished themselves in the naval service, found employment in the fleet which was speedily equipped, and which, in discipline though not in force, soon attained such a superiority over the navy of Spain as to give it the command of the navigation of the South Sea. Being to windward of the Spanish ports, it was easy at any time to choose the point of attack. An army of 5600 men was formed under San Martin, which, with the fleet, consisting of one ship of 64 guns, one of 50, one of 36, and one of 32, besides some corvettes and transports, sailed from Valparaiso in the latter end of 1820, and reached Lima in February of the following year. The troops were landed to the north of Callao, and continued without any great exertion till May, when, the garrison of Lima being much straitened, an armistice was concluded.

Pezuela, then viceroy of Lima, was opposed by the audiencia and the municipality, who censured him for not adopting measures sufficiently energetic to repel the invaders. The same disposition to censure prevailed among the officers of the army; and at length they resolved to depose Pezuela. He made no resistance, but, quitting the government and country, the command was placed in the hands of Don José de La Serna on the 29th January, 1821.

The troops of La Serna were not much superior to the invaders numerically; but some of them having gone over to San Martin, gave the latter a superiority. Lima continued to be straitened by the general, and Callao to be blockaded by lord Cochrane, who performed one of those acts of desperate valour which struck astonishment into the Spaniards. With the boats of his little squadron he entered the port of Callao, and, under the guns of its tremendous batteries, boarded, captured, and carried off, one of their largest ships of war, with more men on-board than were in all the boats that attacked her.

After some months had elapsed, a convention was agreed on, when La Serna with his army marched out, and San Martin with his forces entered Lima, on the 10th of July, 1821. A garrison was, however, left by the royalists in Callao. The protracted operations had given time to remove the most valuable property, which, with the females of the best families, and the non-combatants, reached the mountainous districts. San Martin, in the possession of Lima, was in the same condition as La Serna had been for some months before; with many mouths besides those of his army to fill, and his intercourse with the country that furnished provisions intercepted; but he had the advantage of naval superiority, and could draw supplies from the coast, though, till Callao was taken, the difficulty of landing made the arrival of such supplies precarious. At length the garrison of Callao agreed to evacuate, on being allowed to join La Serna, which was effected. San Martin was thus in full possession of the capital and its port, when a dispute between him and lord Cochrane, about the division of the plunder, caused the latter to sail away, and leave the commander of the land-forces to secure his conquest as well as he could; and it appears that San Martin, by various judicious proclamations, and very moderate behaviour, succeeded, apparently, in reconciling all orders to their new liberators. He proclaimed himself "Protector of the Independence of Peru, until Peru was free, and a National Congress assembled," when he declared he would be ready to seek the quiet he had long sighed after, by resigning his authority to a Governor or Director of their own appointment. By this proclamation, all slaves born after the 28th of July, 1821, are declared free; the tribute of the Indians is abolished; and the natives of Peru are no longer to be called Indians or Natives, but Peruvians.

VOL. XIX. No. 1340.

San Martin kept his word. On the 20th of September, 1822, he issued the following proclamation at Lima, after which he retired to Valparaiso in Chili. "Peruvians! I have witnessed the declaration of the independence of the states of Chili and Peru: I have in my possession the standard which Pizarro bore in subjugating the empire of the Incas; and I cease to be a public man. Thus are recompensed with usury ten years of revolution and war. My promises to the people, where I have waged war are fulfilled; they were to make them independent, and to leave the choice of their government to themselves. The presence of a successful soldier (however disinterested he may be) is alarming to newly-constituted states; and, on the other hand, I am vexed to hear it said that I wish to become a sovereign. I shall indeed be always ready to make the last sacrifice for the liberty of the country, but in the character of a private citizen, and *nothing more*.

"Peruvians! I leave you the national representation established: if you give it your entire confidence, you may sing a song of triumph; if not, anarchy will devour you. May wisdom preside over your destiny; and may it be the height of felicity and peace.

JOSE DE SAN MARTIN."

In the mean time, La Serna, after uniting with the garrison of Callao, had retired towards the mountains, where he intercepted all communication between Lima and the mining districts, and drew supplies of men and stores from the countries in his rear. The whole of the treasure captured in Lima did not exceed 300,000 dollars, not a tenth part of what was usually to be found in that city. Lord Cochrane having carried away the money, San Martin, before his retirement, was compelled to have recourse to violent measures to subsist his army. He stamped paper dollars to pay his troops, and issued decrees commanding the inhabitants to take them in payment. A civil war is thus existing, which, as far as the latest intelligence reaches, leaves it doubtful if the conquerors or the conquered are in the worst condition. We have seen a letter from Lima, dated so lately as Jan. 10, 1823, which says, "The state of this country is most deplorable; impoverished to that degree, that the government has not the means of carrying any object into effect. Little else but paper money circulating, which, depreciating in value daily, it is difficult to exchange any quantity of it for hard dollars, even at a sacrifice of 30 per cent. and without the walls of the city it is not passable. There is a great want of energy in the government, which, together with the total want of money or credit, renders it probable that the war in the interior will be protracted a considerable time. The only thing in favour of the patriots, is the little dependence the royalists can place in the Indians, who I believe, universally detest the name of a Spaniard."

The new government, therefore, cannot by any means be considered as firmly established; and, whatever may be the ultimate issue, it must probably be a long time before tranquillity can be restored to such a degree as to give that security to property which is more essential to mining than to any other of the operations of human industry. In whatever manner the present contest may terminate, it is not possible to conceive that Peru, or any part of South America, will be again subjected to the condition of a Spanish colony. Nor is it desirable that it should; for it is notorious that the court of Madrid ruled those vast countries with a partiality which prevented the natives from developing their natural talents. Of 170 viceroys who have governed America, 166 were Spaniards, and only four Natives. Of 602 captains-general, 588 were Spaniards, and only fourteen Americans. The same remark is applicable to the high ecclesiastical dignities, which were almost always reserved for Spaniards, and almost always inaccessible to American priests. For farther particulars as to the revolted colonies, and of

9 E their

their treatment by the mother-country during the course of the late general war, see the article MEXICO, vol. xv. p. 308. and the article LONDON there referred to.

In one respect, the revolutionary authorities in these revolted colonies, appear to us to have acted unwisely; namely, in issuing letters of marque, and encouraging an extensive practice of privateering. All the profit of these predatory expeditions passes into the hands of American and English adventurers, who are progressively reviving a pernicious bucaneeing system, and converting the Gulf of Mexico into a nest of pirates. These illicit gains may be acquired at the expense of loyal Spaniards, and thus in some degree cripple the resources of an opponent party; but still they are all made at the cost of the country which grants the letters of marque, and must considerably retard the regular natural progress of opulence in the various sea-ports whose shipping is thus offered as the prize of courage, indeed, but also as the premium of robbery. Surely, it would have been more worthy of the cause of independence to endeavour to confine the mischiefs of warfare to organized armies and fleets; and, if possible, wholly to exempt from it the lives and fortunes of private individuals.

Venezuela, Buenos Ayres, Chili, and Peru, have found it necessary to make their local governments independent of each other, but they have found in a common danger from the same mother-country, a sufficient motive for federal union, and for co-operating in purposes of external defence and interior improvement. Should this union endure, it will prepare the growth of one of the most important empires which the world has ever seen.

ANCIENT CUSTOMS, CIVIL INSTITUTIONS, GOVERNMENT, &c.

We possess little information concerning the manners and government of the native Indians previous to their conquest by the Spaniards; a circumstance which does not seem surprising, when we recollect, that the only modes of preserving the memory of events among the aborigines were the *quipos*, traditions, and the rude sculptures and paintings of emblematical symbols. The first, however, was nothing (as it seems from the best historians) but a bundle of knots of various colours; the colour of the knots designating the nature of the substance to be described, and multiplicity of objects being denoted by their number. Nor have the rude specimens of sculpture furnished more information; with their paintings, they have been neglected or destroyed by their barbarous invaders. To traditions only we therefore look for the early history of the Peruvian race; and of these one only is worthy of record, and that merely because it is connected with the civil policy of their government.

The Peruvians affirmed, that their earliest state was that of small independent tribes who knew of none of the arts or comforts of social life. They had struggled for several ages with the hardships and calamities which are inevitable in such a state; and, when no circumstance seemed to indicate the approach of any uncommon effort towards improvement, we are told that there appeared on the banks of the lake Titicaca, a man and woman of majestic form, and clothed in decent garments. They declared themselves to be Children of the Sun, sent by their beneficent parent, who beheld with pity the miseries of the human race, to instruct and to reclaim them. At their persuasion, enforced by reverence for the divinity in whose name they were supposed to speak, several of the dispersed savages united together, and, receiving their commands as heavenly injunctions, followed them to Cuzco, where they settled, and began to lay the foundations of a city.

Mango Capac and Mama Ocollo, for such were the names of those extraordinary personages, having thus collected some wandering tribes, formed that social union, which, by multiplying the desires and uniting the efforts of the human species, excites industry and leads to im-

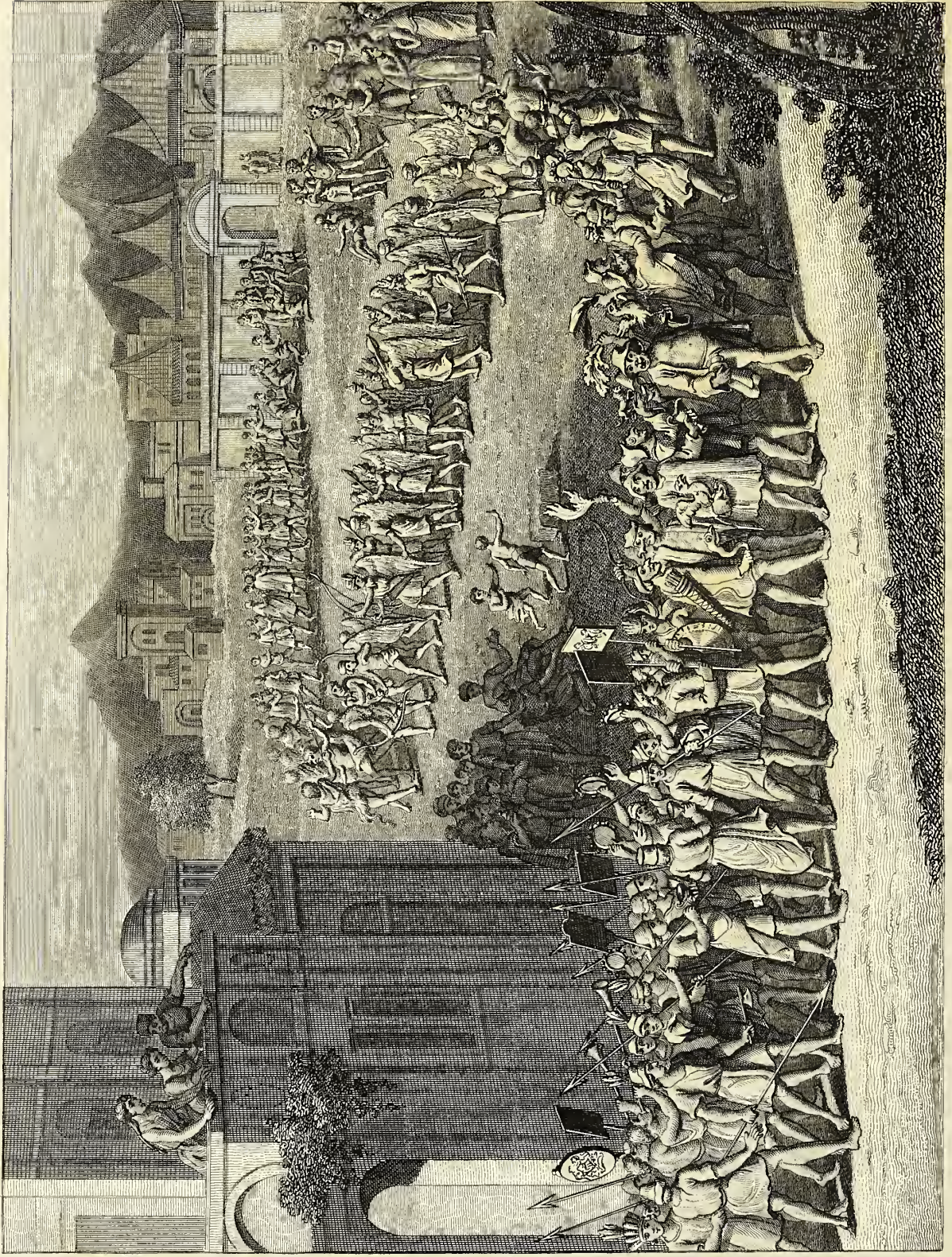
provement. Mango Capac instructed the men in agriculture, and other useful arts. Mama Ocollo taught the women to spin and to weave. By the labour of the one sex, subsistence became less precarious; by that of the other, life was rendered more comfortable. After securing the objects of first necessity in an infant state, by providing food, raiment, and habitations, for the rude people of whom he took charge, Mango Capac turned his attention towards introducing such laws and policy as might perpetuate their happiness; and it is clear that in the performance of this task he left great and incontestible evidence of his powers as a legislator. In all early states of society, we observe that it is impossible to influence mankind by motives of expediency, or to make them comprehend (much less act on the conviction) that the convenience of the few must ever be subservient to the good of the many. Law, therefore, was always at first leagued with religion; and, united, their effect was powerful and salutary.

It seems that this was understood by the first civilized ruler of the Peruvians. He described himself and consort as *Children of the Sun*. The law, and the right of governing, he professed to have received from the great luminary which the Peruvians worshipped as the Eternal Being. He fixed clearly the right of descent; and, to preserve the sacred majesty of the royal blood, the sons of the inca always married their sisters. The sway of the inca was of course absolutely despotic, for his word was the mandate of heaven; and, for the same reason, treason or faction could not possibly arise in the state. Even the punished criminal could scarcely murmur against a sentence which his creed must have taught him came directly from the Ruler of all. This system of government (impregnable while religion held its sway) released the Peruvians from all civil dissensions and calamities, and was in the highest degree calculated to ensure the gradual progress of civilization; and fortunately this improvement acquired strength from the happy disposition of the succeeding incas; for, though twelve in number, the uniform character of their reign was that of mildness and clemency.

Agriculture, so essential to the well-being of the community, was much encouraged by the incas. The children of the sun cultivated a field near Cuzco with their own hands. All the lands capable of cultivation were divided into three parts: one was consecrated to the Sun and to the rites of religion; the second belonged to the inca, for the support of government; the third and largest share was reserved for the maintenance of the people, among whom it was parcelled out. Neither individuals, however, nor communities, had a right of exclusive property in the portion set apart for their use. They possessed it only for a year, at the expiration of which a new division was made in proportion to the rank, the number, and exigencies, of each family. All those lands were cultivated by the joint industry of the community. The people, summoned by a proper officer, repaired in a body to the fields, and performed their common task, while songs and musical instruments cheered them to their labour. Even the calamity of an unfruitful season was but little felt; for the product of the lands consecrated to the Sun, as well as that of those set apart for the incas, being deposited in storehouses, it remained as a stated provision for times of scarcity.

The progress of the Peruvians in the arts was rapid. Their skill in architecture is exemplified in the temple of PACHACAMAC, (which see,) and in the great roads from Cuzco to Quito, extending above 500 miles in length, and their aqueducts. They displayed much ingenuity in smelting ore, and refining; in making mirrors, and various implements both for war and labour.

Considering these happy constitutions, the mild and gentle disposition of this people, so favourably contrasted with that of the sanguinary Mexicans; the frank and generous spirit with which they admitted into their bosoms the deceitful Spaniards; we cannot sufficiently regret the early



J. Chapman, sculp.

Religious Procession of the Ancient Peruvians.

Engraved for the *Encyclopædia Londinensis*, Sept. 1823.

early discovery of their country. Had it been reserved for later periods, what a high degree of civilization might the natives have attained, and how much valuable information might have been obtained by conquerors less barbarous and ignorant than were the Spanish adventurers.

It is not to be supposed that the Peruvian system was free from faults. Their advancement in the arts was much retarded by their detached and independent mode of life. Their only city was Cusco; every-where else they lived in detached and distant habitations; consequently every man exercised the known arts indiscriminately. The separation of professions did not obtain; and therefore improvement was slow. A great defect in their criminal jurisprudence was the capital punishment of all offences indiscriminately. This arose from the religious nature of their legislature. All offences being considered as insults to the Deity, and an insult to the Deity being of course a crime worthy of death, the slightest offence cost the life of the offender. The cruel custom, too, of immolating the attendants of a grandee at his funeral, under the absurd notion of their waiting on him in the next world, was prevalent in Peru. On the death of Huana Capac, above a thousand victims were doomed to accompany him to the tomb.

There were four orders of people in Peru; viz. 1. The royal race, or children of the sun. 2. The *orejones*, or nobles, who were allied to the first, and were so named either from the ear-rings they wore, or from the largeness of their ears, which was a mark of royal descent; for Garcilasso de la Vega, himself a descendant from the incas, says, that "Mango Capac was particularly remarked on account of his ears, which were so large as to be hardly credible to those who had not, as I have, noted them in the persons of his descendants." 3. The commonalty, or freemen. 4. The *yanacunas* or slaves, whose garb and houses were of a form different from those of the freemen, or bulk of the people.

The religion of the Peruvians consisted chiefly in the worship of the Sun; but some have asserted that the belief in another and superior Being obtained very generally among them. It is not easy, at this period of time, to establish the truth: but certain it is, that they built a magnificent temple and worshipped a deity under the title of *Pacha Camac*, a word which, according to Garcilasso, signifies the "Soul of the World." On the other hand, they offered to this deity, even if distinct from the Sun, the same sacrifices and prayers as were offered to that luminary. Upon the whole, therefore, we should consider that there was latitude and variety of belief, according to the ignorance or information of the different worshippers; but that the common people did very generally worship, as the great God, the Sun only.

Besides the Sun, the Peruvians worshipped the Moon (according to their creed his wife and sister), under the title of *Mama Quilla*; but they did not hold feasts, or prepare sacrifices, for her especial honour. They contented themselves with simple prostrations and prayer; a species of adoration which they likewise paid to the planet *Chajca* (Venus), an attendant of the Sun; to Thunder and Lightning, the ministers of his anger; and to the Rainbow, with which likewise he seemed to have some immediate connexion. The priests were all the younger sons of the incas; and consequently, as they were descended from the Sun, received in their own persons some portion of the public worship. Many were the ceremonies which were performed in honour of the Sun by these his reputed children; and, though they had effectually abolished the sacrifices which some have feared were practised among the Peruvians before their civilization by Mango Capac, yet they consecrated their altars with the blood of animals. Their chief ceremony was called the *Great Raymi*, or Feast of the Sun; this was so curious, that we shall detain our readers with a short account of it.

It began by the priest procuring fire from the "hand of

the Sun." This was done in the same way as we create fire by condensing the solar rays into a focus by the means of a lens. The instrument used by them was a concave and highly-polished vessel, which reflected the solar rays towards a little mass of cotton, which of course took fire. The fire thus obtained was used to burn the victims, and to cook the food which was eaten during that day's festival; and was then taken to the Temple of the Sun, and to the house of the Chosen Virgins, whose care was to preserve it unextinguished. If the Sun did not shine on the first day of the feast, the Indians kindled fire in the ordinary way, but not without dire prefaces as to the anger of the Sun, who had thus refused them fire "from his own hand."

The next step was the procession. This was formed by the chief officers, *curacas* or *paciques*, of the empire, and was at once grand and grotesque. Some of them were clothed in vestments embroidered with gold, and their heads were crowned with garlands of the same. Some were clothed in the skins of lions. Some represented angels, being adorned with feathers of a very large and sacred bird called *Cuntur*, so as to appear as if they had wings. There were some also who disguised themselves in a variety of masks, some comic, others horrible, and who, making hideous and discordant sounds both with their voices and by instruments, displayed in antics and ridiculous postures the most laughable fooleries. Lastly, all the nobles wore their arms, as bows, javelins, battons, &c. and the spoils of war. The sacrifices then took place in the presence of the assembled people, and of strangers or visitors. Afterwards, with much ceremony, the inca, having awaited the first dawn of day, and kneeling, having kissed the air in the direction of the Sun, he offered to that luminary a libation in a ponderous golden vase. The procession now moved towards the temple, but stopped within two hundred paces of its gate: the inca alone and his family advanced, and offered vases to the deity of the temple. The priests then received vessels or presents from all the nobles in the procession, which they likewise deposited in the temple. The sacrifices having been resumed, and auguries established from them, the Feast of *Raymi* ended by eating a peculiar and sacred bread called *cancu*, and the flesh of the slaughtered victims. Drink was abstained from until some hours after the repast. We present our readers with an engraving of the above-mentioned grotesque procession.

The most magnificent of all the Temples dedicated to the Sun was that erected at Cusco, a city which had been founded by Mango Capac himself. According to Garcilasso (from whom the following description is taken), this temple, for its beauty and richness, exceeded all that imagination can conceive. It was built, however, of wood, and was covered with thatch, (for tiles and bricks were unknown;) but the walls were completely wainscoted with plates of gold. The great altar was situated towards the eastern wall of this superb edifice, and was surmounted by the figure of the Sun. This figure, which covered the whole of the eastern wall, was a large and massive golden plate, carved so as to resemble the painting commonly made by artists of this day, viz. a round human visage surrounded with flaming rays.

On each side of the temple were arranged, in the order of their succession, the bodies of the deceased kings, embalmed in such a manner (it is said) as to appear alive. They were seated on thrones of gold, raised on pedestals of the same metal; and had their countenances directed towards the floor of the building; excepting however Huana Capac, the twelfth and last inca of the race of Mango Capac, whose eminent virtue and kingly qualities had procured him the honour of sitting on the western side of the building; that is to say, with his face turned directly towards the image of the sun. The gates of the temple were many, and all covered with plates of gold; and the principal entrance was from the north. Round
the

the walls was carried an immense mass of gold in the form of a garland, or crown, not less than an ell deep.

Near the temple stood a cloister or gallery of four sides, the roof of which was surmounted by a large golden crown, similar to that which surrounded the temple. Surrounding this building were five large square tents, or tabernacles, surmounted with roofs of a pyramidal form. The first of these, which was nearest to the great temple, had its gates and walls covered with plates of silver; and here the Moon, "the wife and sister of the sun," under the name of *Mama Quilla*, was worshipped. Her figure was similar to that of the Sun, except that it was made of silver, and had the face of a woman, instead of a man. As, in the temple of the sun, the embalmed incas occupied the spaces to the right and left of the father, so here the wives of the incas occupied each side of "Mother Moon," excepting only *Mama Ocollo*, who sat opposite the Moon, as her son did opposite the Sun; an honour conferred on this female in consideration of her being the mother of *Huana Capac*.

The next apartment was for the worship of *Chasca*, or Venus, also called the Page of the Sun, because she was said to appear sometimes before and sometimes after him; also for that of the Pleiades, and of the other stars, who were all called the "Servants of the Moon." This apartment and its portal were covered with silver, like that of the Moon; and its roof resembled the heavens, some with stars of various magnitudes.

The third apartment was for the reception of Thunder and Lightning; and, as these were called the "Servants of the Sun," their habitation was decorated in the manner of his temple; that is to say, with plates of gold. They could not of course paint or carve any figure of these phenomena; but they worshipped them under the name of *Yllapa*, the meaning of which is not known.

The fourth apartment they dedicated to the Rainbow. As they found the Sun produced this appearance, they clothed its habitation in the solar splendour of gold; but they farther adorned it with an image of the rainbow itself, painted with various hues, and extending from one end of the wall to the other. The Peruvians always shut their mouth when the rainbow appeared, because they believed that, if they did not, their teeth would presently decay, and become rotten.

The fifth apartment was for the use of the high priest and the other priests, who were all to be of the royal blood of the incas. Here the sacrifices and other concerns of the temple were arranged; and here also audience was given by the inca; but it never was used to eat, drink, or sleep, in.

One remarkable circumstance remains to be noticed; which is, that the gods of Quito, and of all the other nations which had been subdued by the incas of Peru, were lodged in this grand temple at Cusco. These gods might be worshipped even in the presence of the Sun; but upon certain conditions. It was required that the votary should first worship the Sun as the Supreme Being; and afterwards he might pray to his own peculiar divinity. Such was the politic toleration of the incas. They were of opinion, that, if not persecuted, the vanquished nations would insensibly withdraw from their absurd worship, and conform to the established religion. In fact, the worship of the Sun had increased, and would have soon annihilated that of the foreign idols, had not the invasion of the Spaniards involved all in one common ruin. And we are of opinion, that some of the figures in the procession, which we cannot otherwise explain, might represent, either seriously or ludicrously, the symbols of the ancient worship of the barbarous nations, then fast decaying, since all these went to worship in one grand temple.

After the conquest of Peru by the Spaniards, these processions, as it may be supposed, were first discouraged, and afterwards prohibited; for the Spaniards would naturally wish to obliterate all remembrance of the former customs and religion. Add to this, the decline of the numbers

of native Peruvians by persecution, and the forced conversion of many more to *Spanish* Christianity. Still they cherished a love for these processions, and were sometimes indulged in the renewal of them, though at length they may be said to have lost their object; for there are now very few worshippers of the Sun at Lima or at Cuzco; and indeed the native unmixed Indians are reduced from eight millions, of which they consisted in 1551, to little more than half a million. (Present State of Peru, 1805.)

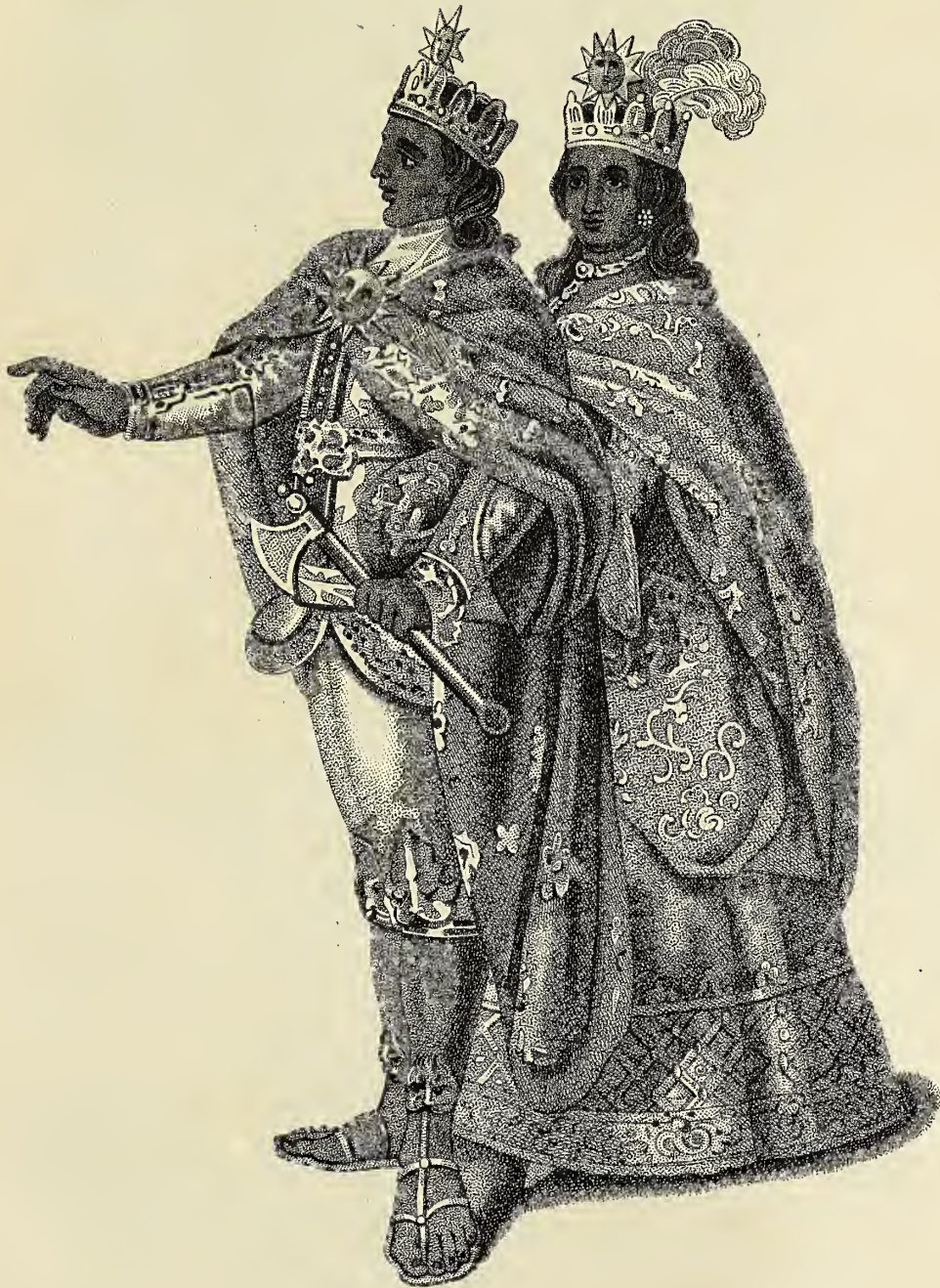
However, as the kings of Spain still call themselves Incas of Peru, it is upon the accession of a monarch to the crown of Spain and of the Indies, that the Peruvians are more particularly indulged with the permission to celebrate the inca-king's accession by a revival of some of their ancient ceremonies. The last of these was in the year 1789, upon the coronation of the late Charles IV. Willing to preserve some traces of costumes highly beautiful, but which will soon be unheard of, we have selected some of the most picturesque figures displayed in that procession for separate engravings.

Plate II. represents the Inca and his Queen.

Plate III. A Virgin or Priestess of the Sun; together with an Amazon or Female Warrior of the Yurimagua tribe, who formed part of a Procession at the Entry of a new Viceroy into Lima, July 14, 1544; and a female Indian habited as the Minerva of Peru, introduced in the festival of 1789.

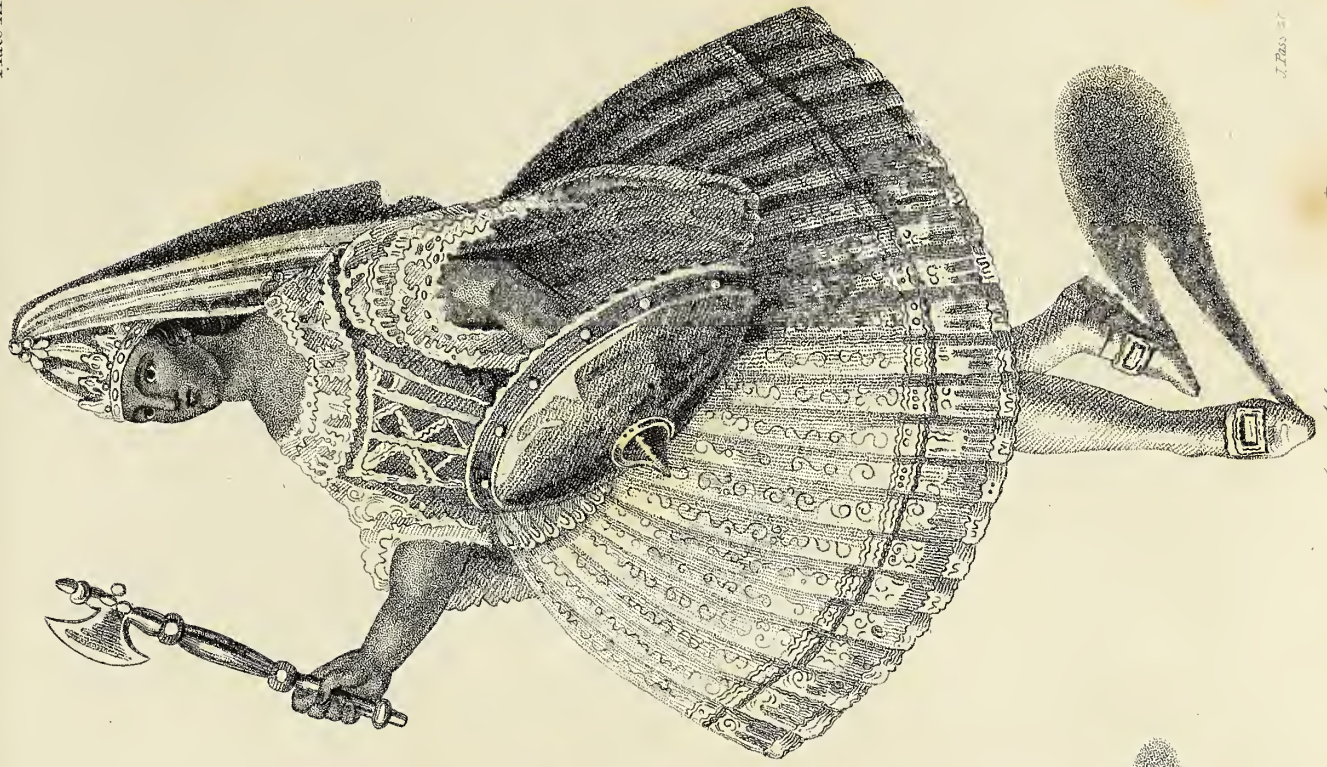
Other drawings we have seen of personages who have figured in the recent processions, particularly that of 1789; but we are obliged to confess, that in them (as indeed in the last-mentioned figure on our Plate) the Spanish costume is so mixed with the Peruvian, that the reader would not admit them as representations of what they profess to be. This is not to be wondered at; for the Peruvian dress is now rarely seen; and we therefore refrain from giving any more figures of Spanish Peruvians or Peruvian Spaniards.

After the abolition of the Peruvian government, and that long reign of anarchy, or of military despotism, which succeeded, the Spanish government was settled in the following form. The sovereign power was delegated to a *viceroy*; he enjoyed all the privileges of royalty, appointed his own officers, and gave audiences like a king. He resided usually at LIMA, (which see.) The viceroy was also president of the *royal audience*. This was a court formed on the model of the court of chancery in Spain. We have already alluded to its establishment by the emperor in 1543. To the cognizance of this court, both civil and criminal causes were subjected; and for each peculiar judges were set apart. The Spanish viceroys have often attempted to intrude themselves into this seat of justice, and, with an ambition which their distance from the control of a superior rendered bold, have aspired at a power which their master did not venture to assume. In order to check an usurpation which must have annihilated justice and security in the Spanish colonies, by subjecting the lives and property of all to the will of a single man, the viceroys have been prohibited; in the most explicit terms, by repeated laws, from interfering in the judicial proceedings of the courts of audience, or from delivering an opinion, or giving a voice, with respect to any point litigated before them. In some particular cases, in which any question of civil right is involved, even the political regulations of the viceroy might be brought under the review of the court of audience, which, in those instances, might be deemed an intermediate power placed between him and the people, as a constitutional barrier to circumscribe his jurisdiction. But, as legal restraints on a person who represented the sovereign, and was clothed with his authority, were little suited to the genius of Spanish policy, the hesitation and reserve with which it conferred this power on the courts of audience are remarkable. They might advise, they might remonstrate; but, in the

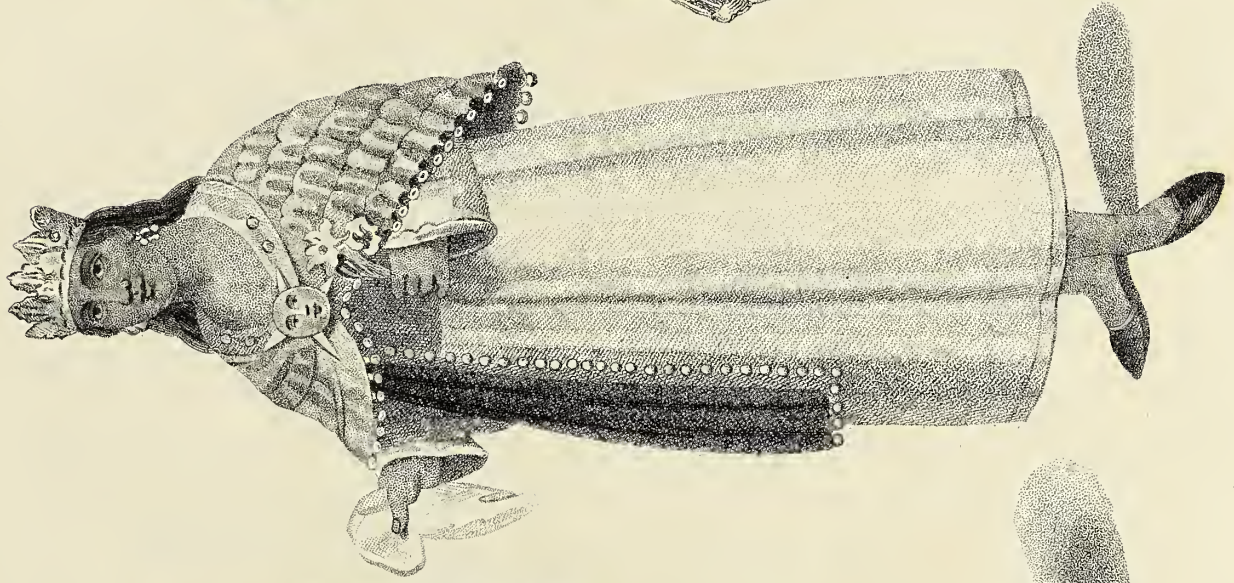


J. Pass sc

The Inca and his Queen!



The Minerva of Peru.



Virgin of the Sun.



Female Warrior.



event of a direct collision between their opinion and the will of the viceroy, what he determined must be carried into execution, and nothing remained for them but to lay the matter before the king and the council of the Indies. But to be entitled to remonstrate, and inform against a person before whom all others must be silent and tamely submit to his decrees, was a privilege which added dignity to the courts of audience. This was farther augmented by another circumstance. Upon the death of a viceroy without any provision of a successor by the king, the supreme power was vested in the court of audience resident in the capital of the viceroyalty; and the senior judge, assisted by his brethren, exercised all the functions of the viceroy while the office continued vacant. In matters which come under the cognisance of the audiences, in the course of their ordinary jurisdiction, as courts of justice, their sentences are final in every litigation concerning property of less value than six thousand pesos; but, when the subject in dispute exceeds that sum, their decisions are subject to review, and may be carried, by appeal, before the royal council of the Indies. In the year 1776, an officer called the *regent* was attached to the royal audience. It was then composed of this officer, eight *oidors* or judges, four *alcaldes* of the court, and two *fiscals*; the governor, as before, being president. It was also divided into three chambers. There was also a superior junta of the royal treasury, composed of the viceroy, the regent of the court of audience, the dean of the tribunal of accounts, and other officers. The tribunal of accounts was for determining causes of the revenue. For the government of the remoter provinces, which we shall presently describe, the governor had under him seven intendants and fifty-two sub-delegates.

As we have mentioned the Council of the Indies, as a court of appeal, we must devote a few words to that important tribunal, though it was not held at Lima, nor even in America. In this council, one of the most considerable in the Spanish monarchy for dignity and power, was vested the supreme government of all the Spanish dominions in America. It was first established by Ferdinand V. in the year 1511, and brought into a more perfect form by Charles V. in the year 1524. Its jurisdiction extends to every department, ecclesiastical, civil, military, and commercial. All laws and ordinances relative to the government and police of the colonies originate there, and must be approved of by two-thirds of the members, before they are issued in the name of the king. All the offices, of which the nomination is reserved to the crown are conferred in this council. To it each person employed in America, from the viceroy downwards, is accountable. It reviews their conduct, rewards their services, and inflicts the punishments due to their malversations. Before it is laid whatever intelligence, either public or secret, is received from America; and every scheme of improving the administration, the police, or the commerce, of the colonies, is submitted to its consideration. From the first institution of the Council of the Indies, it has been the constant object of the catholic monarchs to maintain its authority, and to make such additions from time to time, both to its power and its splendour, as might render it formidable to all their subjects in the new world.

As the king is supposed to be always present in his Council of the Indies, its meetings are held in the place where he resides. Another tribunal has been instituted, in order to regulate such commercial affairs as required the immediate and personal inspection of those appointed to superintend them. This is called *Casa de la Contratacion*, or the house of trade, and was established in Seville, the port to which commerce with the new world was confined, as early as the year 1501. It may be considered both as a board of trade and as a court of judicature. In the former capacity, it takes cognizance of whatever relates to the intercourse of Spain with America; it regulates what commodities should be exported thither, and has the inspection of such as are received in return.

VOL. XIX. No. 1341.

It decides concerning the departure of the fleets for the West Indies, the freight and burden of the ships, their equipment and destination. In the latter capacity, it judges with respect to every question, civil, commercial, or criminal, arising in consequence of the transactions of Spain with America; and in both these departments, its decisions are exempted from the review of any court but that of the Council of the Indies.

Such is the great outline of that system of government which Spain had established in her American colonies. To enumerate the various subordinate boards and officers employed in the administration of justice, in collecting the public revenue, and in regulating the interior police of the country; to describe their different functions; and to inquire into the mode and effect of their operations; would prove a detail no less intricate than minute and uninteresting.

In the early periods of their subjugation, the Peruvians were much distressed by the parcelling out of the country into *encomiendas*, a sort of feudal benefices which were distributed on certain conditions to the Spaniards. The *encomendero*, or holder of the benefice, besides owing military service to the state, was bound to reside on his *encomienda*, to protect and defend the Indians living upon it, and to see them properly instructed in the principles of religion. The Indians were bound in return to pay him a stipulated tribute; but so far were they from being reduced to slavery, that he could not lawfully exact from them any personal service whatever. The system of *encomiendas* was introduced by the emperor Charles V. and, though variously modified and changed by his successors, it was not finally abolished till the reign of Philip V. All accounts agree, that, however well intended, it was in its effects oppressive and injurious to the Indians. The *encomendero* was continually exacting from them more than he was entitled to demand, and doing for them less than he was bound to perform.

The system of *encomiendas* was followed by the still more fatal plan of *repartimientos*; according to which the government, in consideration of the limited faculties and improvident character of the Indians, directed the *corregidor* or judge of the district in which they lived, to supply them with cattle, seed-corn, instruments of agriculture, and even clothes and other necessaries of which they were in want, according to his discretion and opinion of their necessities; but at a price regulated by law, and without any profit to himself. The abuses to which this system must have led, may easily be conceived. They became at length so enormous, as to call again for the interference of the government, which, after mature deliberation, determined on abolishing the *repartimientos*. This was accordingly done in 1779, and the Indians were left to manage their own concerns as they pleased. A personal tax or tribute alone was exacted, which was extremely moderate, and was regarded rather as a distinctive mark and token of vassalage than as a serious burden. Indians of noble birth enjoyed an exemption from tribute, and were equally qualified with Spaniards to fill all kinds of offices under the crown. Where the Indians were the sole inhabitants, they were governed by their own magistrates or *caziques*; and none of the other casts were permitted to encroach upon their lands, or to settle among them, without their consent.

The Indians were subject to another burden, the *mita*, or compulsory labour in the mines. But this was declared abolished by the Cortes in the year 1812. It was not considered so hard an impost as might be expected; for the wages allowed were often high. See the article LONDON, vol. xiii. p. 305.

The language of Peru is still retained by this greater portion of the inhabitants, who discover so strong an aversion to that of their conquerors, that the clergy and the other Spaniards settled among them learn and commonly use their dialect, with the addition of such Castilian words as signify things not known in Peru at

the period of the conquest. The language, called the *Quichua*, or Language of the Incas, is said to be harmonious, and its grammar as variegated and artificial as that of the Greek, though the sounds *b, d, f, g,* and *r,* are not to be found in it. A grammar of the tongue has been composed for the instruction of the clergy who are destined to labour in their conversion. From this it appears, that the nouns are declined by altering the termination; as *runa*, a man; *runap*, of a man; *runapac*, to a man, &c. The verbs have also moods and conjugations, the terminations extending to great length.

The *population* of Peru, as now constituted, is quite of a mixed kind. The Spaniard, the native Indian, and the Negro imported from Africa, form by their union a motley race. Of these, the Mestee, or Mestizo, the offspring of the Indian and Spaniard, holds the next rank to the Spaniard, and with the Indian forms the chief population of Peru. The following Table exhibits the most accurate view we can obtain of the population of Peru, and of the proportion the different races bear to each other.

Intendencias.	Number of Departments.	Missions.	Pueblos, or Parishes.	Clergy.	Male Religions.	Female Religions.	Nuns.	Spaniards.	Indians.	Mustees.	Free Negroes.	Negro Slaves.	Total.
Lima - -	8	74	181	431	1100	572	84	22,370	63,181	13,747	17,864	29,763	149,112
Cuzco - - -	11	102	134	315	474	166	113	31,828	159,105	23,104	993	284	216,382
Arequipa - -	7	60	84	326	284	162	5	39,357	66,609	17,797	7,003	5,258	136,801
Truxillo - -	7	87	149	460	169	162	0	19,008	115,647	76,949	13,757	4,725	230,967
Guamanga -	7	59	135	176	45	82	0	5,378	75,284	29,621	943	30	111,559
Guancavelica	4	22	88	81	18			2,431	23,899	4,537		41	30,917
Tarma - -	7	79	206	229	127		15	15,939	105,187	78,682	844	236	201,259
Totals	51	483	977	2018	2217	1144	217	136,311	608,912	244,437	41,404	40,337	1,076,997

Although the number of Spaniards is here stated at 136,311, nearly one-eighth of the whole population; it must be considered, that in this number is included those who, after five mixtures with the white race, acquire the privileges of whites, though their complexions are as dark as those of the Indians or Negroes. Of those denominated Spaniards, it is not estimated that one-tenth are natives of Europe.

Of the number of Negroes given in the Table, more than one half are free blacks; for, to the honour of the Spanish character, it ought to be stated, that in all their American possessions it has ever been the established practice to encourage manumissions. A slave had a right by law to his freedom as soon as he could repay to his master the sum he had cost. In order to enable the slave to do this, he was not only allowed the undisturbed enjoyment of the Sabbath, either for rest, or for religious purposes, or for his own emolument, as he might like best, but he was allowed also one day in the week for the cultivation of his provision-grounds; his master being entitled to the labour of the other five. As soon, however, as the slave, by his industry and frugality, had accumulated the fifth part of his value, it was usual for the master, on being paid that amount, to relinquish to the slave another day of the week, and so on till he had repaid the whole of his original cost, and thus became altogether free. He continued, however, in some cases, during the days which were his own, and even after his complete emancipation, to labour for hire in his master's service. By this process, not only was the master's capital replaced without loss, but a peasantry was formed around him which had learned by experience the happy effects of industry and frugality, and were therefore industrious and provident. Notwithstanding this liberal policy, the enfranchised slaves have never been known in the Spanish possessions to rise against their former masters, or to excite those who were still slaves to seek any other method of deliverance than they themselves had pursued; whilst they formed, by their number and hardihood, a valuable means of defence from foreign aggression. In consequence of this admirable system, the whole negro population of the Spanish possessions were so rapidly approximating to emancipation, that, about the year 1790, the number of free blacks and people of colour somewhat exceeded, in all of them, the number of slaves. Since that time, in Cuba alone, in consequence of the immense importations from Africa into that island, has this proportion been diminished; but

even there the free black and coloured population amounts to from a third to a half of the number of the slaves. In the other transatlantic possessions of Spain, their number has gone on progressively increasing, until now slavery can hardly be said to have an existence there. And this happy consummation has been effected without any commotion, and with the ready concurrence of the master, who has not only not been a loser but a gainer by the change. This is one of the regulations which Mr. Fowell Buxton has proposed to be adopted in our West-India colonies for the relief of the slaves, and preparatory to the total abolition of slavery itself.

As the names of the different *intendencias*, or provinces of Peru, are seen in the preceding Table, it remains to give some particulars relating to them.

1. The intendency of *Lima* is chiefly remarkable for containing within its limits the capital of the vice-royalty, from which it derives its name, and the excellent port of Callao, the chief mart for the commerce of Peru. The capital is situated in latitude $12^{\circ} 2' 25''$ S. and in longitude $77^{\circ} 7' 15''$ W. from Greenwich. The buildings are spacious but low, having only one story; they are built of wooden frame-work, interlaced with canes, plastered over with clay, and painted to imitate stone. The city is supplied with fresh water by a rapid stream that passes through it, which is received into reservoirs and fountains in various parts of the city. The viceroy's palace, the cathedral, the town-house, and archiepiscopal palace, form a square, and are said to be magnificent piles. In former times, the entrance of a new viceroy was celebrated by a display of ingots of silver, with which one of the streets was completely paved; and the quantities of the precious metals displayed in the churches, and in their religious processions, are said to have exceeded what was to be seen in any of the Catholic countries of Europe. The country immediately around the city, being well irrigated, is fruitful; and fish, meat, and poultry, are abundant.

Callao, formerly called *Bellavista*, is the port of Lima, and, as has been before mentioned, the only good harbour in Peru. It is defended from the winds, which blow always from the south, by the Island of St. Lawrence; to the north of which, in smooth water, is good anchorage, under the protection of the guns of the strong forts. The depth of water is sufficient for the largest ships; the means of loading and discharging them are easy; and from the river Rimac the shipping easily obtain a supply of fresh water. As there is but little rise of tide, there are

are no docks; and vessels that need repair can only be careened. It is in south latitude $12^{\circ} 3' 42''$, and west longitude from Greenwich $77^{\circ} 14'$.

The other towns are Guara, Chancay, Canete, Ica, Pisco, and Nasca, none of which, except Ica, contain more than 1500 inhabitants, of all descriptions. There are few mines in the intendency of Lima that are worked; the chief is that of Conchaputa, in the mountains of Guara-chiri, which yields some silver, and which would also, if the roads would allow of it, supply the capital with coals. Antimony and cobalt are likewise to be found in the same district.

2. The intendency of *Cusco* lies on both sides of the Andes, and partakes of that great variety of climates which is produced by the different elevations and aspects of that prodigious range of mountains. Though the cold is so intense as to forbid human residences on the summits, or cordilleras, yet the chief places which are inhabited enjoy a mild and temperate climate. It is bounded on the north by the great river Apurimac, on the east by unreclaimed countries, on the west by the provinces of Tarma, Guancavelica, and Guamanga, and on the south by Arequipa and the vice-royalty of La Plata. This is the chief seat of what manufactures of woollens and of leather exist in Peru; as both sheep and cows are here more abundant than in any other part of it. The district of Cannas is celebrated for breeding mules; of which animals more than 30,000 are annually sent to the towns on the coast. The agricultural productions generally partake rather of the character of those of the temperate than the torrid zone; wheat, barley, and other European grains, forming the chief articles of cultivation. There are many silver-mines, and some few washing-places for gold. The principal of the former are at Carahuasi, near the capital, in the district of Cotabamba, in Condonoma, Aymaraez, and especially in the province of Lampa.

The chief city of the intendency of Cusco has the same name, and is in south latitude $13^{\circ} 25'$ and west longitude $71^{\circ} 15'$. It is surrounded by the mountains of Sanca on its north and west sides, and has a beautiful plain to the south, through which the river Guatanay, which passes the city, runs. On the mountain to the north of the city are the remains of a famous fortress of the incas. The internal works are in ruins, but a great part of the wall is still standing. Cusco is at this time a large city, containing 32,000 inhabitants, three-fourths of whom are Indians, who are industriously employed in the manufactures of woollen baize, of cotton, and of leather. The number of Spanish families is small. The cathedral is a noble pile of building, of stone; and there are also six parish-churches, nine convents, and four nunneries. The chief of these towns are Abancay, Urcos, Calca, Cotabamba, Tinta, and Lampa, none of which contain so many as 1500 inhabitants. The difficulty of communication between these places is such as to forbid much intercourse. The rapid streams descending from the Andes have worn such numerous and such deep ravines, as are only to be crossed, with great risk, by bridges of ropes; and frequently are passed by suspending the travellers in large baskets from cables stretched across fissures, along which they descend from the higher to the lower banks of the tremendous precipices.

3. *Arequipa* is an intendency stretching along the borders of the Pacific, but extending sufficiently inwards to contain a large mountainous district within its limits. Its southern boundary is the inhospitable desert of Atacama. Its plantations yield maize, sugar, and coffee. The vineyards are extensive, especially those of Moquehua, which produce a delicious red wine, and the brandy distilled in this district supplies an extensive circle of the mountainous countries. The most celebrated of the silver-mines are situated on the southern part of this intendency; those of Huantajaya, near the small port of Yquique, are surrounded with vast beds of rock-salt, in

a district totally destitute of water, and where provisions are scarce; but, as the silver is found in native masses, it has produced usually about 100,000 marks annually. The district of Caylloma contains several mines of silver, but they are very imperfectly worked; for they are in a very high elevation, and consequently in a climate most intensely cold; and the surrounding country produces but few means of subsisting the labourers.

The city of Arequipa, the capital of this intendency, is situated in the beautiful valley of Quilca, about 60 miles due east from the port of Atranta. It is in $16^{\circ} 16'$ of south latitude, and $71^{\circ} 58'$ west longitude. See *AREQUIPA*, vol. ii.

In Condesuyos are mines both of gold and silver, though slightly worked; as many of the inhabitants have found more profitable labour than mining, by raising silk-worms, and by breeding the cochineal-insect. The other towns of most consideration are Camana, Ocana, a small bad port, Caylloma, Moquehua, Arica, and Tacna; none of which are either populous or rich, and are chiefly inhabited by Indians.

4. The intendency of *Truxilla* is the most northern, as well as the most extensive, division of Peru. The face of the greater part of the district has all the predominant features of the Arabian desert. From Tumbes, the boundary, to the capital of its department, Piura, a distance of more than 200 miles, there is but one small Indian village. No water is to be found in any other place; and that indispensable article must be conveyed in skins, on mules, for the use of travellers. In this sandy desert, the most experienced guides sometimes lose their way, and the bodies of passengers are occasion-buried under the waves of shifting sand. There are, however, some spots within the intendency that enjoy a high degree of fertility; as is the district of Caxamarca, situated between two ridges of the Andes. At this place are the remains of the ancient Palace of Atabalipa, from whence Pizarro directed his operations, and where that monarch was killed; and a family descended from the incas, reduced to a state of comparative indigence, occupies this ancient residence of their royal ancestors.

The chief mines within the intendency are those of Chota, near the limit of perpetual snow, being 13,800 feet above the level of the sea; of Micuipampa, 12,000 feet; and some at Patay which yield both gold and silver.

There are two cities in the intendency. Truxillo, the capital, is the see of a bishop, and the seat of the courts of justice. The inhabitants are about 6000, principally rich Spaniards, who indulge in considerable show and luxury. Piura contains about 7000 inhabitants, chiefly Indians. The other towns, Tumbes, Lechura, Payta, and Lambayeque, scarcely contain 1000 inhabitants each, who are in a low state of indigence.

5. *Guamanga*, or Huamanga, is an intendency wholly internal, surrounded by other parts of Peru. From its elevation on the sides of the Andes, it enjoys a mild and temperate climate. It is much intersected with streams, or rather torrents, which have worn deep chasms in the friable soil, and prevent easy communication between its several districts. It yields excellent corn and fruits, and the wool of the sheep is here made into baize for clothing the inhabitants of the colder districts. In the mountains are found herds of huanucos, or Peruvian camels, employed as beasts of burden in the colder regions, and whose wool is used in the manufactories. There are also many cows and sheep of the European breeds, reared within the district. It is the chief country for the growth of the coca, which serves to the natives of Peru the same purpose as the betel does to those of the East Indies. There are mines of lead, gold, and silver; but their products have much declined of late years. The capital, Guamanga, situated in south latitude $12^{\circ} 50'$, and west longitude $77^{\circ} 56'$, is a well-built city, of considerable extent. Its population amounts to about 26,000, of whom the greater

part are Indians. It is the see of a bishop, contains a cathedral, a university well endowed, and several churches and convents. There is no other place in the intendency meriting the name of a town, as three-fourths of the inhabitants are either occupied in cultivation or in pasturage.

6. The whole of the intendency of *Guanacavelica*, or Huancavelica, is situated in the mountains in a climate severely cold, and is thinly peopled. The chief value of this province is derived from the important mines of quicksilver which it contains. The celebrated mine of Santa Barbara is 13,800 feet above the level of the sea. In the process of excavating it, three stories of galleries, one over the other, have been constructed, which penetrate the mountain in different directions, according as the veins of the mineral are found to run. The lowest of these was found to contain red and yellow sulphureted arsenic, which, proving fatal to many of the labourers, was forbidden to be worked. The chief produce of the mine has been obtained in the form of cinnabar, from which, by distillation, the mercury is extracted at the rate of one pound of mercury from every fifty pounds of cinnabar. But the top of the mine has partly fallen, and has intercepted all communication with the interior. The capital, which gives name to this intendency, is in south latitude $12^{\circ} 45'$, and west longitude $74^{\circ} 46'$. It was, when the mine was actively worked, a populous place, but at present contains only 5000 inhabitants. It is built almost wholly of tufa, which is found in abundance in its vicinity. There are scarcely any places that deserve to be called towns; as the few inhabitants are scattered at great distances from each other in thinly-peopled villages or hamlets.

7. The intendency of *Tarma* is chiefly situated on the Andes, and generally partakes of the severity of climate which lofty elevation creates. The small portion of it which is on the plain yields wine; but the great portion of the inhabitants are supplied with animal and vegetable food from the mountainous regions, which, at a moderate height, produce corn and potatoes, and at a greater elevation breed considerable flocks and herds. The mines most productive of silver are within this intendency. The most eminent are those of Lauricocha, or, more properly called, collectively, the Mines of Pasco. Nearly one-half of the silver which Peru yields is extracted from these mines. They are at an elevation of 13,000 feet above the sea. The veins of the mineral are near the surface, the shafts being only from 90 to 400 feet in depth; the metalliferous bed is stated to be more than 15,000 feet in length, and upwards of 7000 in breadth, and is capable of yielding more silver than any even of the mines of Mexico.

The favourable circumstances attending these mines, and the belief, that, if the water could be cleared by a steam-engine, the profits would be immense, induced a party of Englishmen to convey a powerful engine to the spot. After many interruptions and much delay, it at last reached these mines; but the country was in too turbulent a state to admit of the operations being carried on; which, with the unpopularity attached to the undertaking, from supposing it would lessen the employment of labourers, has caused it to miscarry; and the water has so gained, that the produce has declined very much since the commencement of the civil wars.

The greatest portion of the gold found in Peru is taken from the mines of Pataz, and of Huilias, in this province. Tarma, the city which gives its name to the intendency, is in $11^{\circ} 35'$ south latitude, and $75^{\circ} 17'$ west longitude. It contains about 5500 inhabitants, some of whom find employment in making baize. No other place contains so many as 1000 people.

The Peruvians seem to have degenerated since their subjection. They appear timid, dispirited, and melancholy in their temperament; but severe and rigid in the exercise of their authority; wonderfully indifferent to

the general concerns of life, and neither anxious nor careful to avoid death. They stand in awe of their white masters, but secretly dislike and shun their society. They are reputed to be of a distrustful disposition; and, though robust, and capable of enduring great fatigue, excessively indolent. Their habitations are destitute of every convenience and accommodation, and very filthy. Their dress is poor and mean; their food coarse and scanty; and their greatest gratification seems to be an excessive indulgence in the use of spirituous liquors. They observe with docility the external rites and ceremonies of the Catholic worship, though it is said they indulge in secret an attachment to the ancient superstitions of their nation.

As to the manners of polished society in Peru, we are told, that at the theatre at Lima the most fashionable ladies stand up in the front boxes, and light their cigars by the chandeliers; so that the house is continually filled with smoke.

The country is observed to abound more in women than in men, which is somewhat remarkable, as those causes which induce men to leave their country, as travelling, commerce, and war, naturally bring over more men from Europe than women. But there are many families in which there are a number of daughters, without one son among them. The women enjoy a better state of health than the men, which may be owing in some measure to the climate, and more particularly to the early intemperance and voluptuousness of the other sex.

There is no malady peculiar to these countries, and those of our climate seldom prevail there. An European vessel, however, in 1719, brought thither an epidemic disorder, which carried off a great number of Spaniards and Mestees, and above 200,000 Indians. A more fatal present still, which these people have received in exchange for their gold, is the small-pox. It showed itself here, for the first time, in the year 1588; and has not failed since to make, at intervals, inexpressible ravages. But the practice of vaccination has at length been extended to them.

The Creoles are well made, of a proper stature, and of a lively and agreeable countenance. The Mestizos are also in general well made, often taller than the ordinary size, very robust, and have an agreeable air. The Indians, both men and women, are commonly low of stature, though strong and well-proportioned; but more natural defects are to be found among them than in any of the rest. Some are remarkably short, some idiots, dumb, or blind. Their hair is generally thick and long, which they wear loose on their shoulders; but the Indian women plait theirs behind with a ribbon, and cut that before a little above the eyebrows, from one ear to the other. The greatest disgrace that can be offered to an Indian of either sex is to cut off their hair; for whatever corporal punishment their masters think proper to inflict on them, they bear with patience; but this affront they never forgive; and accordingly the government has interposed, and limited this punishment to the most enormous crimes. The colour of the hair is generally a deep black: it is lank, harsh, and as coarse as that of a horse. On the contrary, the male Mestizos, in order to distinguish themselves from the Indians, cut off their hair; but the females do not adopt that custom.

Rum is commonly drunk here by persons of all ranks, but their favourite liquor is brandy. The disorders arising from the excessive use of spirituous liquors are chiefly seen among the Mestizos; and the lower class of women, both among the Creoles and Mestizos, are also extremely addicted to the same species of debauchery. Another liquor much used in this country is *mate*, which is made of an herb known in all these parts of America by the name of Paraguay, as being the produce of that country. Some of it is put into a calabash tipped with silver, with cold water and sugar. After it has continued there some time,

time, the calabash is filled with boiling water, and they drink the liquor through a pipe fixed in the calabash. It is also usual to squeeze into the liquor a small quantity of the juice of lemons or Seville oranges, mixed with some perfumes from odoriferous flowers. This is their usual drink in the morning fasting, and many use it also at their evening regale. The manner of drinking it appears very indelicate, the whole company taking it successively through the same pipe, it being carried several times round the company till all are satisfied. This among the Creoles is the highest enjoyment: so that, when they travel, they never fail to carry with them a sufficient quantity of it, and till they have taken their dose of mate they never eat.

The vice of gaming is here carried to an extravagant height, to the ruin of many families, some losing their stocks in trade, others the very clothes from their backs, and afterward those belonging to their wives, which they hazard, stimulated by the hope of recovering their own. The common people, the Indians, and even the domestics, are greatly addicted to stealing. The Mestizos, though arrant cowards, do not want audacity in this way; for, though they will not venture to attack any one in the street, it is a common practice to snatch off a person's hat, and immediately seek their safety in flight. This acquisition is sometimes of considerable value; the hats worn by persons of rank, and even by the wealthy citizens when dressed, being of white beaver, worth fifteen dollars, besides the hatband of gold or silver lace, fastened with a gold buckle set with diamonds or emeralds. Robberies on the highway are seldom heard of.

The sumptuous manner of performing the last offices for the dead, demonstrates how far the power of habit is capable of prevailing over reason and prudence; for their ostentation is so great in this particular, that many families of credit are ruined by preposterously endeavouring to excel others; and the people here may be said to toil and scheme to lay up wealth, to enable their successors to lavish honours upon a body insensible of all pageantry.

Their sloth is so great, that hardly any thing can induce them to work. Whatever therefore is necessary to be done is left to the Indian women, who are much more active; they spin and make the half-shirts and drawers which form the only apparel of their husbands; they cook the provisions, grind barley, and brew the beer called *chicha*; while the husband sits squatting on his hams, the usual posture of the Indians, looking at his busy wife. They are indeed an instance of that stupidity in which it is in the power of tyranny to plunge men. They are fallen into a listless and universal indifference. The riches which their country hath offered them, do not tempt them; luxury, to which nature invites them, has no attraction for them. They are even insensible to honours. They are whatever one pleases, without any ill-humour or choice, caciques or matayos, the objects of distinction, or of public derision. They have lost all their passions. That of fear itself has often no effect on them, through the little attachment they have to life. Indolence is their predominant habit. "I am not hungry," they say to the person who would pay them for their labour. They are lively only in parties of pleasure, rejoicings, entertainments, and especially dancing; but in all these the liquor must circulate briskly, and they continue drinking till they are entirely deprived both of sense and motion.

The *chicha* is a liquor made from maize by the following process. The maize, after being soaked in water till it begins to grow, is dried in the sun, then parched a little, and at last ground. The flour, after it has been well kneaded, is put with water into a large vessel, and left for two or three days to ferment. Its taste is nearly that of the most indifferent kind of cider. It is a refreshing, nourishing, and aperitive, liquor; but it will not keep

above a week without turning sour. This, therefore, is a reason for not suffering the liquor to remain long in the cask when once it is tapped. But it is remarkable that the Indian women, whether maids or married, and young men before they are of an age to contract matrimony, are never guilty of excess in this way; it being a maxim among them, that drunkenness is the privilege of none but masters of families, who, when they are unable to take care of themselves, have others to take care of them.

The agricultural productions of Peru are at this time barely sufficient for the subsistence of its inhabitants. In the interior, corn is grown to feed the population; but on the coast the supply has been in a great measure drawn from Chili. Sugar, cocoa, coffee, rice, maize, and the various fruits, suffice for the consumption; but there is no surplus, nor any stimulus to produce it, since in all the countries to which the Peruvians can have access the markets can be as well, if not better, supplied from their own soils. Nearly as much wine is produced as is needed, though some is imported from Chili. Oil, brandy, and rum, are made. The former is, however, generally rancid, from the olives being suffered to become too ripe before they are expressed. The spirituous liquors are strong, fiery, and impure, being distilled in the rudest manner. The various kinds of capscums are cultivated with more attention and skill than any other plants; and, dressed in various ways with garlic, form the most important article of food to the greater portion of the inhabitants. As a substitute for drink, the Indians make use of the leaf of a very pungent plant called *coca*. A small portion of quick lime is wrapped up in it and carried in the mouth. The pungent qualities of these two substances excite a most abundant flow of saliva, and serve to allay the thirst of those who travel over the mountains, or the vast plains of sand, where, for days in succession, no water can be obtained. The natives are so much attached to this mode of allaying thirst, and have such confidence in the general salubrious effect of the plant, that they will not commence the labours of mining till they are satisfied that their employers have in store a quantity sufficient for their use.

The demand for animal food is but small, and hence but little attention has been paid to the breeding, and none to the fattening, of cattle. Neither cows nor sheep are numerous: what are found in the country are the progeny of those brought originally from Europe. In the mountainous districts, between Guamanga and Cusco, both butter and cheese are made; but in the lower country, oil is the universal substitute for the former. Pigs are bred in great numbers in the more hilly districts. The whole coast is well stored with fish of every kind. The natives of the Indian villages on the shore are very dexterous in catching them; and with the addition of capscum and garlic, they form the chief part of their subsistence.

The manufactures of Peru are inconsiderable, and consist chiefly of those homely articles which are required by the poorer classes of the community. On the high land, where warm clothing is necessary, the want is chiefly supplied by a species of long-wooled baize, made from the fleeces of the aboriginal sheep, and in some instances from the wool of sheep of the European breed. In the valleys, and on the coast, where the heat forbids the use of woollens, cotton cloths are made; but of a very inferior texture, from their having yet been no gins introduced, which effectually clear the cotton wool from the seeds of the plant. In dyeing the cloths, whether of woollen or cotton, the natives make use of plants that are scarcely known in Europe, or at least have not been applied to the same purpose. They have a root called *reilbon*, resembling madder, but with a smaller leaf, an infusion of which dyes a good red. A plant called *poquel*, a kind of female southernwood, with green checkered leaves,

leaves, is used for dyeing yellow, as is also the item for dyeing green, both of which are fast colours. A wild indigo yields them a blue dye, and the panque a good black.

What we have to say upon the *commerce* of Peru cannot apply to any period more recent than the beginning of the French revolution, about the year 1789, 90; for, since that time, many ships from Europe, that have failed to the ports of Peru, have found no productions there which would pay any return freight; and they have almost uniformly, after discharging their outward cargoes, proceeded to the port of Gyaquil, where a return cargo of cocoa could be generally obtained on such moderate terms as to pay a profit in Spain, where the demand for that commodity is very extensive.

The Pacific Ocean is by no means favourable to commerce. On the whole extent of coast in Peru there is no harbour except that of Callao, the port of Lima, which can be entered by a vessel of such a size as is fit for the navigation from Europe round Cape Horn. As the wind constantly blows from the southward, varying only as the coast trends, wherever there is a high projecting headland there is shelter, and sometimes good anchorage to the northward of it; as at Ylo, Iqueque, and some other parts. On every part of the shore, the uninterrupted swell from the sea causes such a tremendous surf on the beach, that no communication can be had with the shore, by any such boats as are carried by European ships. The natives have long ago contrived a means of passing this surf, on what is called a *balsa*, whose buoyancy is such as to carry them over the most terrific breakers in perfect security. It is constructed of two skins of the largest-sized seals, which are inflated and lashed side by side. On a small platform fixed on them, the native sits, with a pipe made of the entrails of the seal, communicating to each of the inflated skins, with which he fills them by his breath, as frequently as the evaporation of the wind makes it necessary. On these contrivances, which resemble two enormous bladders, the natives fear no waves or breakers, and frequently proceed to such a distance as to lose sight of land. By the assistance of a paddle, and occasionally of a small sail, these vessels become perfectly manageable at sea; and they have the advantage of being easily carried to their own habitations when not employed on the ocean. The trade, then, up to the time we have mentioned, may be considered under three divisions; viz. that by Cape Horn, that with the ports on the Pacific, and that of the interior with the southern provinces. Since the freedom of commerce in 1778, the principal trade of Peru has been carried on by Cape Horn. The exports and imports have been nearly doubled since the freedom of commerce has been allowed, though several rich provinces have been withdrawn from the viceroyalty.

The *exports* of Peru, in a general view of them, are gold and silver, wine, brandy, sugar, pimento, Jesuits' bark, salt, Vicuna wool, coarse woollens, and some other manufactures of little value; and it receives, in return, European goods, live stock, provisions, tallow, cacao, Paraguay tea, coca-leaf, indigo, timber, cordage, pitch, and copper. As luxury of dress is the predominant passion in Peru, and especially at Lima, silks, superfine cloths, fine linen, &c. form considerable articles of *imports*. Iron is also indispensable in the mines and in agriculture. Most of the linens are from Brittany, with a few from other parts of France and Holland: the cottons, woollens, and silks, are chiefly Spanish. The annual demand for rough iron is 6000 cwt. besides many articles of hardware. Mercury, wax, paper, pepper, saffron, medicines, liqueurs, books, glass, and furniture, form also principal articles of import.

Lima carries on a considerable commerce with various ports of the Pacific. The fertile and opulent kingdom of Chili supplies abundance of grain and fruits, so that its mines, though they produce annually 1,400,000 dollars, are regarded as of secondary importance; the three havens of Valparaiso, Concepcion, and Coquimbo, furnish

convenient outlets for its opulence. Lima annually imports from Chili vegetable products amounting to more than 1,100,000 dollars. Wheat forms the chief article sent by Chili to Peru; but slaves from Africa, salted meat, soap, wine, copper, dried fruits, saffron, &c. &c. form also considerable articles. The returns from Peru are European goods, sugar, cloths of home manufactory, pita, which yields a kind of flax, rice, chocolate, &c.

The chief markets and most populous towns are on the coast, Piura, Lambayeque, Truxillo; and, in the Sierra, Caxamarca, the royal station of the mines of Chota; towards the south, Ica, Arequipa, and the royal station of Tarapaca; and towards the interior, Pasco, which is a mineral station belonging to the intendency of Tarma, Guanacha, Jauja, Guancavelica, Guamanga, and Cuzco. At these and other places, as Guarochiri, Caxatanbo, &c. traders or agents sell for the merchants of Lima, European goods, liquors, and other articles sufficient for the consumption of the neighbourhood; and the returns are generally in bullion or coin, but sometimes in articles of food for the use of the capital. The trade may yearly amount to 1,500,000 dollars in products; while that in bullion and money may amount to 4,000,000. Upon the whole, according to Liguanda, cited by Pinkerton, the viceroyalty loses, during five years, in the balance of maritime commerce, more than 6,500,000, but gains a balance with the viceroyalty of La Plata of nearly 1,200,000, annually; so that, the amount being deducted, the loss will be reduced to about 700,000 dollars, without mentioning the interior commerce, which cannot enter into the account.

From the *Mercurio Peruano* we learn, that the exports of Peru to Potosi, and the other provinces of the Rio Plata, are valued at more than 2,000,000 of dollars annually, and the imports at 860,000 dollars; so that the balance in favour of Peru is near 1,200,000, independent of the profits on the carriage of the goods, which belongs also to Peru, as the carriers are Peruvians. Cusco and Arequipa are the routes through which this trade passes. The chief exports to the Rio Plata are brandy, wine, maize, sugar, pimento, indigo, and woollens. The brandy alone amounts to near 1,000,000 of dollars. The woollens, which are next in value, are chiefly made in Peru, but part of them are brought from Quito. The provinces of the Rio Plata used formerly to take woollens, to a great amount, from Quito; but it is now found more economical to procure these articles from Europe by the way of Buenos Ayres. The indigo exported from Peru is previously imported from Guatimala. The chief imports from the Rio Plata, are mules, sheep, hams, tallow, wool, coca leaf, paraguay leaf, and a small quantity of tin from Oruro: 20,000 mules are imported annually from Tucuman, for the service of the mines.

The chief exports from Peru to Chili are European goods, previously imported at Callao. Sugar, coarse woollens made in Peru, indigo from Guatimala, salt, cotton, pita, yarn, and some other trifling articles. The imports are chiefly wheat, copper, tallow, wine, paraguay-tea, salt meat, timber, cordage, and leather. Part of the copper is used in the mint at Lima; and the remainder, except a small quantity sent to Guayaquil, re-exported to Spain. The ports of Chili that trade with Peru, are Valparaiso, Concepcion, and Coquimbo; but Valparaiso alone carries on three times as much trade as the other two. The timber is brought from the life of Chiloe.

The trade with Panama, which was formerly of such magnitude, has declined since the middle of the last century, and is now reduced to a small importation of timber and cacao, and to the remains of a slave-trade which is every day diminishing. The exports from Peru to Panama are coarse woollens, sugar, flour, and brandy. There is also a remittance of 300,000 dollars a-year from the treasury of Lima, to pay the garrison and civil government of Panama; without which that city must have fallen to still greater insignificance.

Indigo is the principal article of import from Guatemala. Small quantities of logwood, pitch, timber, and cacao, are also imported. The exports, which are very trifling, consist chiefly of wine and woollens. The wines and brandies of Peru might be exported with advantage to San Blas, for the consumption of Cinaloa, Sonora, and California; but, though permission has been frequently solicited from the government, it has been constantly refused from an apprehension of interfering with the trade of the mother-country in these articles.

The trade of Peru with Spain was carried on by Porto Bello and Panama till 1748, when register-ships were substituted for galleons, and the voyage by Cape Horn, for the circuitous route formerly in use. It is amusing to consider the progress made since that time in the art of navigation. The first Spanish vessels which sailed by Cape Horn, were insured against sea-risk at Cadiz, at the exorbitant rate of 20 per cent. of their value; but the vessels which perform the same voyage at present are insured for two. The register-ships, though liable to objections, were preferable in every respect to the galleons. They shortened the intercourse between the mother-country and the colony, and lessened the expense attending it. By affording quicker returns they led to more frequent adventures; and by meeting more effectually the demand they diminished the inducements to contraband. But the trade was still clogged and impeded with much useless expense, and unnecessary delay, and subjected to an arbitrary licence, which was withheld or burdened with restrictions at the caprice of the minister.

The register-ships continued to be employed in the trade of Peru with the mother-country, till the war for American independence, during which there was little intercourse between Spain and this distant colony. At the peace of 1783, the system of free trade, the order for which had been issued at Madrid some years before, began to be carried into effect in the South Sea. According to this system, the most wise and liberal that Spain had ever laid down for her colonies, an unlimited intercourse, without licences or other restrictions, was permitted between certain ports of Spain and certain ports of Spanish America; and among the privileged ports of America, are Callao and Arica, both situated in Peru. The result of these innovations was highly favourable to Peru. Its inhabitants enjoy foreign luxuries and conveniences at a cheaper rate, and in greater abundance, than before; while their industry has been excited, the value of their exports increased, and the produce of their mines nearly doubled. Nor was the change of system less beneficial to the mother-country, though some individuals suffered by it. From 1714 to 1739, a period of twenty-five years, the whole exports to Spain from Peru, Chili, the Rio Plata, and Santa Fé, did not exceed 34,000,000 of dollars. But, from 1785 to 1789, the exports from Peru and Chili alone exceeded 6,000,000 annually; and the imports from Europe increased in the same proportion. For some years, indeed, after the opening of the free trade, the merchants of the mother country, ignorant of the real state and resources of Peru, poured into that country a greater quantity of goods than its effective demand

required, or enabled it to consume; and, by the consequent want of sale, the depreciation of these goods, the importers paid dearly for their rashness; but, though some merchants suffered by their over-speculation, the manufactures of the mother-country were benefited by it; and, with regard to Peru, it would be difficult to show how the abundance and low price of goods could be injurious to the consumer. On the contrary, the spirit of industry was awakened in that kingdom, by the sight of luxuries and accommodations formerly unknown to its inhabitants, or placed beyond their reach; and the increase of its exports since the free trade, was the surest proof of its growing prosperity.

But, to form a just estimate of the commerce of Peru, we must take Buenos Ayres into the account, and consider these two countries, and Chili, as part of the same commercial system. It will then more fully appear, how small were the means, and limited the resources, of these extensive colonies, and what false and exaggerated notions have been circulated in this country with regard to them.

	Dollars.
Annual coinage of Lima, from 1790 to 1794	5,593,513
Coinage of Potosi in 1791	4,365,175
Annual coinage of Chili, estimated at	1,400,000
Annual export of produce from Callao, from 1785 to 1789	724,931
Export of produce from Buenos Ayres in 1796	1,328,840
	13,412,459

Although, in the present unsettled state of Peru, the amount of its revenues, and the armed force which it maintains, become matters of but little importance, yet it may be noticed, that, under the colonial government of Spain, the revenues of the crown amounted, *communibus annis*, to about 6,000,000 dollars, and the expenditure to about 3,200,000; the balance was annually remitted to the parent state. The armed force consisted of the regulars, who were 2200, including 280 cavalry and 40 artillery. The disciplined militia were 8000 infantry, 2280 cavalry, and 490 artillery. Besides these there were 85 regiments, known as provincial militia, amounting to 21,700 men; but these had no arms, were rarely mustered, and then exercised only with sticks instead of muskets, and were of little use except as the means of gratifying the vanity of the natives by conferring on them the military titles of colonels, majors, captains, &c. as is said, to the great emolument of the viceroy and the officers of his establishment.

The works to which we have been chiefly indebted in the compilation of this article, are—The Modern Universal History; Robertson's Hist. of America; Annual Registers; Ency. Brit. Suppl. Picard's Cérémonies Religieuses. Mercurio Peruano, a periodical work, published at Lima, twice a-week, from Jan. 1791; Present State of Peru, 4to. 1805; Pinkerton's Geography, vol. iii. and the Edinburgh Review, N^o 18. Geography of America; Philadelphia, 1822; Macauley on Negro Slavery, 1823.

PERU', a post-town of North America, in Clinton-county, state of New York, on the west side of Lake Champlain; containing 1347 inhabitants.—A town of Berkshire-county, Massachusetts, containing 912 persons.—A town of Bennington-county, in the state of Vermont; with 239 inhabitants.

PERU', *f.* in botany. See DOLICHOS.

—, Balsam of. See BALSAM and MYROXYLUM.

—, Marvel of. See MIRABILIS.

To PERVA'DE, *v. a.* [*pervado*, Lat.] To pass through an aperture; to permeate.—Paper dipped in water or oil, the oculus-mundi stone steeped in water, linen-cloth oiled or varnished, and many other substances soaked in such liquors as will intimately pervade their little pores, become by that means more transparent than otherwise. *Newton's Optics.*

The labour'd chyle pervades the pores
In all the arterial perforated shores.

Blackmore.

To pass through the whole extension.—Matter, once bereaved of motion, cannot of itself acquire it again, nor till it be struck by some other body from without, or be intrinsically moved by an immaterial self-active substance, that can penetrate and pervade it. *Bentley.*

What but God

Pervades, adjusts, and agitates, the whole? *Thomson.*

PERVA'SION, *f.* The act of pervading or passing through.—If fusion be made rather by the ingress and transursions of the atoms of fire, than by the bare propagation of that motion, with which fire beats upon the outside of the vessels, that contain the matter to be melted; both those kinds of fluidity, ascribed to saltpetre, will appear to be caused by the pervasion of a foreign body. *Boyle.*

PERVA'SIVE, *adj.* Having power to pervade:

Or suits him more the winter's candied thorn,
When from each branch anneal'd, the works of frost
Pervasive, radiant icicles depend? *Shenstone's Econ.*

PERVENCHE'RES, a town of France, in the department of the Orne, and chief place of a canton, in the district of Mortagne. The place contains 771, and the canton 9728, inhabitants.

PERVER'SE, *adj.* [*pervers*, Fr. *perverfus*, Lat.] Distorted from the right:

Where nature breeds

Perverse, all monstrous, all prodigious, things. *Milton.*

Obstinate in the wrong; stubborn; untractable:

Thou for the testimony of truth hast born
Universal reproach; far worse to bear
Than violence; for this was all thy care
To stand approv'd in sight of God, though worlds
Judg'd thee *perverse*. *Milton's P. L.*

To so *perverse* a sex all grace is vain,
It gives them courage to offend again.

Dryden.

Petulant; vexatious; peevish; desirous to cross and vex;
cross:

If thou dost love, pronounce it faithfully;
Or, if you think I am too quickly won,
I'll frown and be *perverse*, and say thee nay,
So thou wilt woo: but else not for the world. *Shakespeare.*

PERVER'SELY, *adv.* With intent to vex; peevishly; vexatiously; spitefully; crossly; with petty malignity.—Men *perversely* take up piques and displeasures at others, and then every opinion of the disliked person must partake of his fate. *Decay of Chr. Piety.*

A patriot is a dangerous post,
When wanted by his country most,

Perversely comes in evil times,
Where virtues are imputed crimes.

Swift.

PERVER'SENESS, *f.* Petulance; peevishness; spiteful crossness.

Virtue hath some *perverseness*, for she will,
Neither believe her good, nor others' ill.

Donne.

When a friend in kindness tries
To show you where your error lies,
Conviction does but more incense;
Perverseness is your whole defence.

Swift.

Perversion; corruption. *Not in use.*—Neither can this be meant of evil governors or tyrants; for they are often established as lawful potentates; but of some *perverseness* and defection in the nation itself. *Bacon.*

PERVER'SION, *f.* The act of perverting; change to something worse.—Women to govern men, slaves free-men, are much in the same degree; all being total violations and *perversions* of the laws of nature and nations. *Bacon.*

PERVER'SITY, *f.* [*pervertisse*, Fr. from *perverse*.] *Perverseness*; crossness:

What strange *perversity* is this of man!

When 'twas a crime to taste th' enlightning tree,
He could not then his hand refrain.

Norris.

PERVER'SIVE, *adj.* Having power to corrupt, or turn from right to wrong.

To PERVERT, *v. a.* [*perverto*, Lat. *pervertir*, Fr.] To distort from the true end or purpose.—If thou see the oppression of the poor, and violent *perverting* of justice in a province, marvel not. *Eccles.* v. 8.—Porphyry has wrote a volume to explain this cave of the nymphs with more piety than judgment; and another person has *perverted* it into obscenity; and both allegorical. *Broome.*

If then his providence

Out of our evil seek to bring forth good,

Our labour must be to *pervert* that end,

And out of good still to find means of evil. *Milton's P. L.*

To corrupt; to turn from the right; opposed to *convert*, which is to turn from the wrong to the right.—The subtle practices of Eudoxius, bishop of Constantinople, in *perverting* and corrupting the most pious emperor Valens. *Waterland.*

The heinous and despiteful act

Of Satan, done in Paradise, and how

He in the serpent had *perverted* Eve,

Her husband she, to taste the fatal fruit,

Was known in heav'n.

Milton's P. L.

PERVERTER, *f.* One that changes any thing from good to bad; a corrupter.—Where a child finds his own parents his *perverters*, he cannot be so properly born as damned into the world. *South.*—One who distorts any thing from the right purpose.—He that reads a prohibition in a divine law, had need be well satisfied about the sense he gives it, lest he incur the wrath of God, and be found a *perverter* of his law. *Stillingfleet.*

PERVERTIBLE, *adj.* That may be easily perverted.—There are many passages that have an evident character of harmless mirth and jollity; which, although they are piquant, yet are not easily *pervertible* to any disparagement of our neighbour. *W. Montague's Dev. Eff.* 1648.

To PERVESTIGATE, *v. a.* [*pervestigo*, Lat.] To search very carefully in order to find out.

PERVESTIGATION, *f.* A diligent inquiry, or search after.—In the *pervestigation* of the true and genuine text, it was perspicuously manifest to all men, that there was no argument more firm or certain to be relied on. *Chillingworth's Rel. of Protestants.*

PERU'GIA, anciently *Perusina*, one of the most ancient and distinguished cities of Etruria. The era of its foundation long preceded that of Rome, and, like the origin of Clusium, Cortona, &c. is almost lost in distance of time. In conjunction with all the other Etrurian states, it long resisted the Romans; and, when subjected, or rather reconciled to them, it became a faithful and courageous ally. It defied the power of Hannibal, and flourished in peace and opulence till the reign of Augustus, when unfortunately it engaged in the rebellion of Lucius Antonius, uncle of the triumvir, and under his command shut its gates against Augustus, who took it, and, as it is

asserted, wished to spare it; but, one of its principal citizens setting fire to his own house, which he intended as a funeral pile for himself and his family, the flames communicated to the neighbouring buildings, and, spreading rapidly, reduced the city to ashes. Perugia, however, rose immediately from its ruins; and, on its restoration, by a strange inconsistency, chose for its patron Vulcan, a divinity to whom it seems to have had very few obligations, as the god had spared his own temple only in the general conflagration. In the Gothic war it displayed much spirit, and stood a siege of seven years against these barbarians. It afterwards, with the whole Roman state, submitted to the pope; and, with some intervals of turbulent independence, has remained ever since attached to the Roman see.

Perugia is now a large, clean, well-built, and well-inhabited, city. Seated on the summit of a mountain, it commands from its ramparts, and particularly from its citadel, an extensive view over a vast range of country, fertile, covered with hill and dale, and enlivened with villages and towns. There are many churches, convents, and palaces, in this city, most of which were adorned with the paintings of Pietro Perugino, the master of Raphael: of these the French carried off a considerable number, and defaced others, particularly such as were painted on walls, and could not be removed. The cathedral is in itself a very indifferent edifice, and its deformity is increased by the bad taste that seems to have prevailed in its repair and decorations. Several other churches merit attention, particularly that of St. Pietro, belonging to a Benedictine abbey: it is supported by eighteen pillars of fine marble, and adorned with an altar of the same materials, very rich and well disposed. Perugia has an university supplied with able professors; and several academies, all of which can boast of illustrious names; and it is upon the whole an interesting city, capable of entertaining the curious and inquisitive traveller for several days. It is sixty miles south-east of Florence, and seventy-two north of Rome. Lat. 43. 6. N. lon. 12. 17. E.

PERUGIA'NO, a province which takes its name from the above city; bounded on the north by the duchy of Urbino, on the east by Umbria, on the south by the Orvietan, and on the west by Tuscany: the greatest extent from north to south twenty-eight miles, and about as much from east to west: the Tiber crosses it from north to south, and is the only river of consequence. In it is a large lake which abounds in fish, formerly called *Lacus Thrafinemus*, near which Flaminius was defeated by Hannibal. The country of Perugia is exceedingly fertile, and abounds in corn and wine. Perugia is the capital.

PERUGINO (Pietro), an eminent Italian painter, whose family name was *Vannucci*, was born at Perugia in 1446. His father, who was in low circumstances, placed him with an ordinary painter, under whom he worked with great diligence, labouring to perfect himself in his art in the midst of severe hardships. At length he became a disciple of Andrea Verocchio at Florence, with whom he soon made an extraordinary proficiency. The first piece by which he acquired fame, was a St. Jerome before a crucifix, in which the mortified and emaciated figure of the saint was represented with admirable force and nature. A dead Christ, with a number of surrounding figures, painted as an altar-piece for a monastery at Florence, also gained him great applause. He went to Rome, where he was employed by Sixtus IV. to execute several pieces in his chapel. Returning to Florence, he found Michael-Angelo there in the height of his celebrity. His quarrel with that great man, and his avaricious character, exposed him to so much satire from the Florentine poets, that he was obliged to quit that city, and retire to Perugia. His hoardings in a long life rendered him opulent; and it was his practice, when he went abroad, to carry with him a casket of gold by way of security. Of this treasure he was once robbed; and, although he re-

covered the greatest part of it, the accident was thought to be the cause of his death, which took place in 1524, at the age of 78.

Though Perugino obtained distinction as a painter, and very honourable employment, having considerably improved upon the style of his masters; yet he was dry and hard in design, and too laboriously minute in finishing. His greatest glory arises from having been the first instructor of Raphael; but his pupil, as soon as he beheld the grander style of Michael Angelo, Leonardo da Vinci, and Fra. Bartolomeo, burst the bonds of the meaner style in which he had been educated, and left his master at a very humble distance. The most capital work of Pietro Perugino in oil-colour, is in the church of St. Peter at Perugia. It is an altar-piece, and the subject is the ascension of our Saviour, with the disciples observing and adoring.

PERVICA'CIUS, *adj.* [*pervicax*, Lat.] Spitefully obstinate; peevishly contumacious.—May private devotions be efficacious upon the mind of one of the most *pervicacious* young creatures. *Richardson's Clarissa*.

Gondibert was in fight audacious,
But in his ale most *pervicacious*.

Denham.

PERVICA'CIUSLY, *adv.* With spiteful obstinacy. PERVICA'CIUSNESS, PERVICA'CITY, or PERVICACY, *f.* Spiteful obstinacy.—It is *pervicaciousness* to deny, that he created matter also. *Bentley*.

PERVIGILIA, *f.* in antiquity, an appellation given to nocturnal festivals, celebrated in honour of several deities, as Ceres, Venus, Fortune, &c.

PERVIN'CA, *f.* in botany. See VINCA.

PERV'IOUS, *adj.* [*pervius*, Lat.] Admitting passage; capable of being permeated.—The Egyptians used to say, that unknown darkness is the first principle of the world; by darkness they mean God, whose secrets are *pervious* to no eye. *Bp. Taylor*.

Leda's twins

Conspicuous both, and both in act to throw
Their trembling lances brandish'd at the foe,
Nor had they mis'd; but he to thickets fled,
Conceal'd from aiming spears, not *pervious* to the steed.

Dryden.

Pervading; permeating. This sense is not proper.

What is this little, agile, *pervious* fire,
This flutt'ring motion which we call the mind? *Prior*.

PERV'IOUSNESS, *f.* Quality of admitting a passage.—The *perviousness* of our receiver to a body much more subtle than air, proceeded partly from the looser texture of that glass the receiver was made of, and partly from the enormous heat, which opened the pores of the glass. *Boyle*.—There will be found another difference besides that of *perviousness*. *Holder's Elem. of Speech*.

PERU'PE, a river of Brasil, which runs into the Atlantic in lat. 18. 20. S.

PERVIS. See PARVIS, vol. xviii.

PERVISS'E, a town of France, in the department of the Lys: six miles west-north-west of Dixmude.

PER'UKE, *f.* [properly PERRUKE, which see, p. 644. from *perruque*, Fr. Wachter derives this word from the Gr. *πυρρος*, yellow; the first perukes consisting of hair of this light colour, which was anciently much esteemed.] A cap of false hair.—Neither was the use of *perruques* unknown in those times, as may appear by this of Martial, "Calvo turpius est nihil comato." *Hakewill on Providence*.—The deformity of their hair is usually supplied by borders and combings; also by whole *perukes*, like artificial skulls, fitted to their heads. *Bp. Taylor's Artif. Handjorn*.
To PER'UKE, *v. a.* To dress in additious hair.

PER'UKE-MAKER, *f.* A maker of perukes; a wig-maker.

PER'ULA, *f.* [altered by Schreber from *Pera*, the name given by Mutis; and alluding to the form of the capsule, which resembles a little bag or satchel.] In botany,

9 H tany,

tany, a genus of the class dioecia, order polyandria, natural order of tricocceæ, *Limn.* (euphorbiæ, *Juss.*) Generic characters—Male. Calyx: perianthium two-leaved, very small: leaflets opposite, oblong, somewhat concave, spreading, the upper one twice as big as the other. Corolla: petal one, semiglobular-concave, hanging down, heart-shaped at the base, scarcely emarginate at the tip. Nectary: membranes multifid, somewhat plaited, erect, inserted into the receptacle between the rows of stamens. Stamina: filaments very many (24 to 30), set transversely in a double row, thickish, upright, the height of the nectary; antheræ thickish, four-cornered, oblong, blunt, upright, raised above the nectary. Pistillum: germs four, barren, very small, subglobular, very shortly pedicelled, placed at the angles of the receptacle above the nectary; style very short, upright. Stigmas three: with segments peltate, standing out at the tips.

Female, on a separate tree. Calyx: perianthium as in the male, deciduous. Corolla: as in the male. Nectary as in the male, with the membranes approximating, somewhat inflated, filling the disk of the receptacle. Pistillum: germs four, fertile, inserted into the receptacle, as in the male, a little larger, shortly pedicelled. Style to each, upright, short, three-cornered. Stigmas as in the male. Pericarpium: capsule obovate, subtrigonal, hanging down from the elongated pedicel, three-celled, three-valved: valves bifid, at length two-parted. Seeds solitary, obovate-truncated, smooth, small.

Mutis suspects, that what he has called calyx may be bractes. The part in question is, according to him, globose before its expansion, with a longitudinal suture, by the bursting of which the original or proper orifice becomes transverse, the receptacle projects almost out of this corolla (or calyx), the flower becoming pendulous from the slightly-drooping summit of the incurved flower-stalk.—*Essential Character.* Male: Calyx concave, of one leaf; petals none; nectary a plaited membrane; antheræ quadrangular, simple; germens four, abortive. Female: Calyx concave, of one leaf; petals none; nectary a plaited membrane; capsule stalked, obovate, of three cells and three valves; seeds solitary.

Perula arborea, the only species. Native of New Granada, about Mariquita, where it was found by Mutis, and described by him in the Stockholm Transactions for 1784, p. 259.

PERUM, a town of Persia, in the province of Mecran, on the Nehenk: sixty miles south-west of Kelveh, and 170 north-north-east of Kidge.

PERUSAL, *f.* The art of reading.—As pieces of miniature must be allowed a closer inspection, so this treatise requires application in the *perusal*. *Woodward.*—If upon a new *perusal* you think it is written in the very spirit of the ancients, it deserves your care, and is capable of being improved. *Atterbury.*—Examination.—The jury, after a short *perusal* of the staff, declared their opinion by the mouth of their foreman, that the substance of the staff was British oak. *Tatler*, N^o 265.

PERUSE (La), a town of France, in the department of the Charente: nine miles south of Confolent.

To PERUSE, *v. a.* To read.—Carefully observe, whether he tastes the distinguishing perfections or the specifick qualities of the author whom he *peruses*. *Addison's Spect.*

Peruse this writing here, and thou shalt know
The treason. *Shakespeare's Rich. II.*

To observe; to examine:

I've *perus'd* her well;
Beauty and honour in her are so mingled,
That they have caught the king. *Shakespeare.*

PERUSER, *f.* A reader; examiner.—Marke herein his laboriouse and fruteful doinges, and ye shal fynde him no lesse profitable to us in the descrypcion of this particular nacyon, than were Strabo, Pliny, Ptholome, and

other geographers, to their *perusers*, in the pycuringe out of the universall worlde. *Bale's Leland's New Year's Gift.*—The difficulties and hesitations of every one will be according to the capacity of each *peruser*, and as his penetration into nature is greater or less. *Woodward.*

PERUSSEAU' (Silvan), a French Jesuit in the 18th century, who is spoken of as an ornament to the society by his virtues, and was greatly admired and followed as a preacher, and director of consciences. He was confessor, at first to the dauphin, and afterwards to the king; and he retained the office last mentioned till his death in 1751, at an age which is not specified. He published only A Funeral Oration for the Duke of Lorraine, and A Panegyric on St. Louis; but after his death, two volumes of Select Sermons were printed from his manuscripts, in 1758, 12mo. It is acknowledged, that these sermons do not rival those of Bourdaloue for powerful and forcible reasoning, nor those of Massillon for striking and inimitably pathetic passages; they are said, however, to merit distinction from the ordinary class of pulpit-compositions, and to be recommended by importance and weight of sentiment, order and regularity of method, liveliness of imagination, and an easy, noble, and varied, eloquence.

PERUSS'ICK, a castle of Dalmatia: twenty-four miles east of Zara.

PERUVEL'S, a town of France, in the department of the North: five miles north of Condé.

PERU'VIAN, *f.* A native of Peru.

PERU'VIAN, *adj.* Appertaining to Peru.

PERU'VIAN BAR'K. See CINCHONA.

PERU'VIAN MAS'TIC-TREE. See SCHINUS.

PERUVIA'NA, a general name given to that vast peninsula, extending itself form the Isthmus of Darien to Cape Horn, in the form of a triangle, of which the *Terra Magellanica* and the Cape from the vertex. It includes the whole of South America, although, as is well known, all the countries included within these limits did never acknowledge the dominion of the crown of Spain. See TERRA FIRMA.

PERUVEL'Z, a town of the Netherlands, in the province of Hainault; containing 5302 inhabitants.

PERUZZI (Baldassare), an eminent Italian painter, was born at Accajano, in the territory of Sienna, in 1481, in poor and distressed circumstances; his father having been reduced from a state of comparative affluence, by the civil wars which ravaged Florence and its territory. Baldassare exhibited his genius at a very early age; first by imitation of the works of others, and afterwards by original productions in the city of Volterra, where his family resided. Thence he went to Rome, and placed himself with the father of Maturino; and, becoming conspicuous for ability, was at length employed by pope Alexander VI. and also in many churches and convents in that city, in which he produced pictures justly entitled to exalted praise.

Together with painting, he studied architecture; and practised it with considerable success. He was also renowned for his knowledge of perspective; and the works he produced in imitation of architectural projections, excited even the surprise and admiration of Titian. But his highest renown is founded upon the works of a much more elevated class; viz. his paintings in fresco and in oil; in which he exhibited a taste and style not unworthy of Raphael. His Judgment of Paris in the castle of Belcaro, and his Sibyl at Fonte Giusta in Sienna, are very greatly admired. His genius, however, particularly led him to architecture, and to painting as connected with it. He remarkably excelled in perspective views of streets, palaces, porticoes, the insides of apartments, and the like; and was the first modern artist who renewed the ancient decorations for theatres. By Leo X. he was employed to give a new model of St. Peter's, in which he improved in many respects upon the original design of Bramante. This was not executed; but it is preserved in an engraving in Seplio's Architecture, and merits the notice

notice of artists. Peruzzi was at Rome at its sack in 1527, where he ransomed himself by a portrait of the Constable Bourbon, made after he was killed; but, in returning to Sienna, he was completely stript by some marauders. He again returned to Rome, where he was much employed, but miserably remunerated; and he died in poverty in 1536. He composed a Treatise on the Antiquities of Rome, and a Commentary on Vitruvius, but did not live to publish them. There is at Wilton a picture of his of the Four Evangelists in Glory, with their peculiar characteristic accompaniments, which bears ample testimony to the truth of this remark; and perhaps it is the only real specimen of his pencil in England.

PER'WIS, a town of the Netherlands: six miles north-east of Gemblours.

PERZA'GNO, a town of Albania, on the canal of Cattaro.

PERZE'NE, a town of Italy: eight miles north-east of Bologna.

PES, *f.* [Latin.] The foot. A long measure of 12 inches.

PES ANSERINUS, *f.* in botany. See CHENOPODIUM and ATRIPLEX.

— CAL'PRÆ. See CONVULVULUS and OXALIS.

— COLUMBINUS. See GERANIUM.

— EQUINUS. See HYDROCOTYLE.

— LEO'NIS. See ALCHEMILLA.

— TIGRIDIS. See IPOMÆA.

PE'SA, an old law-term for a *weigh*, or certain weight, of cheefe, wool, &c.

PESA'DE, *f.*—*Pesade* is a motion a horse makes in raising or lifting up his fore quarters, keeping his hind legs upon the ground without stirring, so that he marks no time with his haunches till his fore-legs reach the ground. This motion affords the true means of fixing his head and his haunches, to make him ply and bend his fore-thighs, and to hinder him from stamping and clattering with his feet. *James's Mil. Dict.*

PES'AGE, *f.* [*pesagium*, Lat.] A custom, or duty, paid for weighing goods and merchandise. *Jacob.*

PESAGOON'DAN, a town on the west coast of Borneo. Lat. 2. 12. N. lon. 109. 58. E.

PESAN', a small island near the coast of China. Lat. 26. 52. N. lon. 120. E.

PESA'RO, or PEZARO, a town of Italy, in the Papedom, at the mouth of the Foglia, on the Adriatic; the see of a bishop, suffragan of Urbino. It contains eight churches and twelve convents. The figs and olives which grow in the environs are in great estimation. This city was anciently called *Pisaurum*, and was made a Roman colony about the year of Rome 568, and a temple was built here to Jupiter Pisaurus. Plutarch, in his Life of Anthony, says, Pisaurum was laid in ruins by an earthquake, a little before the battle of Actium; but that Augustus caused it to be rebuilt as soon as he was at peace. Totila king of the Goths, having taken and ruined it; it was rebuilt by Belisarius, general to the emperor Justinian. This city came successively under the dominion of the Malatesta, the Sforza, and the Borgia families; and at last under the power of the popes. It is situated upon a small rising ground near the Adriatic Sea, and is pretty well fortified. L. Attius or Accius, one of the most excellent tragic poets in ancient Rome; and Pandulfus Collenutius, author of a History of Naples, were natives of Pesaro; as was likewise Æmilius Mancinus, who wrote the history of his own country, and another book concerning its laws: fifteen miles north-east of Urbino, thirty-eight north-west of Ancona. Lat. 43. 56. N. lon. 12. 52. E.

PESA'RO (John), doge of Venice in the year 1658. He reigned only eighteen months. A mausoleum of extraordinary beauty is placed to his memory in the church of the Brethren at Venice: in this monument is the statue of Pesaro, seated under a canopy of state, all of the finest marble, and ornamented with many other figures,

particularly four blacks who support the canopy; there is also a long inscription to his memory. He prosecuted the war successfully against the Turks, over whom he gained several victories in the Levant and in Dalmatia.

PES'CA PAGA'NI, a town of Naples, in the Basilicata: six miles north-west of Muro.

PESCA'RA, a town of Naples, in Abruzzo Citra, situated at the mouth of a river of the same name, which runs into the Adriatic; fortified and defended by a castle. It was once the see of a bishop: ten miles north of Civita di Chieti. Lat. 42. 27. N. lon. 14. 6. E.

PESCA'RA, a river of Italy, in the kingdom of Naples, which runs into the Adriatic at Pescara.

PESCARO'LO, a town of Italy: nine miles north-east of Cremona.

PESCAT'AWAY, a town of North America, in Maryland: twenty-five miles south-west of Annapolis.

PESCENNIUS NIGER. See NIGER, and the article ROME.

PESCHIE'RA, a town of Italy, on the south coast of Lake Garda. This is a small but important fortress, built by the Venetians in the year 1549. It has but few houses, and an arsenal for some light galleys on the side of the Lake: fifteen miles west of Verona, seventeen north-west of Mantua. Lat. 45. 7. N. lon. 10. 42. E.

PESCHI'VE, a town of Naples, in Capitanata: eleven miles north-west of Vieste.

PES'CIA, a town of Etruria, the see of a bishop. It contains three parochial, seven other churches, and five convents. The oil made here is much esteemed: ten miles south-west of Pistoja.

PES'CIA, a town of Italy, in the Trevisan: seven miles south of Treviso.

PESCI'NA, a town of Naples, in Abruzzo Ultra: five miles south-east of Celano.

PESCI'NA DE FRA'TRI, a town of Naples, in the province of Capitanata: eight miles west of Vieste.

PESCI'NA POMPE'IA, a town of Naples, in the province of Bari: nine miles north of Matera.

PES'CO CASTRA'RO, a town of Naples, in Abruzzo Ultra: eleven miles north-east of Aquila.

PES'CO COSTAN'ZO, a town of Naples, in Abruzzo Citra: seven miles south-east of Sulmona.

PES'CO LAURINO, a town of Naples, in Principato Citra: eighteen miles north-west of Policastro.

PES'CO PAGA'NO, a town of Naples, in the province of Otranto: eleven miles north-east of Tarento.

PES'CO VERRA'RO, a town of Naples, in Principato Ultra: twelve miles from Benevento.

PESCOT'TOR, a river of South-Wales, which runs into the Towy in the county of Caermarthen.

PESE'NAS, an ancient town of France, in Languedoc, and in the diocese of Agde; delightfully seated on the river Pein: twelve miles north-east of Bessiers, and eight north of Agde. Lat. 43. 28. N. lon. 3. 34. E.

PES'ENBACH, a river of Austria, which runs into the Danube eight miles above Lintz.

PESEQUEIRO, a small island in the Atlantic, near the coast of Portugal. Lat. 37. 40. N. lon. 8. 52. W.

PESHAW'ER, the capital of the kingdom of Caubul, a country lying between Persia and Hindoostan. This territory has become known to us in consequence of an embassy that was sent there, by the East India Company, during the last war.

It appears that an opinion was entertained by the British government at Calcutta, in 1808, resulting from the embassy of the French general Gardanne to Persia, that Bonaparte had views of penetrating by land to Hindoostan, and of thus attempting the conquest of that wealthy and important portion of our oriental dominions. It was therefore deemed necessary to sound the dispositions, and to conciliate the co-operation, of those ruling princes of the East, through whose territories the troops of the French were to march. (See p. 690.) Among these independent sovereignties, the court of Caubul held a high rank;

rank; and, as its known character was haughty, and it was suspected of rather undervaluing the European nations, our government determined that a mission to it should be fitted out in a style of importance and splendour. At Delhi were made the principal preparations for its equipment; and thence began the escorted procession, more resembling a triumphal solemnity than a journey of negotiation or discovery. Mr. Elphinstone was placed at the head of it, in the character of Envoy to the King of Caubul; and his excellency afterwards published a narrative of his fruitless journey, from which we shall select a few particulars.

The embassy left Delhi on the 13th of October, 1808; passed through Canound, which is a hundred miles westward; and quitted the British dominions on the 21st, in the Shekahwuttee district, where the desert begins. At Chooroo, the women who had accompanied the mission were sent back, with a guard. Six hundred camels were laden with leathern bags of water, and the travellers with their thirteen elephants entered the dry country: but copper-veffels, two of which formed a load for a camel, were soon found to answer better than the *muthks*, or bags of sheep-skin or ox-hides, which cracked and spilled much water. Such was the dread of the desert entertained by the people of the country, that servants of all descriptions absconded by twenties and thirties, until the march was so far advanced that the return became as difficult as the progress.

Bikaner was the first striking object. This town, which is surrounded by a fine wall, strengthened with round towers, and crowned with jagged battlements, stands in the midst of a plain of more than ordinary nakedness. Some high houses, some temples, (one of which had a lofty spire,) and at one corner an eminent and showy fort, give to this city an imposing exterior; but its beauty is merely external, and mud-walls, painted red or white, constituted the mass of building. Five armies had at this time invaded the country; and the rajah had ordered all the wells within ten miles to be covered over with sand, or filled up, trusting for his defence to the desolation which surrounded him. In these circumstances, it was not easy to supply the wants of our envoy: but, after a halt of eleven days, he contrived to proceed on the 16th of November. At Pooggul, where rain-water could be purchased, the party arrived on the 19th, at dark; and, on the 21st, they reached the confines or frontier of the king of Caubul's dominions. Here they were met by a hundred and fifty soldiers on camels, belonging to Bahawl Khan, the governor of this eastern province: escorting a present of four hundred skins of water laden on a hundred camels, with four brazen jars of water from the Hyphafis, sealed with the king's signet, and intended for the private drinking of the ambassador and his particular friends. At each successive stage on the road to Moujghur, fresh presents of water brought from that city announced the attention and hospitality of the sovereign. The embassy arrived at that city on the night of the 22d. A conspicuous mosque stands over the gateway; and a tomb, of which the cupola is ornamented with painted tiles, also attracts distant notice. After a stay of two days, the caravan of embassy proceeded; and on the 26th reached the banks of the Gharra, which includes the Hyphafis, or Begab, and the Hyfudrus, or Sutledge; and the Europeans gazed with interest on a stream which had borne the fleet of Alexander.

December 11, the mission reached Moultaun, which stands about four miles from the left bank of the Che-naub, or Acesines. It occupies nearly five miles in circumference, and is encompassed by a fine wall above forty feet high, with towers at regular distances, and a citadel on a rising ground. These oriental towns have generally that character of fortification which preceded in Europe the use of artillery in sieges. Two magnificent tombs, with very high cupolas covered with glazed and painted tiles, form conspicuous ornaments of the city, viewed

from whatever direction. The country around is fertile, well cultivated, and amply watered from wells. The embassy lingered during many days in the neighbourhood of Moultaun, amused with shooting, hunting, and hawking, but not negligent of statistical observations; indeed, it was necessary to wait thus long for the arrival of a *Mehmandaur*, or official welcomer, from the king of Caubul. On the 21st of December, the Acesines was crossed; and on the 7th of January, the Indus.

At Dera Ismael Khaun, a delay of a month occurred: the ambassador still awaiting a mehmandaur. This town is situated in a large wood of date-trees, within a hundred yards of the Indus, and has a ruinous wall of unburnt bricks, a mile and half in circumference. At length, about the end of January, the long-expected welcomer arrived, Moolla Jaffer Seestaunee, who had originally been a schoolmaster, but who, by literary talent and financial dexterity, was become a sort of Chancellor of the Exchequer at Peshawer. Under his guidance, the mission left Dera Ismael Khaun, February 7, and proceeded to ascend the right bank of the Indus towards the metropolis. In the progress of the journey, it appeared that the road had in many places been widened and repaired for the express accommodation of the embassy, and hence arose the delay of reception. At Calla-baugh, where the Indus breaks through the Salt-range in a channel only three hundred and fifty yards broad, the road quits the plain country, and climbs rapidly among successive stages of mountains into an Alpine climate.

At Budabeer, about six miles from the metropolis, the mission made a farther halt to arrange several ceremonies of introduction; and, after a more than Spanish definition of etiquette, permitted itself to arrive. "On the morning of the 25th Feb. after some confusion about the mode of our reception, we made our entry into PESHAWER. There was a great crowd all the way. The banks on each side of the road were covered with people, and many climbed up trees to see us pass. The crowd increased as we approached the city, but we were put to no inconvenience by it, as the king's horse, that had come out to meet us, charged the mob vigorously, and used their whips without the least compunction. One man attracted particular notice: he wore a high red cap, of a conical shape, with some folds of cloth round the bottom, and a white plume; he had a short jacket of skin, black pantaloons, and brown boots: he was an uncommonly fine figure, tall and thin, with swelling muscles, a high nose, and animated countenance: he was mounted on a very fine grey horse, and rode with long stirrups, and very well. He carried a long spear without a head, with which he charged the mob at speed, shouting with a loud and deep voice. He not only dispersed the mob, but rode at grave people sitting on terraces with the greatest fury, and kept all clear wherever he went. His name was *Ruffool Dewauneh*, or Ruffool the Mad. By the time we had entered the town, the roads were so narrow that our progress became very slow, and we had time to hear the remarks of the spectators, which were expressive of wonder at the procession, and of goodwill towards us; but the crowd and bustle were too great to admit of any distinct observations. At length we reached the house prepared for us, and were ushered into an apartment spread with carpets and felts for sitting on. Here we were seated on the ground in the Persian manner, and trays of sweatmeats were placed before us. They consisted of sugared almonds, and there was a loaf of sugar for making sherbet in the midst of each tray. Soon after, our conductors observed that we required rest, and withdrew.

"On the day of our arrival, our dinner was composed of the dishes sent us by the king, which we found excellent. Afterwards we had always our English meals; but the king continued to send breakfast, luncheon, and dinner, for ourselves, with provision for two thousand persons (a number far exceeding that of the embassy),

and two hundred horses, besides elephants, &c. nor was it without great difficulty that I prevailed on his majesty, at the end of a month, to dispense with this expensive proof of his hospitality.

"On the morning of the 5th of March, we set out in procession for the palace. We passed for about three quarters of a mile through the streets, which, as well as the windows and roofs of the houses, were crowded with spectators. At length we reached an open space under the palace, or castle, in which the king resides: this space was filled with people, who covered the side of the hill on which the castle stands, like the audience at a theatre. When we reached the gate, over which the king's band was playing, we were requested to leave the greater part of our attendants behind, and here our drums and trumpets were required to cease playing. Some time after we entered this gateway, we dismounted, and, after walking about one hundred yards, we ascended a flight of steps, and entered a long narrow room, where about a hundred and fifty persons were seated in great order along the walls. This was called the *kishik khauneh*, or guard-room. It was spread with carpets and felts. We were led straight up to the head of the room, where several men, richly dressed, rose as we approached; and we were received by a fair and portly personage, whom I afterwards understood to be the king's imaum, and the head of the religious establishment. He bowed as I came up, took my hand between his, and placed me by him, after which he went through the usual forms of welcome and inquiries. Opposite to me were many of the chief lords of the court, some of whom had their caps ornamented with jewels, and surmounted by plumes: lower down were many persons, some like Persians, and some like Dooranees; and still lower were some of the chiefs of the hill-tribes near Peshawer; at the bottom were several persons in the strange fanciful caps which are employed to distinguish the officers of the household. They are generally black and red, but their variety and their whimsical shapes baffle all description; little taste is displayed in them, and the effect is not good.

"We were now left for some time in the *kishik khauneh*, during which Meer Abool Hussun conversed with us, and discovered a most extraordinary ignorance of every thing concerning us. He had at first thought that Calcutta was in England; and now discovered his belief that the gentlemen of the embassy were born in India, though of English parents. At length the chaos baushee came to us: he had been labouring hard at a list of our names, and gave it up, with the appearance of extreme vexation, in despair of mastering such a collection of strange words. He now explained the ceremonies to be observed, in a very courteous manner, and then entreated us severally to whisper our names to him when he should touch us. He then conducted us up a sloping passage, and through a gate; after which we passed behind a sort of screen, and suddenly issued into a large court, at the upper end of which we saw the king in an elevated building.

"The court was oblong, and had high walls, painted with the figures of cypresses. In the middle was a pond and fountains. The walls on each side were lined with the king's guards, three deep; and at various places in the court, stood the officers of state, at different distances from the king, according to their degree. At the end of the court was a high building, the lower story of which was a solid wall, ornamented with false arches, but without doors or windows; over this was another story, the roof of which was supported by pillars and Moorish arches, highly ornamented. In the centre arch sat the king, on a very large throne of gold or gilding. His appearance was magnificent and royal: his crown and his dress were one blaze of jewels. He was elevated above the heads of the eunuchs who surrounded his throne, and who were the only persons in the large hall where he sat: all was silent and motionless. On coming in sight of the

king, we all pulled off our hats, and made a low bow: we then held up our hands towards heaven, as if praying for the king, and afterwards advanced to the fountain, where the chaos baushee repeated our names, without any title or addition of respect, ending, "They have come from Europe as ambassadors to your majesty." The king answered in a loud and sonorous voice, "They are welcome;" on which we prayed for him again, and repeated the ceremony once more, when he ordered us dresses of honour. After this, some officer of the court called out something in Turkish, on which a division of the soldiers, on each side, filed off, and ran out of the court, with the usual noise of their boots on the pavement, accompanied by the clashing of their armour. The call was twice repeated, and at each call a division of troops ran off: at the fourth, the khans ran off also, with the exception of a certain number, who were now ordered to come forward. The king, in the mean time, rose majestically from his throne, descended the steps, leaning on two eunuchs, and withdrew from our sight. The khans who were summoned ran on as usual, while we walked on to the foot of a staircase, covered with a very rich carpet: we paused here till the khans had run up, and were arranged; after which we ascended, and entered the hall, where the king was now seated on a low throne opposite the door.

"We stood in a line, while the king of Caubul asked after the health of his majesty and the governor-general, inquired into the length of our journey, and expressed his wish that the friendship betwixt his nation and ours might be increased; to all which I made very brief replies. The gentlemen of the embassy now retired, leaving me and Mr. Strachey, who were desired to seat ourselves near his majesty. The imaum and the moonshie baushee (or head secretary) stood near us, and other khans stood along one side of the hall. The governor-general's Persian letter was now opened, and read with striking distinctness and elegance, by the moonshie baushee; and the king made a suitable answer, declaring his friendship for the English nation, his desire of an intimate alliance, and his readiness to pay the utmost attention to any communication with which I might be charged. After I had replied, his majesty changed the subject to inquiries respecting our journey, and questions about our native country. When he understood that the climate and productions of England greatly resembled those of Caubul, he said, the two kingdoms were made by Nature to be united, and renewed his professions of friendship. I then inquired whether it was his majesty's pleasure to enter on business at that time? To which he replied, that I might consult my own convenience respecting the time, and might communicate with his ministers, or with himself, as I chose. I then explained the objects of my mission at length; to which his majesty made a very friendly and judicious reply, and soon after I withdrew.

"The king of Caubul was a handsome man, about thirty years of age, of an olive complexion, with a thick black beard. The expression of his countenance was dignified and pleasing: his voice clear, and his address princely. We thought at first that he had on armour of jewels; but, on close inspection, we found this to be a mistake, and his real dress to consist of a green tunic, with large flowers in gold, and precious stones, over which were a large breast-plate of diamonds, shaped like a flattened fleur de lis, an ornament of the same kind on each thigh, large emerald bracelets on the arms (above the elbow), and many other jewels in different places. In one of the bracelets was the *Cohi Noor*, known to be one of the largest diamonds in the world. There were also some strings of very large pearls, put on like cross-belts, but loose. The crown was about nine inches high, not ornamented with jewels as European crowns are, but to appearance entirely formed of those precious materials. It seemed to be radiated like ancient crowns, and behind the rays appeared peaks of purple-velvet: some small

branches with pendants seemed to project from the crown; but the whole was so complicated, and so dazzling, that it was difficult to understand, and impossible to describe. The throne was covered with a cloth adorned with pearls, on which lay a sword and a small mace, set with jewels. The room was open all round. The centre was supported by four high pillars, in the midst of which was a marble fountain. The floor was covered with the richest carpets; and round the edges were slips of silk, embroidered with gold, for the khans to stand on. The view from the hall was beautiful. Immediately below was an extensive garden, full of cypresses and other trees, and beyond was a plain of the richest verdure: here and there were pieces of water and shining streams; and the whole was bounded by mountains, some dark, and others covered with snow. When I left the king, I was re-conducted to the kishik khauneh, where all the gentlemen of the mission received rich dresses of honour.

"Our presents for the king were carried into the palace while we were in the kishik khauneh. Nothing could exceed the meanness and rapacity of the officers, who received charge of them. They kept the camels on which some of them were sent, and even seized four riding-camels, which had entered the palace by mistake. They stripped the elephant-drivers of their livery; and gravely insisted, that two English servants, who were sent to put up the lustres, were part of the present."

Until the presentation to the king was over, none of the gentlemen of the mission went out; but after that time they rode freely through the country. Peshawer stands in the midst of a circular plain about thirty-five miles in diameter. In March, the distant mountains were covered with snow, the plain with the brightest verdure, and the climate was delicious. The trees were enough in leaf to give grace and richness to the prospect; and a fortnight completed the new foliage, which exceeded in brilliancy that of Hindoostan. "Many streams ran through the plain: their banks were fringed with willows and tamarisks. The orchards scattered over the country, contained a profusion of plum, peach, apple, pear, quince, and pomegranate, trees, which afforded a greater display of blossom than I ever before witnessed; and the uncultivated parts of the land were covered with a thick elastic sod, that perhaps never was equalled but in England. The greater part of the plain was highly cultivated, and irrigated by many water-courses and canals. Never was a spot of the same extent better peopled. From one height, Lieut. Macartney took the bearings of thirty-two villages, all within a circuit of four miles. The villages were generally large, and remarkably clean and neat, and almost all set off with trees. There were little bridges of masonry over the streams, each of which had two small towers for ornament at each end. The greater part of the trees on the plain were mulberries, or other fruit-trees. Except a few picturesque groupes of dates, the only tall trees were the *Ficus religiosa* and the tamarisk, which last grows here to the height of thirty or forty feet. Its leaves being like those of the cypress, and very thick, the groves composed of it are extremely dark and gloomy. The town of Peshawer itself stands on an uneven surface. It is upwards of five miles round; and contains about 100,000 inhabitants. The houses are built of brick (generally unburnt), in wooden frames: they are commonly three stories high, and the lower story is generally occupied by shops. The streets are narrow, as might be expected where no wheeled-carriages are used: they are paved; but, the pavement sloping down to the kennel, which is in the middle, they are slippery, and inconvenient. Two or three brooks run through different parts of the town; and, even there, are skirted with willows and mulberry-trees. There are many mosques in the town; but none of them, or of the other public buildings, deserve notice, except the balla hisaur and the fine caravanera. The balla hisaur is a castle of no strength, on a hill, north of the town: it contains

some fine halls, commands a romantic prospect, and is adorned with some very pleasing and spacious gardens; but, as it is only the occasional residence of the king, it is now much neglected. On the north it presents a commanding aspect; but a view of it from the side nearest the town discloses strong signs of weakness and decay. Some of the palaces of the great are splendid; but few of the nobility have houses here.

"The inhabitants of Peshawer are of Indian origin, but speak Pushtoo as well as Hindkee. There are, however, many other inhabitants of all nations; and the concourse is increased during the king's visits to Peshawer. We had many opportunities of observing this assemblage in returning from our morning rides; and its effect was heightened by the stillness and solitude of the streets, at the early hour at which we used to set out. A little before sunrise, people began to assemble at the mosques to their morning devotions. After the hour of prayer, some few appeared sweeping the streets before their doors, and some great men were to be seen going to their early attendance at court. They were always on horseback, preceded by from ten to twelve servants on foot, who walked pretty fast, but in perfect order and silence: nothing was heard but the sound of their feet. But, when we returned, the streets were crowded with men of all nations and languages, in every variety of dress and appearance. The shops were all open. Dried fruits, and nuts, bread, meat, boots, shoes, saddlery, bales of cloth, hardware, ready-made clothes, and potheens, books, &c. were either displayed in tiers in front of the shops, or hung up on hooks from the roof. Amongst the handsomest shops were the fruiterers, (where apples, melons, plums, and even oranges, though these are rare at Peshawer, were mixed in piles with some of the Indian fruits;) and the cook-shops, where every thing was served in earthen dishes, painted and glazed, so as to look like china. In the streets were people crying greens, curds, &c. and men, carrying water in leathern bags at their backs, and announcing their commodity by beating on a brazen cup, in which they give a draught to a passenger for a trifling piece of money. With these were mixed people of the town in white turbans, some in large white or dark blue frocks, and others in sheep-skin cloaks; Persians, and Afghans, in brown woollen tunics, or flowing mantles, and caps of black sheep-skin or coloured silk; Khyberes, with the straw sandals, and the wild dress and air, of their mountains; Hindoos, uniting the peculiar features and manners of their own nation to the long beard and the dress of the country; and Hazarehs, not more remarkable for their conical caps of skin, with the wool appearing like a fringe round the edge, and for their broad faces and little eyes, than for their want of the beard, which is the ornament of every other face in the city. Among these might be discovered a few women with long white veils that reached their feet, and some of the king's retinue, in the grotesque caps, and fantastic habits, which mark the clans to which each belongs. Sometimes, when the king was going out, the streets were choaked with horse and foot, and dromedaries bearing swivels, and large waving red and green flags; and, at all times, loaded dromedaries, or heavy Bactrian camels, covered with shaggy hair, made their way slowly through the streets; and mules, fastened together in circles of eight or ten, were seen off the road, going round and round to cool them after their labour, while their keepers were indulging at an eating-house, or enjoying a smoke of a hired cullecaun in the street. Amidst all this throng we generally passed without any notice, except a salam from a passenger, accompanied by a bow, with the hands crossed in front; or an application from a beggar, who would call out for relief, admonish us that life was short, and the benefit of charity immortal, or remind us that what was little to us was a great deal to him."

During the stay of the embassy at Peshawer, an alarming rebellion against the king of Caubul was undertaken by
shah

shah Mahmud; and the king's minister, Akram Khan, who was known to be on good terms with the English, was singularly unsuccessful against the enemy. Before the first alarm created by the bad news was over, a Hindoo letter-carrier was seized in one of the passes on the way to Caubul; and a report was spread, that he was charged with a treacherous correspondence between the English and the rebels. This story was accompanied by a rumour, that the king of Caubul meant to give up to plunder the quarters and property of the embassy. The whole town was consequently in a ferment; people were running up and down in all directions, getting their arms in order, and lighting their matches; and a great mob angrily assembled at the gates of the caravanera. The gentlemen of the embassy continued to sit quietly in the hall, and to receive company: but Capt. Pitman silently doubled the guards, and took other measures of defence. At length, the king's minister made a visit to the ambassador, which put an end to any suspicions of disloyalty: the crowd dispersed; and the English, after having been threatened with massacre, became the hope of the nation. Meanwhile, the strength of the rebels continuing to increase, and also the poverty of the king's exchequer, he was advised to hoist the royal standard, to quit Peshawer, which was indefensible, and to march for Caubul. This determination, being taken, necessarily interrupted the negotiation, and decided the embassy to return. An application was made by the king of Caubul in his necessity to the British for a loan of money: but the ambassador thought that his powers did not extend to the making of such advances. Perhaps there would have been more statesmanship and magnanimity in granting them; since, at an expense which would not have doubled the cost of the embassy, the throne of Caubul would thus probably have been secured to a friendly sovereign, who would have indemnified the government of Calcutta by the cession of some frontier-province. Even if the money had been expended in vain, it would have secured cessions of claim, which future opportunities might have changed into valuable rights.

On the 14th of June the embassy began its retreat by another road, through Chumkuny, along the Caubul river to Acora, and thence to Attock, a fort near the junction of the Caubul and the Indus. Many persons were seen crossing the river, or floating down the stream, seated astride on the inflated hides of oxen; a contrivance which was used in these countries, as Arrian observes, in the time of Alexander. Above Attock, are rapids which interfere with navigation; and to the east of Attock the region assumes a Hindoo character. The embassy passed the Hydaspes at Jellalpoor in detachments between the 22d and 26th of July; and the rest of the journey back to Delhi was performed without any remarkable occurrence.

"The present kingdom of Caubul," says Mr. Elphinstone, "extends from the west of Herat in longitude 62, to the eastern boundary of Cashmeer in longitude 77 E. and from the mouth of the Indus in latitude 24, to the Oxus in latitude 37 N. The whole space included between those lines of latitude and longitude, does not belong to the king of Caubul; and it is generally understood, that of those which may be considered as annexed to his crown, many pay him but a nominal obedience. This kingdom is bounded on the east by Hindoostan, in which it however comprehends Cashmeer, and the countries on the left bank of the Indus. On the south it may be said to have the Persian Gulf; and, on the west, a desert extends along the whole of the frontiers. Its northern frontier is formed by the mountains of the eastern Caucasus, which are, however, included within the western part of the boundary there formed by the Oxus. According to the nomenclature of our latest maps, it comprehends Afghanistan and Segistan, with part of Chorasana and of Makran; Balk, with Tokarestan and Kilan; Kuttore, Caubul, Candahar, Sindy, and Cashmeer; together with a portion of Lahore, and the greater part of

Moultan. The whole population of the kingdom cannot be under fourteen millions. This was the number fixed by one of the gentlemen of the mission, on a calculation of the extent and comparative population of the different provinces. All extensive deserts were excluded; no greater rate of population than a hundred to the square mile was allowed to any large tract except Cashmeer, and sometimes (as in the whole country of the Hazaurehs) only eight souls were allowed to the square mile. The different nations who inhabit the kingdom of Caubul were supposed to contribute to the population in the following proportions:

Afghans	4,300,000
Beloches	1,000,000
Tartars of all descriptions	1,200,000
Persians (including Taujiks)	1,500,000
Indians (Cashmeerees, Juts, &c.)	5,700,000
Miscellaneous tribes	300,000
	<hr/>
	14,000,000

If a man could be transported from England to the Afghan country, without passing through the dominions of Turkey, Persia, or Tartary, he would be amazed at the wide and unfrequented deserts, and the mountains covered with perennial snow. Even in the cultivated part of the country, he would discover a wild assemblage of hills and wastes, unmarked by enclosures, not embellished by trees, and destitute of navigable canals, public roads, and all the great and elaborate productions of human industry and refinement. He would find the towns few, and far distant from each other; and he would look in vain for inns or other conveniences, which a traveller would meet with in the wildest parts of Great Britain. Yet he would sometimes be delighted with the fertility and populousness of particular plains and valleys, where he would see the productions of Europe mingled in profusion with those of the torrid zone; and the land, laboured with an industry and a judgment no where surpassed. He would see the inhabitants following their flocks in tents, or assembled in villages, to which the terraced roofs and mud-walls give an appearance entirely new. He would be struck at first with their high and even harsh features, their sun-burnt countenances, their long beards, their loose garments, and their shaggy mantles of skins. When he entered into society, he would notice the absence of regular courts of justice, and of every thing like an organized police. He would be surprised at the fluctuation and instability of the civil institutions. He would find it difficult to comprehend how a nation could subsist in such disorder; and would pity those, who were compelled to pass their days in such a scene, and whose minds were trained, by their unhappy situation, to fraud and violence, to rapine, deceit, and revenge. Yet he would scarcely fail to admire their martial and lofty spirit, their hospitality, and their bold and simple manners, equally removed from the suppleness of a citizen, and the awkward rusticity of a clown; and he would, probably, before long discover, among so many qualities that excited his disgust, the rudiments of many virtues. Clanship is established among them, as in most pastoral nations; but a high independent spirit animates the chiefs of families. Mr. Elphinstone observes; "To an old man of the tribe of Meeankhail, I was urging the superiority of a quiet life under a powerful monarch, to the discord, the alarms, the bloodshed, attending the present independence. The old man replied with great warmth; We are content with discord, we are content with alarms, we are content with bloodshed; but we will never be content with a master."

The origin of the name of *Afghan*, now so generally applied to this nation, is entirely uncertain; but is, probably, modern. It is known to the Afghans themselves only through the medium of the Persian language. Their own

own name for their nation is *Pooftoon*; in the plural, *Pookhtauuch*. The Berdooranees pronounce this word *Pookhtauuch*; whence the name of *Pitan*, by which the Afghans are known in India, may probably be derived.

The following is the course of study pursued about Peshawer, and other large towns. A child begins its letters (in conformity to a traditional injunction of the prophet) when it is four years, four months, and four days, old; but its studies are immediately laid aside, and not resumed till it is six or seven years old, when it learns its letters, and is taught to read a little Persian poem of Saadis, which points out the beauty of each of the virtues, and the deformity of each of the vices, in very simple and not inelegant language. This takes from four months to a year, according to the child's capacity. After this, common people learn the Koran, and study some books in their own language; people of decent fortune proceed to read the Persian classics, and a little of the Arabic grammar: boys who are to be brought up as mollahs, or priests, give a great deal of their time to this last study, which, as the Arabic grammars are very elaborate, and comprehend a great deal of science that we do not mix with the rudiments of a language, sometimes occupies several years. When a young mollah has made sufficient proficiency in this study, he goes to Peshawer, Huhstnagur, or some other place famous for its mollahs, and begins on logic, law, and theology. No further knowledge is required to complete a mollah's education; but many push their researches into ethics, metaphysics, and the system of physics known in the East, as well as history, poetry, and medicine, which last is a fashionable study for men of all professions. For those studies, and for the more advanced branches of theology and law, they often travel to distant cities, and even to Bokhara, which is a great feat of Mahomedan learning; but Peshawer seems, on the whole, to be the most learned city in these countries, and many more students come thither from Bokhara than repair to that city from Peshawer.

The Afghans are Mahometans of the Sunnite or orthodox sect, which occasions a great hatred between them and the Persians. (See PERSIA, p. 702.) The unlearned part of the Afghan nation certainly consider a Shiite as more an infidel than a Hindoo, and have a greater aversion to the Persians for their religion than for all the injuries the country has suffered at their hands. They hold, like all other Mussulmans, that no infidel will be saved; that it is lawful and even meritorious to make war on unbelievers; and to convert them to the Mussulman faith, or impose tribute on them.

The Afghans are a sociable people: besides the large entertainments which are given on marriages and similar occasions, they have parties of five or six to dine with them, as often as they can afford to kill a sheep. When all the guests have arrived, the master of the house, or one of his family, serves every one with water to wash his hands, and then brings in dinner. It generally consists of boiled mutton, and the broth in which the meat is boiled, with no addition but salt, and sometimes pepper. This soup, which they generally eat with bread soaked in it, is said to be very palatable. Their drink is buttermilk or sherbet. In some places, they drink a liquor made from sheep's milk, which has an enlivening, if not an intoxicating, quality. During dinner, the master recommends his dishes, presses the guests to eat, and tells them not to spare, for there is plenty. They say a grace before and after dinner; and, when all is done, the guests bless the master of the house. After dinner, they sit and smoke, or form a circle to tell tales and sing. The old men are the great story-tellers. Their tales are of kings and viziers, of genii and fairies; but principally of love and war. They are often mixed with songs and verses, and always end in a moral. They delight in these tales and songs. All sit in silence while a tale is telling; and, when it is done, there is a general cry of "Ai Shawah!" their usual expression of admiration. Their songs are

mostly about love; but they have numerous ballads, celebrating the wars of their tribe, and the exploits of individual chiefs. As soon as a chief of any name dies, songs are made in honour of his memory. Besides these songs, some men recite odes, or other passages from the poets; and others play the flute, the *rubaub* (a sort of lute or guitar), the *camauncheh* and *jarindeh* (two kinds of fiddles), or the *soornaun*, which is a species of hautboy. Mr. Elphinstone gives the character of the Afghans, or Caubulists, in the following terms. "I know no people in Asia who have fewer vices, or are less voluptuous or debauched; but this is most remarkable in the west: the people of towns are acquiring a taste for debauchery, and those in the north-east of the country are already far from being pure. The Afghans themselves complain of the *corruption of manners*, and of the decline of sincerity and good faith; and say that their nation is assimilating to the Persians. Their sentiments and conduct towards that nation greatly resemble those which we discovered some years ago towards the French; for their national antipathy, and a strong sense of their own superiority, do not prevent their imitating Persian manners, while they declaim against the practice, as depraving their own. They are fully sensible of the advantage which Persia has over them at present, from the comparative union and vigour of her councils; and they regard the increase of her power with some degree of apprehension, which is diminished by their inattention to the future, and by their confidence in themselves. To sum up the character of the Afghans in a few words: their vices are revenge, envy, avarice, rapacity, and obstinacy; on the other hand, they are fond of liberty, faithful to their friends, kind to their dependants, hospitable, brave, hardy, frugal, laborious, and prudent; and they are less disposed than the nations in their neighbourhood to falsehood, intrigue, and deceit." Elphinstone's Account of the Kingdom of Caubul, &c. 4to. 1815.

PESH'WA, or PESHWA, the hereditary title of the head of the Poona, or Western Mahrattas. The word has a meaning analogous to our first or prime minister; but has been retained by the persons who, for several generations, have hereditarily succeeded to the sovereignty. The history of the peshwas, according to the best authorities, is briefly this. About the year 1740, the peshwa and bukshi, minister and paymaster-general to the Ram Rajah, acknowledged sovereign of the whole Mahratta empire, threw off their allegiance to the weak successor of the great Sevajee, and divided his extensive empire between them. (See MAHRATTAS, vol. xiv.) The bukshi was of the military tribe, out of which, in strictness of Hindoo law, all sovereigns must spring; and he assumed the title and authority of Rajah of Berar, and fixed his capital at Nagpour, where, with that title, his successors continue as sovereigns of the Berar, or Eastern Mahratta state. The peshwa was a Brahman, to which tribe sovereignty is positively prohibited by the laws of Menu; and, in obedience, no Brahman hath ever become a king; for, although the peshwa have, in fact, the power, he by a political fiction professes to be only peshwa to the reigning family at Sattara, where the descendant of Sevajee is kept a state-pageant, whose patent and dress of investiture are still thought or feigned to be essential to the peshwa's authority, though that authority has been hereditary for several generations, each of which has kept the rajah in honourable thraldom at his ancient capital.

At the close of lord Wellesley's memorable splendid war, (see the article HINDOOSTAN, vol. x. p. 114.) four considerable Mahratta powers continued to occupy a high rank among the native states. The Peshwa, the nominal head of the national confederacy, had been restored by British arms, and maintained, though also controlled, by a British subsidiary force. The Rajah of Berar had ceded his maritime province of Cuttack, and would have received a subsidiary force, if means could have been found of supporting it from his own revenues. Both

thief

these chiefs were, in fact, dependent allies of the English government. Scindia had submitted to a peace which deprived him of his conquests. Holkar continued for some time to wage a predatory war against the English provinces. Scindia and Holkar had in truth ceased to exercise the powers of civil government, and had become the mere leaders of military bands. For many years they had quitted their capitals, lived in tents, and moved about with their armies, to extort contributions from neighbouring countries, or to practise the like rapine, under the name of revenue, on the countries which for this purpose only they treated as their own. The countries situated between Bengal, the basis of the peninsula, and our acquisitions in Hindoostan, were for ten years the scene of their wars, and the rajpoot princes were their most conspicuous victims. After the death of Holkar in 1811, his legitimate rights were exercised by his widow, called the Baeè, for an infant son; but his army and his spirit devolved on Meer Khan, a Mahometan general in his service, who separated from his master's nominal state, and became perhaps more formidable, because no pretences or recollections of territorial sovereignty disguised his true character of a military adventurer.

The *Pindarrees*, or Mountaineers, (from *Pinda*, a Sanscrit word for mountain, which obviously recalls also the *Pindus* of Greece, *Pindarissus* in Asia Minor, and *Pen*, or *Ben*, the Celtic word for height or head, which occurs in the names of so many mountains,) were, however, more avowed and undistinguished plunderers. They are the remains of the native armies (especially that of Scindia), which were necessarily disbanded when lord Wellesley, by the establishment of a general peace, had for the first time since the beginning of authentic history, condemned to inaction those innumerable chiefs, who with their bands of followers had always found plunder and advancement, sometimes power and fame, amidst the distractions of the Indian states. About the year 1806, they encamped on the south bank of the river Nerbuddah, which continued to be their principal station. Recruited by multitudes of similar character, they made perpetual inroads into the fertile countries to the southward; the dominions of the Nizam, the Rajah of Berar, and the Peshwa, into the company's province called the Northern Circars; and they carried fire and sword almost within sight of the ramparts of Bombay. A defensive system was found to afford no protection against them. A line from Surat to Gangam is too long for defence. They made their attack or effected their escape through passes in the mountains, unknown to Europeans, or impassable by them. The governments of India justly represented that the only remedy was to carry war into the seats of the Pindarrees, and finally to disperse a destructive banditti. The government at home very naturally shrunk from the expense and discredit of new wars; and the hostilities with Nepal occupied for two years all our disposable force. See NEPAUL, vol. xv.

Among the secondary Mahratta chiefs, the principal is the Guicawar Rajah, whose authority extends over great part of the opulent province of Guzurat. He had become a dependent ally of our government, and a subsidiary force was accordingly stationed at his chief city of Baroda. The mixture of territories among the Mahratta chieftains was as minute and intricate as among the members of the old germanic body. Three chiefs, sometimes divided a village, while one might have no land within a hundred miles. Scindia, for instance, had a town and fort within twelve miles of the Peshwa's capital of Poonah. From this system, so fertile in disputes, considerable differences had arisen between the Peshwa and the Guicawar respecting some intermingled land in Guzurat. The English government, as the ally of both, became the mediator. A minister from the Guicawar, on his way to Poonah to negotiate an accommodation,

was murdered at the instigation of Trimbeckjee, a favourite of the Peshwa, probably with the view of precipitating his master, a superstitious and effeminate voluptuary, before he was aware, into a quarrel with the British government. Mr. Elphinstone, the British minister at Poonah, having obtained proofs of the guilt of Trimbeckjee, required that he should be given up. He was in consequence sent prisoner to Tannah, a little neglected fort on the island of Salfette, twenty miles north of Bombay, and separated only by a channel of about a hundred yards wide from the Mahratta shore. From this place, as might have been expected, he made his escape about the beginning of the year 1817, and soon collected a body of followers, who, in India, never fail to flock round a leader who calls them to plunder. Intercepted letters are said to have proved that the Peshwa was privy to the escape and the revolt; and at this moment, had he been permitted to have reached his minister's camp, a general war would have been inevitable. Strengthened by the apparent authority of the state, that able adventurer would have been joined very speedily by the numerous petty chiefs of his nation, whose appetite for plunder long restraint had rendered ravenous. The Pindarrees would have immediately poured down their cavalry to his aid. If he could have maintained himself but a few months, Meer Khan and Scindia might have returned from Hindoostan, or might have occupied the British forces there by inroads into our territory. All these evils were averted in a single night, without spilling a drop of blood, by the sagacity and resolution of Mr. Elphinstone. The danger had arisen so suddenly, that his instructions must have been very general; but he determined, on his own responsibility, to perform his duty, which evidently was to extinguish the first spark that threatened to spread the flame of war through India. Having directed the subsidiary force to occupy the avenues of Poonah, and the fortified temple of Parbulthy, which commands it from the south, he laid before the Peshwa the proofs of his minister's revolt, and required him to receive British garrisons into the famous hill-fort of Lowghur, which might interrupt the communication with Bombay into Poorunde, where his treasure and archives were deposited, and two other hill-forts, the chief strong holds of his dominions. From that moment, and by that vigorous policy, all apprehension of general war was removed. The very name of a Mahratta war became absurd. Trimbeckjee kept up local revolts for a short time, and then escaped to the Pindarrees at the close of the year 1817.

The political difficulties which attended the administration of the state of Poonah, the danger of continuing to trust the Peshwa, or of attempting to establish a new government, were doubtless very considerable. This, however, has been effected. The military efforts of the governor-general were then directed to the reduction of the Pindarrees. Wherever they have been brought to action, they have been defeated; but finally to expel them from all their fastnesses, and effectually to impose upon their dispersed remains the habits of obedience and industry, will be a work of much time and labour, if ever to be accomplished. For an account of the subsequent proceedings, see the article NAGPOUR, vol. xvi. p. 504.

Dangers of a permanent nature doubtless attend the unprofitable and invidious extension of territory in the East, and the subsidiary system which that extension rendered unavoidable. But it is too late for any practical purpose, to inquire whether that policy ought originally to have been adopted, or could have been avoided. British India has grown into a great though subordinate state, which has its own political system, and all those relations towards neighbours which arise from a natural union or opposition of interest. At a vast distance from Europe, it formerly moved in a system of states altogether different from that to which the parent-state belonged.

Whatever brings it more near to contact with a powerful European nation, both exposes it to more formidable enemies, and entangles the Indian policy of this country with the nearer and more important principles of her western system. Circumstances have now rendered such an approach the most critical part of Indian politics. Thirty years ago the Mahrattas and Tippoo Sultaun were the most powerful of our immediate neighbours. The same station is now occupied by Caubul and Persia. Nor would this change be alarming, if the last of these powers were left to her own strength, and moved by no external force. But it cannot be doubted that an European nation, occupying Georgia with a disciplined army, and maintaining no contemptible marine on the Caspian, must have a most prevailing influence with the Court of Teheran. Russia, the most powerful empire of Christendom now occupies that commanding position; and the magnificent embassy of general Yermalow manifests no intention to neglect this advantage. (See p. 691.) Emboldened by their new alliance, and aware of the ancient hostility of Russia to Turkey, the Persians have made inroads into the Turkish territory, on every point of the frontier from Erivan to Bagdad. They even compelled the pacha of Kars (a government far within the Turkish frontier) to do homage to the king of Persia. Thus Turkey has been made to feel, that in a new war a new enemy is ready to be let loose against her on her eastern frontier.

PESINGAN', a town of Candahar: ninety miles south-east of Candahar.

PES'ME, a town of France, in the department of the upper Saône: ten miles south of Gray, and eight north-east of Auxonne. Lat. 47. 17. N. lon. 5. 39. E.

PES'NITZ (Upper), a river of Stiria, which rises near Schmierenberg, and runs into the Salm near Wipplerspach.

PES'NITZ (Lower), a river of Stiria, which rises near Schmierenberg, and runs into the Drave two miles west of Fridau.

PESO'LA, a lake of Naples, in Basilicata, at the foot of the Appenines.

PESOE'GA. See **POSEGA**.

PESQUE'RA, a town of Spain, in the province of Léon, near the Duero: twenty-eight miles south-east of Leon.

PESS'AC, a town of France, in the department of the Gironde, and chief place of a canton, in the district of Bourdeaux. The place contains 1336 inhabitants.

PESS'AN, a town of France, in the department of the Gers: three miles south-east of Auch.

PESS'ARY, *f.* See the article **PATHOLOGY**, p. 332, 3, of this volume.

PESS'ER, a mountain of the county of Tyrol.

PESS'INUS, a town of Phrygia, famous for a temple and a statue of the goddess Cybele, who was from thence called *Pessimuntia*.

PEST, *f.* [*peste*, Fr. *pestis*, Lat.] Plague; pestilence:

Let fierce Achilles

The god propitiate, and the *pest* assuage. *Pope.*

Any thing mischievous or destructive.—Wretches, the common poisoners of youth, equally desperate in their fortunes and their manners, and getting their very bread by the damnation of souls. So that, if any unexperienced young novice happens into the fatal neighbourhood of such *pests*, presently they are upon him, plying his full purse, and his empty pate, with addresses suitable to his vanity. *South's Sermons.*

Of all the virtues, justice is the best;
Valour without it is a common *pest*.

Waller.

The *Pest* a virgin's face and bosom bears,
High on her crown a rising snake appears,
Guards her black front, and hisses in her hairs. *Pope.*

PEST, or **PESTH**, a royal and free town of Hungary, on the east side of the Danube, opposite Buda. Here is held the supreme court of appeal: a large military hospital;

fix convents, and several churches. The town is surrounded with a wall and moat. In the year 1526, and again in the year 1541, it was taken by the Turks, who held it till 1602, when it was retaken by the Hungarians, and defended by them against a fresh attack of the Turks. But in the following year, being abandoned through fear, it fell once more into the hands of the Turks, who, in 1684, set fire to it, and marched to Buda. The Imperialists, upon this, indeed, took possession of the town, but abandoned it again, not returning till two years after, when it was reduced to a very poor condition, but was raised by the liberality of the emperor Leopold.

For farther particulars of these sieges, &c. we refer to the article **BUDA**, vol. iii. for Pest and Buda form almost one city, which is the capital of Hungary. They are separated by the Danube, here seen in all its majesty; over which is an easy communication by a bridge formed of forty-seven large boats, united by chains and covered with planks. The length of the bridge is nearly three hundred yards; and it is so constructed, that two or three boats, with their planks and railings, may at any time be removed; and every morning and evening, at stated hours, the vessels and the rafts of timber which navigate or float down the Danube, are permitted to pass. Buda, the seat of the Hungarian government, and the residence of the Palatine, contains 30,000 inhabitants. Pest, the *Tranfaccinum* of the Romans, occupies the left bank of the river. It is the seat of commerce, and contained 41,882 inhabitants in the year 1817. It is built upon a plain where it extends itself more and more every day, and is one of the very few towns upon the continent which seems to have suffered little during the late periods of disturbance. It may be divided into the Old and New Town, of which the latter has by far the most regularity in its structure. In many different parts of the town are seen large buildings, facing to the streets, entered by covered gateways, and known by the name of the nobleman to whom they belong, which is often inscribed above the chief entrance.

Four annual fairs are held here, each lasting a week. Dr. Bright was at Pest during the great spring-fair in 1814; and has explained to us the mode in which trade is conducted in Hungary. "The fair was held in a large open space within the town, where a great quantity of manufactured goods, of various kinds, were exposed to sale. Almost the whole of these, however, were brought from Vienna, for no country in Europe is perhaps less indebted to her own manufactures than Hungary. An extension of the market, where agricultural produce, the true riches of the country, was chiefly seen, occupied some streets in the suburbs. The Greeks, and a few Turkish merchants, had taken up their stations in different parts; and the whole presented a picture of that bartering traffic which marks the early stages of commercial intercourse. The manner in which the Hungarian peasant conducts himself in the sale of his produce is, when compared to that of the Slavonian, the German, and the Jew, with whom he is surrounded, remarkable and interesting. The Slavonian enlarges on the excellence and cheapness of his ware, with palpable and suspicious eagerness. The German dresses out his merchandise, turns it from one side to the other, and presents himself to the purchasers with a commanding self-sufficiency. The Jew swears with heart and soul that he will injure no man; and the Raitzer is stern, silent, and unaccommodating: but, on that account, his characteristic and fiery eye pleads with the greater eloquence. The Hungarian alone keeps himself perfectly passive in his dealings. He allows his goods to be inspected, answers shortly and directly to the question, and attempts not to impose either by words or artifice. You perceive by his embarrassment that he is unaccustomed to low arts: his good temper evidently counteracts the feeling of poverty, which is therefore borne with ease and content." Travels through Lower Hungary, by Rd. Bright, M. D. 4to. 1821,--

1821.—Pest is ninety miles south-east of Presburg, and 103 south-east of Vienna. Lat. 47. 28. N. lon. 19. 14. E.

PEST-HOUSE, *f.* An hospital for persons infected with the plague.—Which kind of reasoning is just as if a man should go into a *pest-house* to learn a remedy against the plague. *South.*

Are we from noisome damps of *pest-house* free?
And drink our souls the sweet ethereal air? *Thomson.*

PEST'DON, a town of Prussia, in Pomerelia: ten miles south of Marienburg.

To PES'TER, *v. a.* [*pester*, Fr. to inveigh against.] To disturb; to perplex; to harass; to turmoil.—We are *pestered* with mice and rats, and to this end the cat is very serviceable. *More against Atheism.*—A multitude of scribblers daily *pester* the world with their insufferable stuff. *Dryden.*

Who then shall blame
His *pester'd* senses to recoil and start,
When all that is within him does condemn
Itself for being there? *Shakespeare's Macbeth.*

He hath not fail'd to *pester* us with message,
Importing the surrender of those lands. *Shakespeare.*

To encumber; [*pesta*, Ital. a crowd or throng.]—Cloistered monks, which fill and *pester* every city. *Harmar's Tr. of Beza*, 1587.—The people crowding near within the *pester'd* room. *Dryden.*

The churches, and new calendere,
Pester'd with mongrel faints. *Bp. Hall's Sat.*

Confin'd and *pester'd* in this pifold here,
Men strive to keep a frail and feverish being. *Milton.*

PESTERER, *f.* One that pesters or disturbs.

PESTEROUS, *adj.* Encumbering; cumbersome.—In the statute against vagabonds, note the dislike the parliament had of gaoing them, as that which was chargeable, *pesterous*, and of no open example. *Bacon's Hen. VII.*

PESTI, a town of Naples, in Principato Citra, situated near the ruins of the ancient Pæstum or Possidonia, which was ruined by the Guiscards, and abandoned in the 11th century. Among the ruins are three temples, a theatre, an amphitheatre, a church, &c. twenty miles south-east of Salerno.

PESTIC'CIA, a town of Naples, in Basilicata: nine miles north of Turfi.

PESTIDUCT, *f.* [Lat. *pestis*, and *duco*, to lead.] That which conveys or brings contagion.—When I am but sick, and might infect, they [the friends of the diseased] have no remedy but their absence and my solitude. It is an excuse to them that are great, and pretend, and yet are loth to come; it is an inhibition to those who would truly come, because they may be made instruments and *pestiducts* to the infection of others, by their coming. *Donne's Devot.*

PESTIFEROUS, *adj.* [from the Lat. *pestis*, and *fero*, to bear, &c.] Destructive; mischievous.—Beware of the *pestiferous* see of Rome, that the make you not drunke with her pleasaunte wyne. *Abp. Cranmer's Answer to Bp. Gardiner.*

Such is thy audacious wickedness,
Thy leud, *pestiferous*, and dissentious, pranks,
The very infants prattle of thy pride. *Shakespeare.*

Pestilential; malignant; infectious.—It is easy to conceive how the steams of *pestiferous* bodies taint the air, while they are alive and hot. *Arbutnot.*

PESTILENCE, *f.* [*pestilence*, old Fr. from *pestilentia*, Lat.] Plague; pest; contagious distemper.—The *pestilence* that walketh in darkness. *Psaln xci. 6.*—There shall be famines, and *pestilences*, and earthquakes, in divers places. *Matth. xxiv. 7.*

The red *pestilence* strike all trades in Rome,
And occupations perish. *Shakespeare.*

When my eyes beheld Olivia first,
Methought the purg'd the air of *pestilence*. *Shakespeare.*

PESTILENT, *adj.* Producing plagues; malignant.—Great ringing of bells in populous cities dissipated *pestilent* air, which may be from the concussion of the air, and not from the sound. *Bacon's Nat. Hist.*—To those people that dwell under or near the equator, a perpetual spring would be a most *pestilent* and insupportable summer. *Bentley.*—Mischievous; destructive: applied to things.—There is nothing more contagious and *pestilent* than some kinds of harmony; than some, nothing more strong and potent unto good. *Hooker.*

Which precedent, of *pestilent* import,
Against thee, Henry, had been brought. *Daniel.*

Mischievous; applied to persons.—We have found this man a *pestilent* fellow. *Acts xxiv. 5.*—In ludicrous language, it is used to exaggerate the meaning of another word:

One *pestilent* fine,
His beard no bigger though than thine,
Walk'd on before the rett. *Suckling.*

PESTILENT WORT. See TUSSILAGO.

PESTILENTIAL, *adj.* Paraking of the nature of pestilence; producing pestilence; infectious; contagious.—These, with the air passing into the lungs, infect the mass of blood, and lay the foundation of *pestilential* fevers. *Woodward.*

Fire, involv'd
In *pestilential* vapours, stench, and smoak. *Addison.*

Mischievous; destructive; pernicious.—If government depends upon religion, then this shows the *pestilential* design of those that attempt to disjoin the civil and ecclesiastical interests. *South.*

PESTILENTLY, *adv.* Mischievously; destructively.—In ludicrous language, so as to exaggerate the meaning of another word.—The pretence of making people sagacious, and *pestilently* witty! *Echard of the Cont. of the Clergy.*

PESTILLA'TION, *f.* [from *pestile*.] The act of pounding or breaking in a mortar.—The best diamonds are comminable, and so far from breaking hammers, that they submit unto *pestillation*, and resist not any ordinary pestle. *Brown's Vulg. Err.*

PESTIVIEN', a town of France, in the department of the North Coasts: nine miles south-south-west of Guingamp, and twelve north of Rostrenen.

PEST'LE, *f.* [*pestail*, old French; *pestillum*, Latin.] An instrument with which any thing is broken in a mortar.—What real alteration can the beating of the *pestle* make in any body, but the texture of it? *Locke.*—Upon our vegetable food the teeth and jaws act as the *pestle* and mortar. *Arbutnot on Aliments.*

PESTLE OF PORK, *f.* A gammon of bacon. A very old expression. Huloet and Barret give it. And the Exmore dialect yet calls a leg of pork by this name.—With shaving you shine like a *pestle of porke*. *Damon and Pythias.*

To PES'TLE, *v. n.* To use a pestle.—It will be a *pestling* device: it will pound all your enemy's practices to powder. *B. Jonson's Epicoene.*

PESTOV'SKOI, a town of Prussia, in the government of Viatka, on the Suran: forty-eight miles north-north-east of Slobodskoi.

PE'SU, or SI'U, a city of China, of the second rank, in Kiang-nan, on the river Hoang: 317 miles south of Peking. Lat. 34. 10. N. lon. 117. 0. E.

PE'SVER, a town of Persia, in the province of Irak: sixty miles west of Kermansha.

PE'SUMSCUT, a river in the province of Maine, which runs into Portland Bay.

PET, *f.* [of doubtful etymology; from *depit*, Fr. or *impetus*, Lat. or perhaps it may be derived some way from *petit*, as it implies only a little fume or fret. *Dr. Johnson.*—Serenius derives it from the Su. Goth. *pett*, an interjection expressing dislike or contempt. It may be from the Italian

Italian *petto*, the breast, Dr. Jamieson says; to be in a *pet*, thus signifying to retain something in one's breast. Huloet renders *pettish* into the Lat. *impetuofus*; thus seeming to countenance the proposed Lat. etymon, *impetus*. Todd.—Rather from the French *péter*, (*crepare*, Lat. whence *petard*;) to make a sudden and noisy burst. "To be in a *pet*" is to be on the point of bursting into a passion; *prêt à péter*, *prêt à crever*, as does a bladder when too much pressed. "*Tanquam vesica pepedi*, I bursted like a bladder." Horace.—Or it may be an abbreviation of *petulance*, which comes from *petere*, Lat. to attack; as, *corum petit*, "he attacks with the horn;" &c. *Etymological Gleanings*.] A slight passion; a slight fit of peevishness.—If we cannot obtain every vain thing we ask, our next business is to take *pet* at the refusal. *L'Esfrange*.—Life, given for noble purposes, must not be thrown up in a *pet*, nor whined away in love. Collier.

If all the world
Should in a *pet* of temperance feed on pulse,
Drink the clear stream, and nothing wear but frieze,
The All-giver would be unthanked, would be unprais'd.
Milton.

A lamb taken into the house, and brought up by hand; a cade-lamb: hence any creature that is fondled and indulged; [probably from the Fr. *petit*, little.] The other has transferred the amorous passions of her first years to the love of cronies, *pets*, and favourites, with which she is always surrounded. Tatler, No. 266.—Formerly spelt *peat*.—Deliro's wife and idol; a proud mincing *peat*, and as perverse as she is officious.

A citizen and his wife the other day
Both riding on one horse, upon the way
I overtook, the wench a pretty *peat*.
Donne.

To PET, *v. a.* To treat as a pet; to fondle; to indulge.

PET-EN-L'AIR, *f.* A fart-in-gale, or farthingale.—A hoop to spread the petticoats. One of our recent travellers says, that the reason why long trains belonging to the gowns of great men were carried up in state was "to let out offensive vapours."

PET DE RELIGIEUSE, or PET DE NONNE, a kind of puffed fritters, common in France. Previous to the batter being thrown into a deep pan of melted butter, the cook blows them with a tube like soap-bubbles; they are generally round, and empty; of a fine fawn-colour, and sprinkled with sugar.—No wonder that our finical gentry should be so loose in their principles, as well as weak in their bodies, when the solid substantial protestant mince-pie has given place among them to the Roman-catholic amulets, and to the light, puffy, heterodox, *pets de religieuses*. *Connoisseur*, N^o 48.

PETACCIA'TA, a town of Naples, in Abruzzo Citra: twenty-two miles south-east of Civita Borella.

PETAGLOS'SUM, *f.* in botany. See LYTHRA.

PETAG'UEL, a territory of South America, in Brasil, bounded on the north by Dele, on the east by the sea, on the south by the captainship of Rio-Grande, and on the west by Tupuya.

PETA'JA, a town of Sweden, in Tavastland: twenty-two miles north of Jamfio.

PET'AL, *f.* [*petalum*, Lat.].—*Petal* is a term in botany, signifying those fine coloured leaves that compose the flowers of all plants: whence plants are distinguished into monopetalous, whose flower is one continued leaf; tripetalous, pentapetalous, and polypetalous, when they consist of three, five, or many, leaves. Quincy.—Linnæus observes, that, when the nectary is a distinct organ from the petals, flowers so constructed are to be suspected as poisonous. Both together constitute the *corolla*.

PETALIONS, a cluster of small islands, in the Grecian Archipelago, near the south-west coast of the island of Negropont. Lat. 37. 59. N. lon. 24. 16. E.

PET'ALISM, *f.* [Gr. from *πεταλον*, a leaf.] A form or

sentence of banishment among the Syracusans, by writing the name of one whom they would be rid of in an olive-leaf.—I wonder why Mr. Harrington did not mention the *petalism* of Syracuse, as well as the ostracism of Athens, in imitation of which it was invented. *Ep. Wren's Monarchy asserted*, 1659.—The *petalism* at Syracuse was nearly the same thing as the ostracism at Athens; except that the latter was for ten years, the former only for five. Chambers.

This mode of banishment was introduced in Syracuse about the year before Christ 460, in order to prevent the tyranny of the richer citizens, who had often about that time aimed at the diadem. To bring down, therefore, the aspiring minds of the wealthy citizens, the Syracusans made a law not unlike that of the Athenian ostracism; for, as at Athens every citizen was to write on a shell the name of the person whom they conceived to be the most likely, on account of his wealth and adherents, to aspire to the crown; so at Syracuse they were to write on a leaf the names of such as they apprehended powerful enough to usurp the sovereignty. When the leaves were counted, he who had the most suffrages against him was, without any further inquiry, banished for five years. This law was attended with many evil consequences; for those who were most capable of governing the commonwealth were driven out, and the administration of public affairs committed to the meanest of the people; nay, many of the chief citizens, who were able to render their country great service, fearing to fall under penalties of this law, withdrew from the city, and lived private in the country, not concerning themselves with public affairs: whence, all the employments being filled with men of no merit or experience, the republic was on the brink of ruin, and ready to fall into a state of anarchy and confusion. The law therefore of *petalism*, upon more mature deliberation, was repealed soon after it had been enacted.

PETALITE, *f.* A mineral recently discovered in the mine at Utoen in Sweden. Externally, it nearly resembles some varieties of quartz; but the cleavage is two-fold, parallel to the sides of a rhomboidal prism; two of the planes are splendid, and two dull. The planes meet at angles of 100° and 80°, forming a four-sided prism with a rhomboidal base. Its colour is white with a slight tint of pink; it scratches glass, but yields with difficulty to the knife. When exposed to the flame of a blow-pipe it remains for some time infusible, but by continual heat it exhibits a glazed surface, which, on examination with a lens, appears full of minute bubbles. When triturated, the powder has the whiteness of snow. It is partly soluble in highly-concentrated nitric acid, losing its colour, and changing to a dingy hue; the acid at the same time becomes clouded. The prussiated alkali threw down a green precipitate, and the solution assumed an amethystine colour, which afterwards changed to brown. The constituent parts of this mineral are stated to be,

Silex	80
Alumine	15
Manganese	3
And a new alkali	2

This alkali proves to be the oxyd of a new metal. The new alkali has been called Lithia and Lithion. It is readily obtained by fusing the mineral with potash, dissolving the whole in muriatic acid, evaporating to dryness, and digesting the alcohol. The exact quantity of Lithia in the Petalite is doubtful, but it cannot contain much more than 5 per cent. A more abundant source has however been found in the Triphane, or Spodumene, which according to M. Arfwedson, who also first pointed out in it the existence of lithia, contains 8 per cent. of the new alkali. The same chemist has likewise ascertained its existence in another mineral from Utoen, which is called crystallised lepidolite, in the proportion of 4 per cent.

The pure alkali is very soluble in water, has a very acrid caustic taste, like the other fixed alkalies, and acts powerfully on blue vegetable colours. When heated on platinum

platinum, it acts on it. It has a strong affinity for acids, and a very high neutralizing power, even surpassing that of magnesia. Placed in the voltaic circuit, Sir H. Davy showed that it was decomposed with the same phenomena as the other alkalis. A portion of its carbonate being fused in a platinum capsule, the platinum was rendered positive, and a negative wire brought to the upper surface. The alkali decomposed with bright scintillations, and the reduced metal, being separated, afterwards burnt. The small particles which remained a few moments before they were reconverted into alkali, and allowed a short examination, were of a white colour, and very similar to sodium. A globe of quicksilver made negative, and brought into contact with the alkaline salt, soon became an amalgam of lithium, and had gained the power of acting on water, and evolving hydrogen, an alkaline solution resulting.

The chloride of lithium obtained by evaporating the muriate to dryness, and fusing it, is a white semi-transparent body, analogous in its appearance to the chlorides of potash and soda, but very different from them in its general properties. It is extremely deliquescent, whereas they are not so: in this respect it almost equals muriate of lime. Its solution crystallizes with great difficulty, but by evaporation affords minute needle-form crystals. It is very soluble in alcohol; but the chlorides of potash and soda very little so. Its solution, or the moist salt, has the property of tinging the flame of alcohol of a fine red, somewhat like strontian, but the other alkaline muriates have not this power. It fuses below a red heat; and, when heated powerfully in the open air, it gradually loses chlorine, absorbs oxygen, and becomes strongly alkaline.

All its salts are very fusible, but in some cases a singular degree of infusibility belongs to them. The nitrate is a very soluble salt, deliquescent, and capable of crystallizing in rhomboids. It has a very aigre taste: heated, it readily fuses, and is then decomposed with the same phenomena as nitre.

The sulphate of lithia is a salt which crystallizes readily in small rectangular prisms; they are perfectly white, and possess much lustre; have a saline taste, very different from potash or soda; are more soluble in water than sulphate of potash; perhaps not so soluble as sulphate of soda: the crystals contain no water; they fuse and become very liquid below a red heat; their solution does not precipitate the muriate of platina, nor is it precipitated by tartaric acid. M. Vauquelin gives an experiment on its constitution, the result of which is as follows:

Sulphuric acid	69.18
Lithia	30.82
	100.00

The sub-carbonate of lithia is but little soluble in water, and effloresces in the air. It may even be precipitated from its sulphate by adding a strong solution of carbonate of potash to it. It is readily fusible; and, when fused, requires repeated additions of water with boiling to dissolve it again. Cold water dissolves about one one-hundredth part of its weight of this salt; and the solution acts powerfully on vegetable colours, and effloresces with acids. According to Vauquelin, it attracts carbonic acid very rapidly from the atmosphere. The carbonate, heated on platinum, acts on it almost as powerfully as the fixed alkaline nitrates. It separates ammonia from its combinations, but is decomposed by lime and barytes, and rendered caustic. The solution of the carbonate precipitates the muriate of lime, the sulphates of magnesia and alumina, and the salts of copper, silver, and iron, just as the other alkaline carbonates do; but it does not precipitate the muriate of platinum, as is the case with the sub-carbonate of potash.

With respect to the proportions of the elements of the

alkali, they do not appear exactly determined. M. Arfwedson states, that lithia contains 43.9 per cent. of oxygen; M. Vauquelin concludes that it contains 44.84 per cent. See Journal of Science, No 10. and London Med. Journal, vol. xl. p. 109 and 134.

PETALO'MA, *f.* [so named by Swartz; from the Gr. *πέταλον*, a petal, and *λομα*, a border; because the petals are inserted into the margin of the calyx, between its teeth.] In botany, a genus of the class decandria, order monogynia, natural order of calycanthemæ, *Limn.* (onagræ, *Juss.*) Generic characters—Calyx: perianthium superior, of one leaf, cup-shaped, permanent, with five acute, equal, slightly-spreading, teeth. Corolla: petals five, oblong, spreading; their claws inserted between the teeth of the calyx, deciduous. Stamina: filaments ten, inserted into the rim of the calyx, longer than the corolla; antheræ oblong, incumbent, opening by two pores at one end. Pistillum: germen inferior, ovate; style elongated, awl-shaped; stigma simple, acute. Pericarpium: berry globose, fleshy, crowned by the calyx, of one cell. Seeds from one to four, angular on one side, convex on the other.—*Essential Character.* Calyx pitcher-shaped, five-toothed; petals five, inserted between the teeth of the calyx; stamens inserted into its border; berry of one cell. It is separated from Myrtus, on account of the form of the calyx, and the insertion of the stamens. There are two species.

1. *Petaloma myrtilloides*, or silver-wood; (*Swartz. Prodr.* 73. *Ind. Occ.* 833. *Myrti-folio arbor, cortice argenteo, Sloane Jam. t. 187. f. 3.*) Stalks solitary, single-flowered; leaves nearly sessile, ovate, taper-pointed, oblique at the base. Native of Hispaniola and Jamaica, in low woods. Swartz describes it as a shrub, two or three feet high; Sloane says the trunk is twenty feet in height, straight and undivided. Both agree that the bark is spotted with white, whence arose the English name. The leaves are opposite, entire, thin, smooth, and inodorous, one and a half or two inches long. Flowers axillary, solitary, rarely opposite, on shortish stalks, white, smaller than a currant-blossom, but with long projecting stamens and style. Berry ovate, crowned with the calyx, black and shining when ripe, with seldom more than one seed. The aspect of the whole plant is like some species of myrtle; but it wants the strong taste and smell of that genus, and the structure of the flowers is totally different.

2. *Petaloma mouriri*, (*Sw. Ind. Occ.* 835. *Mouriri Guianensis, Aubl. Guian. t. 180.*) Stalks clustered; leaves stalked, broad-ovate, pointed; berries with four seeds. Native of woods in Guiana, near the river of Sinemari, where Aublet found it flowering in November, and bearing ripe fruit in January. The trunk of this tree is thirty or forty feet high, and eighteen inches in diameter, bearing at the top numerous branches, spreading in every direction. The bark is grey; the wood whitish, hard, and close-grained. Leaves longer, and much broader, than those of the foregoing, as well as of a firmer texture; paler underneath, but smooth and shining on both sides. Footstalks short and thick. Flower-stalks axillary, clustered, and somewhat umbellate, with small, opposite, acute bractes. Flowers yellow; berry yellow, minutely dotted with red, containing four seeds. Nothing is recorded of the qualities or use of this tree; but the inhabitants of the country where it grows name it *mouririchira*.

PETALOSTEMUM, *f.* in botany, so called by Michaux, from the Gr. *πέταλον*, a petal, and *σημαν*, a stamen; on account of the union of those two parts of the flower into a tube. See DALEA.

PET'ALOUS, or PETALLOID, *adj.* Having petals.

PETAMINARIUS, *f.* in antiquity, a name given to certain persons who performed extraordinary feats of activity; took perilous leaps, vaults, &c. The word is formed from the Gr. *πέταμαι*, I fly; but some authors write it *petiminarius*; and derive it from *petimen*, which,

according to Servius, signifies the bunch of a camel; alluding to the manner in which these operators bend the body in exhibiting postures.

PETAPA', a town of Mexico, in the province of Guatimala: twenty miles south-east of Guatimala.

PETAPOLLY, a town of Hindoostan, in the circar of Rajamundry: twenty-six miles north-east of Rajamundry.

PETAR', or PETARD, *f.* [*petard*, Fr. *petardo*, Ital.] A machine applied to gates or barriers to blow them up: they are also used in countermines to break through into the enemies galleries. See the article ARTILLERY, vol. ii. p. 233.

'Tis sport to have the engineer
Hoist with his own *petar*.

Shakespeare's Hamlet.

The conjugal *petard*, that tears
Down all portcullices of ears.

Hudibras.

PETARDIER, *f.* He who loads and fires the petard.

PETASITES, *f.* [Greek.] The BUTTER-BUR. It owes that name to its large round leaf, resembling a very broad hat or umbrella, *πελασος*. See TUSSILAGO; also CLERODENDRUM and GUNNERA.

PET'ASUS, *f.* [Greek.] Among the Romans, a covering for the head, not unlike our hats; it had a broad brim, and was used in journeys, to save the face from being sun-burnt. The *pileus* differed from the *petasus*, as having no brim.—The *petasus* is observed upon the head of ancient figures of Mercury; who wore it in the quality of the god of travellers and merchants. *Chambers.*

PETAT'LAN, a town of Mexico, in the province of Culiacan, on a river of the same name: 120 miles north-west of Culiacan. Lat. 25. 30. N. lon. 104. 34. W.

PETAT'LAN, a town of Mexico, in the province of Mechoacan: seventy miles south-east of Zacatula, 135 south-south-east of Mechoacan. Lat. 18. N. lon. 102. 6. W.

PETAT'LAN, a river of Mexico, which crosses the north part of the province of Culiacan, and runs into the Pacific Ocean in lat. 25. 30. N.

PETAU', an ancient town of Germany, in the circle of Austria, and in Stiria. It is a handsome place, and is seated on the river Drave, thirty-five miles north-east of Cilly, and 109 south of Vienna. Lat. 46. 40. N. lon. 15. 36. E.

PETAU', or PETA'VIUS (Denis, or Dionysius), a very learned Jesuit, was born at Orleans in 1583. He was remarkable, from childhood, for a singular propensity to letters; and is said to have composed verses with great facility at the commencement of his tenth year. As he grew up, he would pass whole days in study, to the neglect of all the usual amusements of his age. He entered into the society of Jesuits at the age of twenty-two, and taught rhetoric and theology at their college in Paris with extraordinary reputation. He was perfectly versed in the learned languages, and was well acquainted with the sciences; but his particular study was chronology, and it is upon his writings on that topic that his literary fame is chiefly founded. After he had made himself known by several learned publications, Philip IV. of Spain applied to the general of his order to send him to occupy a professorship in the imperial college of Madrid. Petau remonstrated that his state of health would not permit him to travel, nor to reside in so hot a climate; and his excuse was admitted. In fact, France was a much sifter residence for him than Spain, in which last country he could neither have written with any degree of freedom, nor have got his works printed. He afterwards refused a more tempting invitation to Rome, from Urban VIII. who had a design of raising him to the purple. Devoting himself entirely to letters, he continued to live in his cell in the college of Clermont, where he died in 1652, in his 70th year. He had been a great sufferer from the stone, so that he regarded death as a desirable release; and, when the physician, Guy Patin, informed him that his end was just at hand, Petau caused a copy of his Ratio-

narium Temporum to be brought, and presented it to him as a recompense for his good news.

Although of a warm temper, and subject to occasional sallies of passion, Petavius was much esteemed in the commerce of life, both as a man and an ecclesiastic. He was disputatious, and liable to exceed the bounds of moderation in his literary controversies; yet he retained many friends among the learned. One of these was the illustrious Grotius, though of a different communion: on the other hand, one of his warmest antagonists was Salmasius. The writings of Petavius are numerous and various. He appeared as a translator and critical editor in his Latin versions and editions of several pieces of St. Epiphanius, of Synesius, Themistius, the emperor Julian, and the historical abridgment of the patriarch Nicephorus. In these works he exhibits himself as an elegant and successful interpreter, though Spanheim finds him occasionally mistaking the sense of his author. He exercised himself in poetry both in the Greek and Latin languages, in the former of which he gave a Version of 'all the Psalms and Canticles. His verses are as good as could be expected from vast reading and a prodigious memory, without a poetical genius. His more important works are, 1. De Doctrina Temporum, 2 vols. fol. 1627; a very learned and profound system of chronology, of great use to writers and students of history. It is generally accompanied by his "Uranologia, in quo Græci Auctores varii de Sphæra ac Sideribus commentati sunt, &c." fol. 1630. 2. Rationarium Temporum, an abridgment of his Doctrina Temporum, with an abstract of general history: of the various editions of this useful work, the best is reckoned that of J. Conrad Rungius, 2 vols. 8vo. 1710. 3. Dogmata Theologica, 3 vols. fol. 1644—1650; a very elaborate system of dogmatical theology, much esteemed by Protestants as well as Catholics. The fairness of its statements, indeed, drew censure upon the author, as being too favourable to the Arians in his account of the opinions of the early centuries of the Christian church: the Sorbonne obliged him to counteract this effect in an orthodox preface, which however has only made him appear inconsistent with himself. In like manner, his representation of the opinions of St. Augustine having given offence to his brethren of the society, he was forced to retract, and adopt the Molinist sense of those doctrines. It is reported that he said to a friend, as a reason for this alteration, "I am too old to change my lodgings," intimating that he must otherwise have quitted the society: such was its tyranny in matter of opinion! The style of Petau, when writing upon these abstruse and thorny subjects, is much admired for its purity and clearness. His life is written at length by Father Oudin, in the "Mémoires du Niceron."

PETAWONTAKAS, an Indian nation of America, formerly in alliance with the Hurons.

PETAYANG', a small island in the Chinese Sea. Lat. 26. 2. N. lon. 119. 49. E.

PETCHELI', or PE-CHE-LEE, called also *Tcheli* or *Lipa-fou*, the principal province of China. It approaches to the form of a right-angled triangle; and is bounded on the north by the great wall and part of Tartary, on the east by the sea of Corea, on the south by the provinces of Chang-tong and Ho-nan, and towards the west by the mountains of Chan-si. It contains nine cities of the first class, with their respective jurisdictions, which comprehend a great number of other cities, less considerable, but all surrounded with walls and ditches. Cities of the first rank are distinguished by the appellation *fou*; those of the second rank by *tcheou*; and those of the third rank by *kien*. The capital of this province is Pekin, which see.

Petcheli is very much a level country, and has few mountains; and therefore it allows of the use of a singular kind of carriage, with one wheel, and constructed so that there is room in the middle for only one person, who

who sits as if he were on horseback; the driver pushes behind, and, by means of wooden levers, makes the carriage, which is a sort of chariot, advance with safety and expedition. The soil of this province is sandy, and produces very little rice; but all other kinds of grain are abundant, as well as most of the fruit-trees which we have in Europe. The rivers supply abundance of fish, and the mountains have mines of coal. The temperature does not seem to agree with its latitude; for, though it extends no farther than to 42° N. lat. yet all the rivers are frozen during four months in the year, from the middle of November to the middle of March, to such a degree, that horses and waggons, with the heaviest load, may safely pass over them. It is remarked, as a singular circumstance, that the whole body of ice is formed in one day, and that several days are requisite to thaw only the surface. The rainy season occurs towards the end of July, and the beginning of August: there is little rain at any other time, but the night-dew supplies the want of it. It is observed by Grosier, that the people of this province have not the same aptitude for acquiring literature and science as those who inhabit the southern provinces of the empire; but they are more robust and warlike, and better fitted for enduring the hardships and fatigues of war. The same observation applies to the Chinese of all the northern countries. This province is distinguished from all others, by being, as it were, the depot of the richest productions of the whole empire. According to the statement of Sir George Staunton, this province contains 38,000,000 of people. See CHINA.

PETCHORA, or PETSHORA, a river of Russia, called also *Bol'shaia*, or *Great Petchora*, by way of distinction from the *Vishera*, which the Siryanes call *Petshoyra*, takes its rise on the western side of the Ural mountains, in the government of Vologda, follows a north-west course, and falls into the Frozen Ocean in the government of Archangel, (lat. 67. 40. N. lon. 50. 34. E.) after dividing into several powerful arms. It now flows through a low, foresty, and almost uninhabited, country. At first, when Siberia was conquered, the way thither was generally by the Petchora: those who visited that country sailed up the Duina, the Vichegda, and the Vim, then went a short space by land to the Petchora, then up that river, and by land over the Ural mountains to the Sofva; hence into the Tavda, the Tobol, the Irtysh, the Oby, the Ket, and from the Ket into the Yenissey, &c.

PETE'CHLÆ, *f.* [derivation unknown.] Small purple, reddish, livid, or blackish, spots upon the skin, occasioned by the effusion of a minute portion of blood under the cuticle, or scarf-skin. When these spots are very minute, like small points, they are called *stigmata*; when they are large, and spread into broad irregular patches, like the effusions occasioned by a bruise, they are called *ecchymoses* and *ecchymonata*; and when they occur in stripes, like the effects of the strokes of a whip, they are denominated *vibices*.

Petechiæ occur under various circumstances; but are most frequently seen in severe fevers, of a dangerous and malignant character, especially in typhus, when it exists in gaols, hospitals, and the ill-ventilated habitations of the poor; they are occasionally seen intermixed with the pustules of small-pox, especially of the confluent kind, and with the worst species of scarlet fever. Whence they have generally been accounted indications of great danger, and have been considered as signs of the general putrefecency of the circulating fluids, and as demanding the exhibition of the most powerful stimulants and antiseptics, whenever they appear. On the contrary, however, petechiæ of the largest dimensions, and even extensive ecchymoses and vibices, together with actual hæmorrhages, are occasionally seen, unaccompanied by fever, and sometimes with but little derangement of the health. Whence authors have written of "Petechiæ sine febre" as a distinct disease, which has been also called PURPURA, and by Dr. Good PORPHYRA. See the article PATHOLOGY, p. 295.

PETE'CHIAL, *adj.*—*Petechial* fevers are those varieties of typhus, in which petechiæ occur in considerable numbers, constituting one of the most prominent features of the disease. *Chambers*.

PETELAN'GE, a town of France, in the department of the Moselle: nine miles south-west of Sarguemines, and thirteen north-east of Morhange.

PETELIA, or PETILIA. See STRONGOLI.

PETELMA, *f.* The procurator-general of the effects of the Janizaries. When any one dies under the protection of this body, he seals up their houses, to secure the tenth part of their effects; which is due to the Janizaries.

PETER (Saint), an eminent apostle of Christ, originally known by the name of *Simon*, was a native of Bethsaida, a town on the western shore of the Lake of Gennefareth, or the Sea of Galilee. He was brought up to the occupation of a fisherman, as was his brother Andrew, another apostle of Christ; and it seems probable that their father Jonas, or John, was of the same calling. Which was the elder of his sons, Andrew or Simon, is a point which antiquity does not enable us to determine with any certainty. They appear to have become disciples of John the Baptist, and by that means to have had their minds in some measure prepared for the reception of his doctrine, of whom John was only the fore-runner. In our article ANDREW, (vol. i.) we have seen, that he was probably the first disciple of Christ, in whom he believed as the expected Messiah, upon hearing John's allegorical declaration concerning him, that he was "the Lamb of God which taketh away the sin of the world." This joyful information he communicated to his brother, and introduced him to Jesus; who, foreseeing the fortitude which he would display in preaching his religion, gave him the surname of *Cephas*, or *Peter*, signifying "a stone, or rock," (the former in Syriac, the latter in Greek,) by which he was afterwards most commonly distinguished. From this time, Andrew and Peter frequently attended on Jesus, and heard his discourses, and were witnesses to the first miracles performed by him, which confirmed them in the persuasion that he was the Messiah. Yet they still occasionally continued their occupation of fishermen, till he called them to a more stated attendance; when they left their nets, and followed him, encouraged by his magnificent promise, that he would make them *fishers of men*, or qualify them to recover mankind from ignorance and error, folly and vice, and to form them to just sentiments of religion, and the practice of virtue. Afterwards, upon his choosing twelve of his disciples to be with him always, and to sustain the character of his apostles, the two brethren were selected to be of that number. About this time Peter, who was a married man, removed from Bethsaida to Capernaum, where his wife's relations seem to have lived; and he was accompanied by his brother Andrew, who took up his abode in the same house; on which account it is sometimes called in the evangelical history *Simon's house*, and sometimes *the house of Simon and Andrew*. With them also Jesus resided, when he left Nazareth and came to Capernaum, as we learn from different passages in the Gospels; and in this house the tribute-money for the use of the temple was levied upon him, which he directed Peter to discharge, after furnishing him with the means by an exertion of his miraculous power.

Peter, now appointed an apostle, showed on various occasions the strongest faith in Jesus as the Messiah, and the most extraordinary zeal in his service. On the evening of the day on which Jesus had performed the miracle of the five loaves and two fishes, he directed his disciples to enter a vessel, and to cross over to the other side of the sea, while he dismissed the multitudes who had been witnesses of that event. As they were on their passage, struggling against a contrary wind, in the fourth watch of the night, or near morning, Jesus came towards them, walking on the sea as on dry land. Alarmed at such

such a supernatural appearance, they imagined that they saw a spirit, and cried out for fear, till Jesus quieted their apprehensions by an assurance that it was himself who approached them. Upon this, Peter took courage, and said, *Lord if it be thou, bid me come unto thee on the water.* And he said, *Come.* Presuming on the strength of his faith, Peter immediately left the vessel, and walked on the sea to go to Jesus; but, finding the waves becoming boisterous, his courage failed, and, *beginning to sink, he cried, Lord, save me.* And immediately Jesus stretched forth his hand, and caught him, and mildly reprov'd him for doubting of his safety while acting under his orders. The circumstances of this adventure, at the same time that they must have operated as a salutary check on Peter's excessive confidence, and taught him the necessity of being upon his guard against future instances of weakness, could not but serve powerfully to confirm his faith in Jesus as the Messiah. Of this he gave proof on the following day, when many who had hitherto followed Jesus, and professed themselves his disciples, under the expectation that he would set up a worldly kingdom, were offended with his discourse in the synagogue of Capernaum, in which he spake of the spiritual design of his mission, and *went back, and walked no more with him.* After noticing their conduct, which showed them to be governed by secular and interested views, Jesus said to his twelve apostles, *Will ye also go away?* Without hesitation, and with the utmost zeal and fervour, Peter immediately replied in all their names, *Lord, to whom should we go? thou hast the words of eternal life. And we know and are sure, that thou art the Christ, the Son of the living God.* The same answer was given by Peter to our Lord some time afterwards, when he enquired of his disciples in private what opinion the people entertained of him; and, in the next place, whom they themselves thought him to be? When to the latter question Peter had replied as above, Jesus pronounced him *blessed* on account of his faith, which was founded on a rational persuasion, produced by an attention to the astonishing works which he wrought to confirm the divinity of his mission. He afterwards added, in allusion to the meaning of his name, that upon this *rock*, or confession which Peter had made, his church should be established, and prove ultimately triumphant over all opposition.

Our Lord's subsequent declarations, *And I will give unto thee the keys of the kingdom of heaven; and whatsoever thou shalt bind on earth shall be bound in heaven, &c.* have been differently understood by different interpreters. The former, in the opinion of many, was addressed by our Lord particularly to Peter, and contained a promise that he should have the honour of beginning to preach the Gospel, after his resurrection, to Jews and Gentiles, and of receiving them into the church. Others suppose, that, as Peter made his confession in the name of all the apostles, so Christ's declarations were intended for them all; and that the honours and powers granted to Peter by name, were conferred on them all equally. It is at least certain, that the power of *binding* and *loosing*, or of pronouncing what things were forbidden or allowed to Christ's disciples, was not conferred exclusively upon Peter, since it was afterwards declared by our Lord to be a privilege which belonged to all the apostles.

Peter, however, was honoured on several occasions with distinguished marks of his Master's confidence and regard. He was one of the three disciples whom our Lord permitted to be present at the raising of Jairus's daughter; and before whom he underwent his glorious transfiguration on the mountain. He was one of the four apostles to whom our Lord addressed himself, when he foretold the destruction of the Temple, and the calamities which should attend it. He was one of the three whom Jesus took with him apart from the other disciples, when he retired to pray in the garden on the night before he suffered. After the institution of his supper, when Christ warned

Peter of his danger, he also assured him, that he had prayed for him that his faith might not fail, but that, when his hour of trial should be past, he might recover his firmness of mind, and steadily persevere in avowing and defending his cause, notwithstanding the persecutions and sufferings which he should endure. When Peter replied that such was his resolution at present, and that he was ready to go with his Master both into prison and to death, Jesus assured him, without questioning the sincerity of his intention, that he should exhibit such a proof of human weakness, as, on that very day, before the crowing of the cock, to deny three several times that he even so much as knew him. Out of the fervour of his zeal, when the Jewish officers were about to apprehend his Master, *Peter, having a sword, drew it, and smote a servant of the high-priest, and cut off his right ear;* but Jesus checked his ardour, ordering him to sheath his sword, since he was determined to submit to his enemies without resistance, that the Scripture-prophecies relating to him might be fulfilled. *Then all the disciples forsook him, and fled,* though they had only a few hours before concurred with Peter in declaring their determination to adhere to him, even at the expense of their lives. Peter, however, and John, anxious to see what would become of Jesus, followed him at some distance to the high-priest's palace, into which they gained admittance. Here Peter, hoping to escape undiscovers, mixed with the servants and officers who were assembled round a fire in the hall; but he was soon challenged with being one of the followers of Jesus, when he forgot at once all his late professions, and denied that he ever had known him. Being charged with the same thing again, he a second time most pe-remptorily disowned his Master. At last, the charge having been brought against him the third time, he once more denied its truth, with oaths and imprecations. Immediately afterwards the cock crew; and Jesus directed an expressive look towards Peter, which pierced him to the heart, and excited in him the most pungent remorse on account of his weakness and defection. Unable, with these feelings, to stand any longer in the sight of his injured Master, he *went out, and wept bitterly.* By a repentance as sincere and humble as his crime was aggravated, he obtained the divine pardon of his offence, and ever afterwards showed the greatest zeal and courage in his Master's cause.

That Peter's repentance was genuine and accepted, may be concluded from the distinguished marks of favour with which he was soon honoured by Jesus. On the morning after our Lord's resurrection, when Mary Magdalene and other women came to his sepulchre, with spices which they had prepared for embalming him, they saw an angel, who informed them that he was risen from the dead, and directed them to carry the joyful tidings to the Apostles, and to *Peter* in particular. On the same day, Jesus showed himself to this apostle, before any of his brethren were honoured with the sight of him, though none of the circumstances of this appearance are anywhere related. At another appearance of Jesus to several of his disciples, which is described in the 21st chapter of St. John's Gospel, an interesting scene took place, in which Peter was particularly noticed. There our Lord renewed to him the apostolical commission, requiring him, as the best testimony of his attachment to his person and cause, to *feed his sheep* with fidelity and tenderness. He also gave Peter reason to hope, that in his future conduct he would prove an illustrious example of resolution and fortitude under the most formidable trials, and at length glorify God by his death, in the service to which he had been appointed. Afterwards Jesus met Peter, in company with the other apostles, several times at Jerusalem, where he discoursed with them concerning the affairs of his kingdom, and commanded them to remain till they had received the promised baptism of the Holy Spirit, or that communication of supernatural powers which should

fully

fully qualify them to be his witnesses, *both in Jerusalem, and in all Judea, and in Samaria, and unto the uttermost part of the earth.*

We now proceed to notice the principal circumstances in the history of St. Peter after our Lord's ascension. And we find that, in the meetings of the apostles, or the assemblies of the apostles and brethren in general, he filled the place of president. Not that by holding such an office in the apostolical college he possessed any dignity superior to that of his fellow-apostles, or was invested with any jurisdiction over them, or was endowed with any power or privilege not conferred upon the rest. It is justly observed by Dr. Macknight, that "all the apostles were equal in office and authority; as is plain from our Lord's declaration: *One is your Master, even Christ, and all ye are brethren.* The only distinction among the apostles was that which arose from personal talents and qualifications: a distinction which never fails to take place in every society. Because, if one distinguishes himself by his superior ability in the management of affairs, he will be respected in proportion to the idea which his fellows entertain of him. In this manner, and in no other, Peter, whose virtues and talents were singularly conspicuous, acquired a pre-eminence among the apostles: but it was only of the sort founded on personal esteem. And therefore, in their meetings to deliberate on any important affair, the brethren may have wished to hear him speak first; and he commonly did so; but that was all. In like manner, in their intercourse with their adversaries, Peter often spake in the name of such of the apostles and brethren as were present: which they willingly allowed, perhaps desired, as thinking him best qualified for the office."

Not many days after the ascension of Jesus, in an assembly of the apostles and other believers, Peter proposed that in the room of Judas another apostle should be chosen, from among those persons who had associated with them from the commencement of their Master's ministry, and were witnesses of what he said and did. To this proposal they all assented; and Matthias was accordingly elected by lot, and numbered with the eleven apostles. On the day of Pentecost following, the communication of miraculous powers which had been promised, was made to the apostles and their company, attended with extraordinary circumstances, an account of which was soon spread abroad, and attracted numerous crowds to the place where they were assembled. On this occasion, Peter addressed himself to the multitude, vindicating the miraculous effects of which they were witnesses against the exceptions of some individuals; and he then took the opportunity of preaching to them concerning the resurrection of Jesus, and his claim to the character of the Messiah, with so much force, that about three thousand persons were converted and baptized on the same day. Soon afterwards, Peter and John miraculously restored to the use of his limbs, a poor well-known beggar at the gate of the temple, who had been lame from his birth, and was forty years of age. The news of this event having drawn a crowd around them, Peter delivered to them an affecting discourse on the pretensions and treatment of Jesus; and so powerfully exhorted them to repentance and faith in him, that numbers were awakened and convinced. But, while he and his fellow-apostle were speaking to the people, the Jewish priests and rulers sent officers, who took them into custody, and imprisoned them till the following day. On the morrow, being brought before the Sanhedrim, and questioned by what power, or in whose name, they had cured the cripple, Peter undauntedly declared, that the man was healed in the name of Jesus Christ of Nazareth, whom they had lately crucified, but whom God had raised from the dead; thereby confirming the truth of his mission, and of the doctrine promulgated by them, that *there is none other name under Heaven given among men, whereby we must be saved.* Struck by the boldness of the apostles, the

members of the council deliberated for some time in private what steps to pursue; but, finding themselves utterly unable to contest the genuineness of a miracle which was so notorious, they contented themselves with laying an injunction on the prisoners to teach the people no more in the name of Jesus. To this command Peter and John replied, with a freedom which reflected honour on their cause, *Whether it be right in the sight of God, to hearken unto you more than unto God, judge ye: for we cannot but speak the things which we have seen and heard.* Upon this, after being repeatedly threatened with the severest punishments in case of their disobedience, the apostles were dismissed. Notwithstanding this discouragement of the Sanhedrim, the number of believers increased at Jerusalem, and soon amounted to about five thousand.

As many of the converts to Christianity were in low circumstances, some of their wealthy brethren, actuated by a noble spirit of generosity, sold their estates, and delivered the money which they received for them to the apostles, to be distributed among the believers in common, according to their necessities. Their conduct suggested to one of the professors of the Gospel, named Ananias, and his wife Sapphira, a scheme for enjoying the reputation arising from such a benevolent action, and for gratifying, at the same time, their covetous spirit. With this view, they sold a possession, and, after keeping back a part of the price, brought the rest to the apostles, declaring it to be the whole of what the sale had produced; and intimating, most probably, the hope that, as they gave up their all, they should for the future be taken care of among the rest of the brethren. But the fraudulent part which they acted was divinely disclosed to Peter, who was commissioned to expose the enormity of their crime in the severest language, and afterwards to pronounce the sentence of an instantaneous miraculous death upon each of them. These awful examples of the punishment of covetousness and hypocrisy were considered by many as unequivocal proofs of a divine interposition, and induced them to become converts to the religion which the apostles preached. Numerous profelytes were also made by the various miracles which Peter and his fellow-labourers performed, particularly in the cure of sick and insane persons, who were brought to them, not only from among the inhabitants of Jerusalem, but out of the cities and countries round about. In the mean time, the high-priest and council, enraged at the disregard shown to their menaces, and the perseverance of the apostles in preaching Christ, caused them all to be apprehended and thrown into the common prison. On the following day, a full sanhedrim having been convened, officers were sent to bring the prisoners before them; who soon returned with the intelligence that they were not to be found, though every precaution had been used to prevent their escape. Their deliverance was effected by supernatural agency, an angel having during the night opened the prison-doors, brought them forth, and directed them to repair in the morning to the Temple, and persevere in delivering their important commission to the people. While the members of the sanhedrim were pondering upon the report of their officers, word was brought to them that the apostles were in the Temple, teaching the people. They therefore ordered the officers to bring them into court, but without any violence, left the people, who were persuaded that their cause was approved of by heaven, should rise tumultuously in their defence. As soon as they made their appearance, the high-priest demanded how they dared to break the order which had been so recently given, that they should teach no longer in the name of Jesus. To whom Peter replied, in the name of them all, *We ought to obey God rather than men.* He then repeated their testimony to the resurrection and divine commission of Christ, and their resolution firmly to adhere to it. Enraged at their courageous behaviour and declaration, some of the council consulted

how they might put them all to death, upon a charge either of blasphemy or of sedition. But from this design they were dissuaded by Gamaliel, a learned Pharisee, of high reputation for wisdom and piety, who, after commanding that the apostles should be taken out for a little while, argued powerfully against adopting any intemperate resolutions respecting them, concluding in these memorable words: *Refrain from these men, and let them alone: for if this counsel, or this work, be of men, it will come to nought: but, if it be of God, ye cannot overthrow it; lest haply ye be found even to fight against God.* To his advice the assembly yielded; and, after ordering the apostles to be scourged, dismissed them, with threatenings of severe punishment if they should persist in propagating their notions concerning Jesus.

Upon the death of the proto-martyr Stephen, the church at Jerusalem was cruelly harassed by persecution, which caused the believers, in general, excepting the apostles, to be dispersed throughout the countries of Judea and Samaria. Among those who came to the last-mentioned place, was Philip the deacon, who preached Christ to the inhabitants of that city, and gained many converts to his religion. No sooner were the apostles informed of this state of things, than they deputed Peter and John to go to Samaria, that they might confirm the new believers in their profession, by communicating to them the extraordinary gifts of the spirit. While they were thus engaged, Peter severely reprov'd and expos'd the insincere profession of one Simon, commonly called the Magician, who had formerly gained a high reputation by practising the pretended arts of magic. Afterwards, having executed their commission, the two apostles returned to Jerusalem, preaching the Gospel by the way in many villages of the Samaritans. In the year of Christ 40, owing to some circumstances in the civil state of the Jews, the church began to enjoy a respite from persecution, which probably continued twelve months or more. This peaceful interval, as it may be supposed, was zealously improved by all the apostles in spreading the knowledge of the Gospel. Of Peter, in particular, it is said, that he pass'd through all parts of the country, and visited the Christian converts at Lydda, a considerable town not far from the coast of the Mediterranean Sea. Here, in the name of Jesus, he performed a wonderful miraculous cure on a person called Æneas, who had been confined to his bed by the palsy for eight years. By this miracle great numbers of the inhabitants of the place and the adjoining districts, who personally knew the subject of it, or had the opportunity of gaining unquestionable information concerning the particulars of his case, were convinced that he in whose name the cure was performed must be the promised Messiah, and immediately embraced his Gospel. A vast increase in the number of believers in these parts was speedily produced by another and more astonishing event which took place about the same time. At Joppa, a sea-port within a few miles from Lydda, resided a female disciple called Tabitha, who was a woman of an excellent character, and distinguished for her deeds of beneficence and charity to the poor. While Peter was at Lydda, this worthy person fell sick, and died; upon which event, the Christians in that town sent to Peter, requesting that he would come to them without delay, and impart to them consolation and advice in their great distress for the loss of such a kind and useful friend. With this request Peter complied; and, when he arrived at Tabitha's house, he was introduced into the apartment where she was laid out, in which were many widows lamenting the death of their benefactress, who showed him the coats and garments which she had made to distribute among the necessitous. But Peter, sending them all out of the room, and finding himself moved by a supernatural impulse, kneeled down and prayed; and then, turning towards the body, said, *Tabitha, arise.* And she opened her eyes; and, when she saw Peter, she sat up. He then took her by the hand, and presented her alive to

her assembled friends. A knowledge of this wonderful fact soon spread through Joppa, and caused so many to believe in Christ upon the credit of such a signal miracle, that Peter spent many days in that city, confirming them in the faith which they had received.

While Peter continued at Joppa, Cornelius, a centurion of the Italian cohort, stationed at Cæsarea, a worshipper of the true God, and a man of distinguished piety, though a Gentile, being directed in a vision to send for the apostle, in order to receive from him important instruction in matters of religion, dispatched two of his servants and a pious soldier, to request that Peter would accompany them to the place of his residence. A little before their arrival at Joppa, the apostle went to the top of the house to pray, about the time of noon, when he felt the cravings of hunger, and his dinner was preparing. While he was engaged in his devotions, he fell into a trance, or extasy, in which an instructive vision presented itself to him. He seem'd to see the Heavens open, and something resembling in form a great sheet suspended at the four corners descend to the earth, in which, were various wild and tame four-footed beasts, reptiles, and fowls. While these things were before him, he heard a voice calling upon him to kill such of them as he chose, and satisfy his hunger. As, however, he saw none among them but such as were forbidden by the ceremonial law, he said, *Not so, Lord; for I have never eaten any thing that is common or unclean.* And the voice spake unto him again the second time, *What God hath cleansed, that call not thou common.* To make the stronger impression upon him, the vision was represented three times successively. While Peter was pondering concerning what it might be intended to point out to him, he was informed, by divine suggestion, that the messengers from Cæsarea were enquiring for him, and directed to go with them to that city, as Cornelius's message was sent in obedience to a divine command. On the following morning, therefore, he set out with them, accompanied by certain believers from Joppa; and, when he came to the house of Cornelius, he found that the centurion had convened several of his relations and intimate friends, to be present at their interview. After premising, that it had been generally considered unlawful by the Jews to hold intimate intercourse and conversation with Gentiles, but that God had lately shown him that he was not to make such distinction, or to call *any man common or unclean*, Peter desired to be informed of the reason why Cornelius had sent for him. Upon this the centurion mentioned the circumstances of his vision, and declared that he and his friends were assembled with a serious disposition to listen to those important truths which the apostle was commissioned to unfold. When Cornelius had given this answer, Peter began his address to the persons present with a frank and liberal declaration, which was expressive of no little triumph over his prejudices as a Jew. *Of a truth I perceive,* said he, *that God is no respecter of persons; but in every nation, he that feareth him, and worketh righteousness, is accepted with him.* He then expatiated on the divine mission of Jesus Christ, the evidence which supported its truth, and the inestimable offer of remission of sins which was made in his name. While he was yet speaking, similar extraordinary circumstances with those which attended the communication of preternatural powers to the apostles and Jewish believers on the day of Pentecost at Jerusalem, showed that Cornelius and his company were invested with the same distinguished privileges; and, to the astonishment of the disciples who came from Joppa, convinced them that the uncircumcised Gentiles were to be partakers in the blessings of the Gospel. Immediately after this, Cornelius and his friends were baptized, and Peter, at their entreaty, remained several days with them, for the purpose of instructing them farther in the faith of which they had made profession. This memorable event, of opening the kingdom of heaven to the Gentiles, or of receiving them into the Christian church, the honour of which

which was conferred upon Peter, took place most probably in the year 41.

Upon Peter's return to Jerusalem, whither general intelligence of the transactions at Cæsarea had preceded him, some of the brethren warmly expostulated with him, for having been a guest, and freely joined in their meals, with men who were uncircumcised; but, after he had given them an account of the visions which were seen by himself and Cornelius, and of the extraordinary occurrences which took place while he was preaching, they were satisfied with what they heard, and glorified God for extending the boundaries of his kingdom, and granting *also to the Gentiles repentance unto life*. From this time, Peter appears to have continued his apostolic labours in Judea with great success, till the persecution of the church arose towards the end of the reign of Herod Agrippa. By that prince, James the brother of John, who with him and Peter had been honoured by Jesus with his peculiar intimacy, was ordered to be apprehended, and afterwards to be beheaded; and, as Herod saw that by causing that apostle to be put to death, he had gratified the Jews, whom he was particularly desirous of obliging, he proceeded to seize Peter also, during the feast of the passover, in the year 44. Having been taken into custody, the apostle was committed to prison, where sixteen soldiers were appointed to be guards over him, four of whom were by turns to watch him constantly by day and night, till the festival was ended, when the king intended that he should be publicly executed, as his Master had been before him, on the first day of unleavened bread. In the mean time, the church at Jerusalem engaged in earnest prayer to God, that he would spare for a longer period such a valuable life; and the event showed that their supplication was not in vain: for, during the night preceding the day fixed for his execution, while Peter was calmly sleeping between two soldiers, to each of whom he was fastened by a chain, an angel of God entered the prison, which was filled with a glorious light, and having awakened the apostle, his chains immediately fell off from his hands, while the soldiers were miraculously kept in profound sleep. The angel then directed Peter to follow him; and, having conducted the apostle undiscovered through the guards and gates, and a street of the city, he suddenly departed. As soon as Peter had satisfied himself that what had passed was a real and not visionary scene, he repaired to the house of Mary, the mother of Mark the evangelist, where many Christians were assembled, spending the night in prayer for his deliverance; and, after informing them of the wonderful interposition by which he had obtained his liberty, withdrew to some place of greater secrecy, where it is probable that he lived in retirement till the death of Herod, which happened before the end of the year. Some learned men are of opinion, that he now went to Antioch, or Rome; but, if that had been the case, St. Luke would probably have made some mention of it.

In the year 49 or 50, when the council assembled at Jerusalem, for the purpose of determining on the question, Whether it was necessary that the Christian converts from among the Gentiles should be circumcised, and commanded to observe the law of Moses? Peter was present, and declared on the side of liberty, giving it as his opinion, that the yoke of the law should not be laid upon the neck of the Gentile believers; and, to add weight to what he advanced on the subject, he reminded the assembly that he had been divinely appointed to preach the Gospel to Gentiles at Cæsarea; and that God, to whom all hearts are known, had declared his acceptance of them, by communicating to them supernatural gifts, though they were uncircumcised. Whence he drew the conclusion, that God had made it clearly manifest that they might be saved by faith in Jesus Christ, without submitting to the rituals of the law. In this conclusion, which was ably supported by James the son of Alphaeus, the council acquiesced, only enjoining some

easy restrictions, to avoid giving unnecessary offence to their circumcised brethren. While Paul was on this occasion at Jerusalem, James, Peter, and John, gave to Paul and Barnabas the right hands of fellowship, that they might proceed in preaching to the Gentiles; while they and the other apostles continued in Judea, to preach to those of the circumcision. Soon after the meeting of this council, and most probably in the year 50, Peter paid a short visit to Antioch, being desirous of witnessing the success of the Gospel by means of the apostolic labours of Paul and Barnabas in that city. This appears to have been his first excursion out of Judea into Gentile countries. Upon his first coming to Antioch, Peter had eaten and conversed freely with the Gentile converts who had not submitted to circumcision; but, on the arrival there from Judea of some Jewish believers, who were zealous for the observance of the Mosaic law, he withdrew from that freedom of converse, fearing lest his perseverance in it should give displeasure to the latter. In this proceeding, however, he acted contrary to his own judgment, and declared opinion. Paul, therefore, with a noble indignation, and becoming zeal for Christian liberty, withstood him to the face, because he was to be blamed; and so powerfully represented his conduct to be chargeable with dissimulation, as well as productive of the most injurious consequences, that Peter acquiesced in the justice of his reproof; nor is there any reason to think, that he ever afterwards betrayed any want of steadiness and consistency in his Christian profession.

After this journey to Antioch, we are no-where furnished with any very distinct account of St. Peter's travels. Eusebius informs us, that Origen, in the third tome of his Exposition on Genesis, wrote to this purpose; "Peter is supposed to have preached to the Jews of the dispersion in Pontus, Galatia, Bithynia, Cappadocia, and Asia; and, at length coming to Rome, was crucified with his head downwards, himself having desired it might be in that manner." Some learned men think, that in the latter part of his life he went into Chaldea, and there wrote his First Epistle, because the salutation of the church at *Babylon* is sent in it; and their opinion, though unsupported by the testimony of ancient writers, is not devoid of probability. The books of the New Testament, indeed, afford no light for determining where he was for several years after receiving the reproof of St. Paul already mentioned. The learned, therefore, have been obliged to content themselves with conjectures on this subject. Among their various hypotheses, not one appears to us to be upon the whole more reasonable, or less open to objections, than that of the able and dispassionate Lardner. "It appears to me not unlikely," says he, "that Peter returned in a short time to Judea from Antioch; and that he staid in Judea a good while before he went thence any more. And it seems to me, that, when he left Judea, he went again to Antioch, the chief city in Syria. Thence he might go into other parts of the continent, particularly Pontus, Galatia, Cappadocia, Asia, and Bithynia, which are expressly mentioned in the beginning of his First Epistle. In those countries he might stay a good while. It is very likely that he did so; and that he was well acquainted with the Christians there, to whom he afterwards wrote two Epistles. When he left those parts, I think he went to Rome: but not till after Paul had been in that city, and was gone from it. Several of St. Paul's Epistles furnish out a cogent argument of Peter's absence from Rome for a considerable space of time. St. Paul, in the last chapter of his Epistle to the Romans, written, as we suppose, in the beginning of the year 58, salutes many by name, without mentioning Peter; and the whole tenor of the Epistle makes it reasonable to think, that the Christians there had not yet had the benefit of that apostle's presence and instructions. During his two year's confinement at Rome, which ended, as we suppose, in the spring of the year 63, St. Paul wrote four or five Epistles; those to the Ephesians, the

Second Epistle to Timothy, to the Philippians, the Colossians, and Philemon; in none of which is any mention of Peter. Nor is any thing said or hinted whence it can be concluded that he had ever been there. I think, therefore, that Peter did not come to Rome before the year 63 or 64; and, as I suppose, he obtained the crown of martyrdom in the year 64 or 65. Consequently St. Peter could not reside very long at Rome before his death."

Jerome, in his book *De Vir. Illust.* cap. 1. says, that Peter was bishop of Rome during five-and-twenty years; but such a statement is totally irreconcilable with the history in the Acts of the Apostles. On the other hand, several learned men, particularly Scaliger, Salmasius, Frederic Spanheim, and others, have denied that Peter ever was at Rome at all. But their opinion is satisfactorily opposed by a great majority of critics, Protestants as well as Catholics. In Lardner, as referred to below, the reader may meet with a concentrated view of the evidence from antiquity, on which Peter's having been at Rome rests. Among the ancient writers, who testify to the same fact, we may enumerate Clement of Rome, in his Epistle to the Corinthians, written before the year of Christ 70, or, as some think, about the year 96; Ignatius, about 108; Dionysius, about 170; Irenæus, about 178; Clement of Alexandria, about 194; Tertullian, about 200; Caius, about 212; Origen, about 230; Cyprian, about 248; Lactantius, about 306; Eusebius, Athanasius, Ephrem the Syrian, about 370; Epiphanius, Jerome, Chrysostom, Sulpicius Severus, about 401; Prudentius, about 405; Orosius, about 416; Theodoret, about 423; Augustine, &c. &c. The "Preaching of Peter," or of Peter and Paul, quoted by several ancient writers, though not as a book of authority, composed about the middle of the second century, or sooner, makes mention of Peter's being at Rome.

In our life of St. PAUL (p. 400.) we have already shown it to be most probable, that he and St. Peter were both put to death at Rome, in the year 64 or 65. With respect to what is said in the passage cited from Eusebius, concerning Peter's desire that he might be crucified with his head downwards, as the circumstance is not noticed by some ancient writers who speak of his martyrdom, its accuracy has been questioned. There is no doubt but that, among the Romans, some were so crucified, to add to their pain and ignominy; and Lardner admits that Peter might be crucified in that manner, and that it might be owing to the malice of those who put him to death. He adds, however, "the saying that it was at his own desire may have been at first the oratorical flight of some man of more wit than judgment; but the thought was pleasing, and therefore has been followed by many." Marcellinus the Presbyter embalmed his relics, which were buried in the Vatican, near the Triumphal Way; and over his grave a small church was erected, which having been destroyed by the emperor Heliogabalus, the holy remains were removed to the Appian Way, two miles from Rome. About the year 250, Cornelius, the twentieth bishop of Rome, re-conveyed them to the Vatican; and Constantine the Great, the first Christian emperor, caused a stately church to be raised on the spot, which has since increased so much in splendour and magnificence, as justly to become the wonder and admiration of the world. The present fabric is indisputably the largest building that was ever erected; the stupendous Temple of Solomon, that of Herod at Jerusalem, and the great Pyramid of Egypt, excepted. His festival is celebrated with that of St. Paul, on the 29th of June. (See the article PAUL.) It is very remarkable, that, while the Roman Catholics consider Peter to have been the first bishop (or pope) of Rome, not one of the popes has assumed that name: on the contrary, some who had it originally have changed it upon gaining the popedom: the first instance which we recollect was in 884, when Pietro de Bocca Porca, or Hog's-snout, took the name of

Sergius the Second, thinking himself unworthy to bear the name of the great apostle and martyr.

The character of St. Peter may be sufficiently collected from the preceding narrative. In the canon of the New Testament are two Epistles bearing the name of St. Peter, the first of which has been universally acknowledged to be authentic and genuine, from the earliest Christian times, though some doubts were anciently entertained concerning the second. However, both these Epistles were generally received, in the fourth and following centuries, by all Christians excepting the Syrians. And, if we consult the Epistles themselves, and endeavour to form our judgment by internal evidence, we shall find strong grounds for believing that they must have been both written by the same author. For an ample discussion of this point, we refer our readers to what is said on the subject by Lardner and Michaelis. The First Epistle, as appears from the conclusion of it, was written at *Babylon*; the meaning of which word has been differently understood by commentators, some giving it a figurative and mystical interpretation, and others taking it in its literal and proper sense. By the majority of learned men, both among the ancients and moderns, it has been understood figuratively, and supposed to mean *Rome*; but others contend, we conceive with advantage over their opponents, that such a sense is forced and unnatural, and that the word should be taken literally, as intended either for *Babylon* on the Euphrates, or *Seleucia* on the Tigris, but most probably for the former city. The arguments on both sides of the question may be seen in Lardner and Michaelis. With respect to the date of this Epistle, likewise, the learned widely differ; some placing it under the year 54, others about 60, and others between 63 and 65. The Second Epistle of St. Peter was addressed to the same communities with the first, and written only a short time before his death; but whether before or after his arrival at Rome, is wholly uncertain. The design of these Epistles was to point out to the Christian converts the invaluable advantages which they enjoyed in common under the gospel-dispensation; to exhort them to patience under the sufferings which they endured from their persecutors, to avoid whatever might give offence to the magistrates or their fellow-citizens, and to cultivate the important duties of civil and social life, particularly brotherly love; and also to combat some false opinions which, at so early a period, had arisen among the professors of Christianity; particularly those of some teachers who were advocates for a loose system of morality, and denied the doctrines of a general judgment and the dissolution of the world. Besides these Epistles, several spurious writings were circulated in an early age of the church, under the name of St. Peter, of which the reader may meet with an account either in Mill's *Prolegomena*, or in *Cave's Hist. Lit.* vol. i. *Lardner's Suppl.* vol. iii. ch. xviii. *Marsh's Michaelis*, vol. vi. ch. xxvii. xxviii. *Sherlock's Diss. on Peter*.

PETER, a saint in the Roman martyrology, and one of the most illustrious prelates of his time, if not a native of Alexandria, was educated there, under the instructions of Theonas, the bishop of that see; and acquired a high character for his proficiency in sacred literature, his exemplary manners, and distinguished piety. On the death of Theonas, in the year 300, he was chosen his successor; and, according to Eusebius, "he obtained great honour during his episcopate, which lasted twelve years. He was a most excellent teacher of the Christian doctrine; an ornament to the episcopal character, both for holiness of life, and laborious application in studying and explaining the Scriptures. He governed the church three years before the persecution. The rest of his time he passed in a more strict and mortified course of life, but without neglecting the common good of the churches." By a comparison of Eusebius's language in the last sentence, with Sozomen's statement that he fled, or withdrew, in the time

time of the persecution which commenced under the emperor Dioclesian, it seems probable that during a considerable part of that distressing period he resided in some private place, unknown to the instruments of the persecution; where, however, the Christians had access to him, and received his advice and instructions. Whether he was at length discovered in this retreat, or was induced to quit it when the times were becoming more tolerant, we are not informed; but Eusebius tells us that, "without any crime of any kind laid to his charge, beyond all expectation, on a sudden, for no other reason but the will of Maximin, he was taken into custody, and beheaded." His martyrdom took place in the year 311. Of his quarrel with Meletius bishop of Lycopolis, which produced a long schism in the Egyptian church, we have given an account in the life of that prelate. He is the reputed author of "A Book on Penance," thirteen canons of which are inserted, in Greek and Latin, in the first vol. of the Collect. Concil. Some fragments also of another treatise attributed to him, "Concerning the Divinity," may be met with in the third and fourth vols. of the same collection. In Cave the reader will find farther particulars concerning his supposed productions. *Eusebii Hist. Eccl. lib. vii. viii. Cave's Hist. Lit. vol. i.*

PETER, surnamed CHRYSOLOGUS, a saint in the Roman calendar, and a celebrated Italian prelate in the fifth century, was of noble extraction, and born at Imola, anciently known by the name of Forum Cornelii. He was educated by Cornelius, bishop of his native city, who admitted him into holy orders, and appointed him to the office of his deacon, which he retained for many years. Without noticing the legendary tales which are related concerning him, we have only to state, that he was elected bishop of Ravenna in the year 433, and died before 451. His eloquence was greatly admired; whence he had the surname of *Chrysologus*, meaning Golden Speaker. What remain of his productions consist chiefly of Sermons or Homilies, containing short explanations of portions of the Scriptures, accompanied with moral reflections. They are drawn up in a perspicuous and pleasing style; and are distinguished by a happy union of conciseness and elegance. They were collected together two hundred and fifty years after his death, by Felix, one of his successors in the see of Ravenna; and were first printed, to the number of 176, at Cologne, in the year 1541. Afterwards they underwent repeated impressions at the same place, Antwerp, Paris, Lyons, Venice, and Bologna, and were inserted in the seventh vol. of the Bibl. Patr. Six others, on the Lord's Prayer, are given by d'Achery in his *Spicilegium*. There is also still extant "A Letter to Eutyches the Archimandrite," from our prelate, in which he declares against the sentiments of that monk, and expresses his approbation of the conduct of the patriarch Flavianus: it was first published in Greek and Latin, by Gerard Vossius, at the end of his edition of the Works of St. Gregory Thaumaturgus, printed at Mentz in 1603; and it may also be seen in the fourth vol. of the Collect. Concil. *Cave's Hist. Lit. vol. i.*

PETER of SICILY, so called from the island which gave him birth, was a man of noble descent, and of some learning, who flourished in the latter part of the ninth century. He was taken into the service of the emperor Basil, who, in the year 870, sent him into Armenia for the purpose of negotiating an exchange of prisoners. This business, which he performed to the satisfaction of the emperor, having occasioned him to spend nearly nine months at Tibrice, the capital of Armenia, he embraced several opportunities of holding conferences with the Paulicians, a branch of the Manichæans, who were numerous in that country, and undertook the task of drawing up, in Greek, "A History of the Rise, Progress, and Decline," of that sect. The work to which he gave this title was dedicated by him to an archbishop of Bulgaria. Part of it was translated into Latin by Father Sirmond,

and inserted by Baronius in his Annals. Afterwards the same father transmitted to Ingoldstadt a copy taken by himself from a manuscript of the original in the library at the Vatican, where a Latin version of the whole was completed by Matthew Rader, a Jesuit, who published it, together with the original, in 1604, in 4to. under the title of "Historia de Varia et Stolidâ Manichæorum Hæresi," &c. The work is certainly so far an object of curiosity, as it presents us with a view of the sentiments of the Paulicians at the time when the author lived; but, when it is appealed to as an authority for ascertaining what were the precise opinions of the ancient Manichæans, the lateness of its date may justly be excepted against, and its testimony refused as of no weight, when contradicted by much older evidence. It is remarkable that Photius and Peter, who were both writers in the ninth century, have agreed so exactly in what they have said concerning the Manichæans, that one is supposed to have been the copyist of the other; but which of them was the original writer on this subject, cannot, perhaps, now be determined. *Cave's Hist. Lit. vol. ii.*

PETER THE HERMIT, a celebrated person in the annals of fanaticism, was born in the 11th century at Amiens in Picardy, of a good family. He entered into the army, and served under the counts of Boulogne; but, having imbibed the holy zeal of the age, he quitted the world, and devoted himself to a life of religious solitude and austerity. About the year 1095 he made a devout pilgrimage to Jerusalem, then in the hands of the Turks, and was deeply impressed with the oppressions sustained by the Christian inhabitants, and the visitors of that memorable city. In the warmth of his emotions, he promised the Greek patriarch to use his endeavours to rouse the western nations to arms in his behalf; and, upon his return, he waited on the pope Urban II. (not Martin II. as erroneously printed in our account of the *CROISADES*, vol. v. p. 374.) with letters from that prelate. The appearance of Peter was mean, his stature small, his body meagre, his countenance shrivelled; but he had a keen lively eye, and a ready eloquence. The pope received him as one who had a call from heaven, and encouraged him to proceed in his design; and Peter immediately set out on his travels as a missionary through the provinces of Italy and France. He rode on an ass, his head and feet naked, and bearing a weighty crucifix; he prayed frequently, fed on bread and water, gave away in alms all that he received, and by his saintly demeanour and fervid address drew innumerable crowds of all ranks to listen to his preaching. When he painted the indignities offered to the true believers at the birth-place and sepulchre of their Saviour, every heart was melted to compassion and animated to revenge. His success in raising recruits for the holy war was such as might be expected from the rude enthusiasm and martial spirit of his age. Collecting above 60,000 persons, in which number both sexes were included, from the borders of France and Lorraine, he proceeded with them along the banks of the Rhine and Danube, whilst the crusaders of better rank and appointment waited to be led by Godfrey of Bouillon. Peter marched at the head of his motley band in the costume of a hermit, and covered with a long tunic of coarse wool. He placed his vanguard under the command of Walter the penniless, a poor but valiant soldier of his acquaintance. Their progress was marked by pillage and disorders of all kinds, and by the massacre of all the Jews who fell in their way. As they approached the confines of Hungary and Bulgaria, the fierce natives of those countries rose upon them, and cut them off in such numbers, that only a third part, with Peter himself, having taken refuge in the Thracian mountains, at length escaped to Constantinople. Almost all these were afterwards slain by the Turks in the plain of Nice, while Peter had prudently withdrawn from the camp, and remained in the Greek capital. He, however, accompanied the better-disciplined army of Godfrey, and was present

at the siege of Antioch in 1097. But his fanatical ardour seems now to have deserted him; for, during the hardships attending that enterprise, he attempted to make his escape. He was, however, brought back by Tancred, who obliged him to swear that he would never desert an expedition of which he was the first mover. He afterwards distinguished himself at the siege of Jerusalem, on which account he has obtained immortal renown from the muse of Tasso. After the capture of that city he was appointed by the patriarch, during his absence in Godfrey's army, to act as his vicar-general. Peter died at the abbey of Neu-Moutier near Huy, of which he was the founder. *Gibbon.*

PETER of Blois, a learned French ecclesiastic, and writer of some note, was born about 1120, in the city whence he derived his surname. Having been intrusted in the classics and polite learning at Paris, he went to the university of Bologna, where he acquired great reputation by the proficiency which he made in the study of civil and canon law, and the various branches of profane literature. He then returned to France, and devoted himself wholly to the study of divinity, under the instructions of the celebrated John of Salisbury, bishop of Chartres, of whose church it seems probable that he was made a canon. In the year 1167, he travelled into Sicily with Stephen, son of the count of Perche, cousin to the queen of that island, where he was appointed tutor, and afterwards secretary, to William II. king of Sicily. When, however, Stephen, who had been made chancellor of the kingdom, and archbishop of Palermo, was sent into banishment, Peter was involved in his fortune, and found it necessary to take refuge in his native country. Hence he was invited into England, by king Henry II. at whose court he continued some time, and was nominated archdeacon of Bath. He next entered into the service of Richard archbishop of Canterbury, who appointed him his chancellor, and deputed him to negotiate business of importance relating to his metropolitan see, with king Henry II. and the popes Alexander III. and Urban III.

After the death of Henry, he resided for a time at the court of queen Eleanor. Late in life he was deprived of his archdeaconry of Bath; though he was afterwards in some degree compensated for his loss, by obtaining that of London, the duties of which he discharged with the utmost fidelity, and no little labour, for a very inadequate revenue. He died in England in the year 1200. The word *transubstantiation* is said to have been first of all made use of by him, to express the doctrine of the Catholic church on the subject of the eucharist. The most considerable of his remains consist of "Letters," one hundred and eighty-three in number, which he formed into a collection by order of Henry II. and which will be found useful in illustrating the civil and ecclesiastical history, but more particularly the state of manners and church-discipline at the period when he wrote. There are also still extant several Sermons of this author, and various treatises which he wrote on doctrinal and moral topics. In the earliest editions of the works attributed to him, published at Mentz and at Paris in the 16th century, sermons by the subject of our next article were inserted, instead of the author's own. This error was corrected by Peter de Goussainville, who in 1667 published a new edition of all Peter of Blois's works, in folio, with notes and various readings; which is inserted in the 24th vol. of the *Bibl. Patr. Cave's Hist. Lit.* vol. ii.

PETER, surnamed *Comestor*, or the Eater, another eminent French ecclesiastic in the 12th century, was a native of Troyes in Champagne. Having embraced the clerical profession, he became canon, and afterwards dean, of the cathedral in that city. In this situation he acquired such celebrity, that he was invited to Paris, where he was appointed dean of the metropolitan church. Some time after this he resigned his benefices, renounced the world, and entered among the canons-regular of St. Victor at Paris, where he gave himself up wholly to study

and exercises of devotion. He died in the year 1198. He was a man of learning for the age in which he lived, and, what reflects credit on his memory, had the hardihood publicly to condemn some of the abuses and corruptions of the Romish church. This we learn from the testimony of Girald Barry, more generally known by the name of Giraldus Cambrensis, who was his disciple, and most probably imbibed from him the enmity which on all occasions he discovered against the monks. In a manuscript of that author preserved in the archiepiscopal library at Lambeth, he tells us that he heard Peter declare before his whole school, in which many persons of distinguished literature were present, that the old enemy, meaning the Devil, never insidiously devised a more injurious measure against the church of God, than the law which enjoined a vow of celibacy on the clergy. The following epitaph upon his tomb has been thought not unworthy of preservation, by different authors who have communicated notices of him to the public:

*Petrus eram, quem Petra tegit, dictusque Comestor.
Nunc comedor. Vivus docui, nec cesso docere
Mortuus; ut dicant, qui me vident incineratum.
"Quod sumus, iste fuit, erimus quandoque quod hic est."*

He was the author of "*Historiæ Ecclesiasticæ, Lib. xvi.*" containing a summary of sacred history, from the beginning of Genesis to the end of the Acts of the Apostles, intermixed with numerous passages from profane history, and some fabulous narrations. It was first published at Reutlingen, in 1473, and afterwards underwent repeated impressions at Strasburg, Basil, Lyons, and other places. Our author also wrote the "Sermons" which, as we have already seen, made their first public appearance among the works of Peter of Blois; and manuscripts of several others still remain in the libraries at Lambeth and Pembroke-hall, Cambridge. To his pen, likewise, has been attributed a work, entitled, "*Catena Temporum,*" &c. consisting of an indigested compilation of universal history, published at Lubeck in 1475, in 2 vols. folio; of which a French translation was printed at Paris, in 1488, in 2 vols. folio, under the title of, "*Mer des Histoires,*" &c. *Cave's Hist. Lit.* vol. ii.

PETER MAURICE, surnamed the *Venerable*, an eminent and worthy French abbot in the 12th century, was descended from the counts de Monboissier, a noble family of the province of Auvergne, and born in the year 1093. When very young he was dedicated by his parents to the religious life in the monastery of Cluni, the principal house of a reformed branch of the Benedictine order. Here he acquired so high a character for talents and virtue, that in 1121, when only twenty-eight years of age, he was made prior of Vezelay, and soon afterwards prior of Domnus. From this situation he speedily removed to a higher dignity, being elected to fill the vacant place of abbot of Cluni in the year 1123, and at the same time chosen general of his order. Immediately upon these promotions he applied with diligence to restore the state of discipline in the community at Cluni, and throughout the congregation in general, which under Pontius, one of his predecessors, had been suffered to become exceedingly relaxed; and, though he had many difficulties to encounter, he succeeded in his object without having recourse to excessive severity. Afterwards he met with much trouble from the above-mentioned Pontius, who had resigned the abbacy upon his undertaking a visit to the Holy Land; but, on his return from that expedition, and during the absence of Peter, endeavoured to obtain re-possession of the dignity which he had abdicated. Finding, however, that the monks opposed his design, with a band of soldiers he forcibly entered the monastery, suffered it to be pillaged, and dispersed the society. For this violent proceeding, he was excommunicated by the legate of pope Honorius II. who confirmed the sentence, and cited Pontius before his tribunal at Rome, where he died in the year 1126.

Having

Having been reinstated in his abbacy, and restored matters once more to order, Peter employed himself in writing against Peter de Bruys, a zealous reformer, who had many followers in Languedoc, Provence, and Gascony. It were to be wished, considering the general excellence of our abbot's character, that he had confined his efforts to argument and persuasion, and could be vindicated from the charge of having joined his clerical brethren in persecuting that unhappy martyr. See *PETROBRUSIANS*.

In the year 1130, pope Innocent II. paid a visit to Cluni, where he was entertained by Peter with great magnificence; and, in the year 1150, having occasion to take a journey to Rome, on business relating to his monastery, Peter was received there with the highest honours by pope Eugenius, and the Roman citizens. He died at Cluni in 1156, when he was about 63 years of age.

His temper was mild and amiable, his disposition benevolent and charitable, and he possessed a most compassionate heart. He acquired the surname of *Venerable* from the great seriousness and gravity of his demeanour. He procured the Koran to be translated out of the Arabic into Latin, and wrote a treatise in four books against the Mahometans. He was also the author of several other polemical pieces, against the Jews, Protestants, &c. and various miscellaneous writings, in prose and verse, which are enumerated in the works of Cave, Dupin, &c. Many of his "Letters," which have been collected together in six books, are curious and interesting, and serve to throw light on the civil as well as ecclesiastical history, manners, and discipline, of those times. His works were first published at Ingoldstadt, in 1546; and afterwards at Paris, with the notes of Duchesne and Marrier, in the year 1614. The edition last-mentioned has been inserted in the 2d vol. of the *Bibl. Patr.* Two of his Letters, not before edited, were printed by Father Mabillon, in the 2d vol. of his *Analec'ta*; and a third by d'Achery, in the 2d vol. of his "Spicileg." *Cave's Hist.* vol. ii.

PETER, surnamed *de CELES*, an eminent French prelate in the 12th century, was descended from an honourable family in Champagne. He pursued his studies at Paris, where he appears to have embraced the religious life in the monastery of St. Martin des Prez. About the year 1150, he was elected abbot of a monastery in the suburbs of Troyes, commonly called Montier-la-Celles, whence he had his surname. In the year 1162, he was translated from his preferment at Troyes to the abbey of St. Remy at Rheims. In this house he filled the post of abbot for about twenty years; and at length, in 1182, succeeded John of Salisbury in the bishopric of Chartres. After presiding over that see five years, he died in 1187, having distinguished himself as one of the most able of the Bible-doctors, or supporters of the ancient theology against the scholastics. His works, consisting of mystical and moral Treatises, Sermons, Letters, &c. were collected together by Father Ambrose Janvier, a Benedictine of the congregation of St. Maur, and published in 1671, 4to. Father Sirmond had before separately printed his Letters, with notes, in 1613, 8vo. to which should be added two others given in the 2d vol. of d'Achery's *Spicileg.* Most of the author's pieces may be seen in the 23d vol. of the *Bibl. Patr.* *Cave*, vol. ii.

PETER NOLASQUE, a Saint in the Roman calendar, and founder of the order for the redemption of captives, commonly called the Order of Mercy, is entitled to have his name recorded with honour, for the benevolence and humanity which prompted him to devise and establish that useful institution. He was of noble descent, and born in the Lauraguais in Languedoc, about the year 1189. Having lost his father when he was only fifteen years of age, he attached himself to Simon count de Montfort, who placed him in the service of James king of Arragon. By his talents and virtues he recommended himself to the favour of that prince; which circumstance proved of no little importance, when he afterwards un-

dertook the foundation of his order. The first design of it was suggested to him by a private society of gentlemen at Barcelona, who made a common purse for the purpose of redeeming Christian captives, and relieving the sick. Struck with the generosity of their undertaking, he meditated a plan for converting this private society into a religious and military order; and availed himself of the advice of Raymond de Pegnafort, canon of Barcelona, in completing it. He then laid his plan before the king, who sanctioned it with his approbation, and directed Berenger de la Pale, bishop of Barcelona, to give every necessary assistance in carrying it into execution. The order was established in the year 1123, under the title of "The Confraternity of Mercy;" and at first consisted of six priests and seven laymen, who, besides the three customary monastic vows, bound themselves by a fourth to devote their personal exertions to the task of redeeming captives from Mahometan slavery. Peter Nolasque was appointed the first superior-general; but this office did not exempt him from engaging in the common duties of the society. And by the statutes, he, as well as the other lay-members, were to partake with the clergy in all the divine offices enjoined by their rule. Peter is said to have been so successful in his two first expeditions into the kingdoms of Valentia and Grenada, as to redeem upwards of four hundred captives from their oppressive bondage. He afterwards passed over into Africa, where he met with much ill treatment, while employed in zealously pursuing the object of his benevolent mission. In the year 1249, he resigned the office of superior-general; and he died in 1256, when about 67 years of age. His order was approved by pope Gregory IX. in 1230, and the number of members rapidly increased, several houses being founded in France, and other countries; but its principal establishments have always been in Spain. Peter Nolasque was canonized by Urban VIII. in 1628; and such an honour might have been considered as an enviable mark of distinction, had it never been lavished on less deserving objects. *Morevi*.

PETER the *CISTERCIAN*, a monk in the 13th century, belonging to the house of that order in the valley of Cernay, within the diocese of Paris. He was selected to accompany his abbot Guy, who was one of the twelve dignitaries of that class whom pope Innocent III. ordered to join in the crusade against the Albigenes in Languedoc. Having been an eye-witness of the barbarous and sanguinary proceedings for the extirpation of those innocent reformers, he received the commands of the pontiff to write an history of that war, and of the sect against which it was directed. Such a work cannot but be curious, and interesting to the ecclesiastical historian; but he must not expect to find it in the detail of an impartial narrator, or imagine that it will furnish him with either a just delineation of the character of the Albigenes, or a faithful view of their distinguishing tenets. Indeed his Catholic critics acknowledge, that he is chargeable with the reproach of having exaggerated the irregularities of the heretics, while he refrained from doing justice to their virtues. This work was printed in Latin at Troyes, in 1615, 8vo. and is inserted in the *Bibliothèque de Cîteaux de D. Tissier*. A translation of it, from the Latin into French, was published at Paris by Arnaud Sorbin, in 1659, 8vo. *Gen. Biog.*

PETER the *CRUEL*. See the article *SPAIN*.

PETER, the name of three Emperors of *RUSSIA*. See that article.

PETER the *WILD BOY*. This extraordinary creature occasioned great speculation among the learned; but we do not know that any satisfactory causes have been assigned for the striking difference between him and other human beings. The following account of him is extracted from the parish-register of North-church, in the county of Hertford.

"Peter, commonly known by the name of *Peter the Wild*

Wild Boy, lies buried in this church-yard, opposite to the porch. In the year 1725 he was found in the woods near Hamelen, a fortified town in the electorate of Hanover, when his majesty George I. with his attendants, was hunting in the forest of Hertswold. He was supposed to be then about twelve years of age, and had subsisted in those woods upon the bark of trees, leaves, berries, &c. for some considerable length of time. How long he had continued in that wild state is altogether uncertain; but that he had been formerly under the care of some person, was evident from the remains of a shirt-collar about his neck at the time when he was found. As Hamelen was a town where criminals were confined to work upon the fortifications, it was then conjectured at Hanover that Peter might be the issue of one of those criminals, who had either wandered into the woods and could not find his way back again; or, being discovered to be an idiot, was inhumanly turned out by his parents, and left to perish or shift for himself. In the following year, 1726, he was brought over to England, by the order of queen Caroline, then princess of Wales, and put under the care of Dr. Arbuthnot, with proper masters to attend him. But, notwithstanding there appeared to be no natural defect in his organs of speech, after all the pains that had been taken with him, he could never be brought distinctly to articulate a single syllable, and proved totally incapable of receiving any instruction. He was afterwards intrusted to the care of Mrs. Titchbourn, one of the queen's bedchamber-women, with a handsome pension annexed to the charge. Mrs. Titchbourn usually spending a few weeks every summer at the house of Mr. James Fenn, a yeoman farmer at Axter's End, in this parish, Peter was left to the care of the said Mr. Fenn, who was allowed 35l. a-year for his support and maintenance. After the death of James Fenn, he was transferred to the care of his brother Thomas Fenn, at another farm-house in this parish, called Broadway, where he lived with the several successive tenants of that farm, and with the same provision allowed by government, to the time of his death, Feb. 22, 1785, when he was supposed to be about 72 years of age.

"Peter was well made, and of the middle size. His countenance had not the appearance of an idiot, nor was there any thing particular in his form, except that two of the fingers of his left hand were united by a web up to the middle joint. He had a natural ear for music, and was so delighted with it, that if he heard any musical instrument played upon, he would immediately dance and caper about till he was almost exhausted with fatigue; and, though he could never be taught the distinct utterance of any word, yet he could easily learn to hum a tune. All those idle tales which have been published to the world about his climbing up trees like a squirrel, running upon all-fours like a wild beast, &c. are entirely without foundation; for he was so exceedingly timid and gentle in his nature, that he would suffer himself to be governed by a child. There have been also many false stories propagated of his incontinence; but from the minutest inquiries among those who constantly lived with him, it does not appear that he ever discovered any natural passion for women, though he was subject to the other passions of human nature, such as anger, joy, &c. Upon the approach of bad weather he always appeared sullen and uneasy. At particular seasons of the year he showed a strange fondness for stealing away into the woods, where he would feed eagerly upon leaves, beech-mast, acorns, and the green bark of trees; which proves evidently that he had subsisted in that manner for a considerable length of time before he was first taken. His keeper therefore at such seasons generally kept a strict eye over him, and sometimes even confined him, because, if he ever rambled to any distance from his home, he could not find his way back again; and once in particular, having gone beyond his knowledge, he wandered as

far as Norfolk, where he was taken up, and, being carried before a magistrate, was committed to the house of correction in Norwich, and punished as a sturdy and obstinate vagrant, who would not (for indeed he could not) give any account of himself: but, Mr. Fenn having advertised him in the public papers, he was released from his confinement, and brought back to his usual place of abode.

"Notwithstanding the extraordinary and savage state in which Peter was first found greatly excited the attention and curiosity of the public; yet, after all that has been said of him, he was certainly nothing more than a common idiot without the appearance of one. But, as men of some eminence in the literary world have in their works published strange opinions and ill-founded conjectures about him, which may seem to stamp a credit upon what they have advanced; that posterity may not through their authority be hereafter misled upon the subject, this short and true account of Peter is recorded in the parish-register by one who constantly resided above thirty years in his neighbourhood, and had daily opportunities of seeing and observing him."

PE'TER (St.), a town of the duchy of Stiria: four miles south-east of Landsberg.—Also, a town of the same duchy: three miles west-north-west of Windisch Weiftritz.—Another town in the same duchy: six miles west of Cilley.—A town of Austria: twelve miles west-south-west of Freustadt.—An island on the river Rhine, strongly fortified, near Mentz.—A town on the south-west coast of the island of Cape Breton, in a bay to which it gives name, and which is a very commodious place for carrying on the fishery.—A small island in the West Indies, among those which form the cluster called Virgin Islands, dependent on Virgin Gorda.—A town of the island of Antigua.—A town of the island of Stronsa. Lat. 59. N. lon. 2. 31. W.

PE'TER'S (St.), a river on the coast of Labrador, about four leagues from the island of Belle-isle, in the straits of that name.—A river of Louisiana, being one of the north-western branches of the Mississippi river, which it joins in about lat. 45. 6. N. lon. 94. 22. W.

PE'TER'S (St.), a small island on the west coast of St. John's Island, near to, and north-by-west of, Governor's island, in the narrowest part of the strait between New Brunswick and St. John's island.

PE'TER'S BAN'K, a large fishing-ground off the south end of Newfoundland, extending from Cape Race to St. Peter's-island, opposite Placentia, St. Mary, and Trepassy, bays. It has on it from forty-five to thirty fathoms of water.

PE'TER'S BA'Y, a bay on the south coast of Cape Breton island.

PE'TER'S FO'RT, a fort in the island of Martinico, in the West Indies. Lat. 14. 44. N.

PE'TER'S HAR'BOUR, on the north coast of the island of St. John, in the gulf of St. Lawrence, about eight leagues west of East-point. Lat. 46. 25. N. lon. 62. 20. W.

PE'TER'S HAVEN, a harbour on the east coast of Labrador. Lat. 56. 31. N. lon. 60. 42. W.

PE'TER'S ISLAND, in the lake of Bienne, in Switzerland, remarkable for being one of the retreats of Rousseau; whence it has also got the name of *Rousseau's Island*. It lies towards the south side of the lake, and produces a great variety of shrubs and trees, particularly large oaks, beech, and Spanish chestnut. The southern shore slopes gradually to the lake, and is covered with herbage; the remaining borders are steep and rocky; their summits in a few places thinly covered with shrubs; in others their perpendicular sides are clothed to the water's edge with hanging woods. The views from the different parts of the island are beautiful and diversified; that to the north being the most extensive and pleasing. It commands the prospect of the lake, which is of an oval form; its cultivated borders, interspersed with villages and castles, with the towns of Nidau and Bienne standing upon the farther extremity. Agreeable walks are carried through

through the woods, and terminate in a circular pavilion placed in the centre of the island. On Sunday, and particularly the vintage-time, this island is resorted to by parties who amuse themselves with wandering about the woods or dancing in the circular pavilion. There is only one farm-house on the island, in an apartment of which Rousseau was lodged.

PETER'S LAKE, an expansion of the river St. Lawrence, into which are discharged from the south and east Sorel river from lake Champlain, the river St. Francis and some smaller rivers from the north-west. The Masquinonge, Omachis, &c. enter the lake. The centre of it is sixty-eight miles above Quebec, and 205 north-east of Kingston, at the mouth of lake Ontario.

PETER-MAN, *f.* [from *St. Peter*. It once meant] Any fisherman poaching in the Thames.—His skin is too thick to make parchment; 'twould make good boots for a *pete-man* to catch salmon in. *Esward Hoc.*

PETER-PENCE, *f.* An ancient levy, or tax, of a penny on each house throughout England, paid to the pope. It was called *Peter-pence*, because collected on the day of *St. Peter ad Vincula*; by the Saxons it was called *Rome-feoh*, *Rome-foot*, and *Rome pennyng*, because collected and sent to Rome: and lastly, it was called *hearth-money*, because every dwelling-house was liable to it, and every religious house, the abbey of St. Alban's alone excepted.

It was not intended as a tribute to the pope, but chiefly for the support of the English school or college at Rome; the popes, however, shared it with the college; and at length found means to appropriate it to themselves.

At first it was only an occasional contribution; but it became at last a standing-tax; being established by three laws of king Canute, Edward the Confessor, the Conqueror, &c. Edward III. first forbade the payment; but it soon after returned, and continued till the time of king Henry VIII. when Polydore Virgil resided here as the pope's receiver-general. It was abolished under that prince, and restored again under Philip and Mary; but was finally prohibited under queen Elizabeth. *Chambers's Cyclopædia.*

PETER'S POINT, a cape of England, on the coast of Lincolnshire: four miles south-east from the mouth of the Witham.

PETER LE PORT, or PORT St. PIERRE, a market-town in the south-east part of Guernsey, in the British Channel, consisting of only one long narrow street. The mouth of the harbour is well set with rocks, and is, on each side, defended by a castle; one called the Old Castle, and the other Castle Cornet. The governor of the island generally resides here, who has the command of the garrison in this and all the other castles. See GUERNSEY, vol. ix. p. 75.

PETER-SA-MEE'NE, *f.* A kind of Spanish wine.—A pottle of Greek wine, a pottle of *Peter-sa-meene*, a pottle of Charnico, and a pottle of Ziatticæ. *Deh. Hon. Whore.*

PETERBOROUGH, a city at the eastern extremity of the county of Northampton, bordering on the great fens of Lincolnshire, at the distance of 81 miles north by west from London. It is built on the north bank of the river Nen; and the country adjacent has been termed, from its fertility, the "Nile of England."

This spot was originally called *Medeshamstede*, and here was at least a village, if not a considerable town, early in the 6th century. Though not made a city till the reign of Henry VIII. yet at a very remote period this place was distinguished for its monastery, which was large in its establishments, and extensive in its jurisdiction. So closely is the interest which Peterborough possesses interwoven with the history of this conventual foundation, that in describing the one, it is requisite to enter into a short account of the other. The foundation of this abbey was laid by Peada, eldest son of Penda, king of the Mercians, in 655 or 656; but, dying in the fourth year of

his reign, it was completed, in 664, by Wolfere his brother, who succeeded him, assisted by Ethelred the remaining son, Kynefburga and Kynefwitha the two daughters, of Penda, and Saxulf, a pious and prudent earl, who was made the first abbot. It was dedicated to St. Peter at an assembly of nobles and bishops, and endowed with large immunities and possessions, which were confirmed by the charter of Wolfere in the 7th year of his reign. Pope Agatha ratified these endowments, and constituted it a vice-papal see, where persons might "pay their vows, be absolved from their sins, and receive the apostolical benediction." The monastery flourished for nearly two hundred years, under a succession of seven abbots, when the Danes, commanded by Hubba, in 870, after desolating the abbeys of Croyland and Thorney, almost annihilated Medeshamstede, plundered its dependencies, destroyed the library, and slaughtered the venerable abbot, Hedda, together with the friars and the country people, who were flying to its altars for protection: they were overtaken and murdered in a court of the monastery, called the Monks Churchyard, because they were all buried here; and to this day is to be seen the tombstone with their effigies, which had been erected over their common grave. Soon after this the Danes destroyed both the monastery and friars, so that it lay desolate for above 100 years, till Athelwold bishop of Winchester, in 970, assisted by king Edgar, and the archbishops Dunstan and Oswald, rebuilt it on an enlarged scale, and confirmed its former privileges and possessions. At this period the name of the town was changed to *Burgh*; and, from the splendour and privileges of the monastery, it was generally called *Gilden-burgh*; but, in reference to the saint to whom the dedication was made, this name was afterwards changed to *Peter-burgh*. Under several succeeding abbots the fortunes of the establishment were variously chequered; but nothing remarkable happened until the abbacy of Thoroldus, when the Danes, under Sweyn, destroyed the town, but were unsuccessful in their repeated attacks against the monastery. In the year 1116, it was consumed again, by an accidental conflagration, which left only the chapter-house, dormitory, and refectory, standing. By the same fire, the greater part of the town was likewise destroyed. In 1118, John de Salisbury, the reigning abbot, commenced a new church, which was finished under Martin de Vecchi in 1144. Under William de Waterville various architectural improvements and additions were made in the church, &c. Benedictus was abbot of Peterborough in 1177; and Gunton, in his History of Peterborough, says, "It seems the nave or body of the church did not please him; therefore he built it after a better manner from the lantern (the transept tower) to the porch, as now it is."

The style of architecture prevalent in this building is that denominated Norman, of which the circular arch and large column, with analogous mouldings, form the leading characteristics. It has been erroneously termed Saxon, although no part of the existing cathedral was erected antecedent to the year 1118, when the monastery was destroyed by fire. The plan, like that of most other cathedrals, consists of a nave with side-aisles, a transept, a choir terminating at the east end semicircularly, with a continuation of the side-aisles of the nave. The whole is finished at the east by what is called the new building, or St. Mary's Chapel. In the centre is a tower rising from four large arches, at the intersection of the nave, choir, and transept. The west front is formed by a recessed portico of three lofty arches, surmounted by pinnacles, and spires. In the centre arch is a small chapel. The dimensions of the cathedral, with its several parts, are—Length externally, including the buttresses, 471 feet; of the nave, from the west door to the entrance into the choir, 267; of the choir, 117; and from the altar of the choir to the east-window, 38; making in the whole, from the west door to the east window, 422 feet. Length of the transept, from north to south, 180 feet.

Height of the nave, from the floor to the ceiling, 81 feet; of the central tower, from the floor to the summit, 135; whilst its whole height externally is 150 feet. The breadth of the nave and aisles, from the north wall to the south, is 78 feet, and the breadth of the west front 156. The periods of erecting the various parts of the cathedral may be assigned thus: the choir, with its aisles, from the circular extremity at the east to the commencement of the transept on the west, was begun in the year 1118, and finished in 1144. Between the years 1155 and 1177, the transept was erected; and between 1177 and 1193, the nave, with the aisles, were completed to the termination of the pillars. A farther addition was made about 1288, when the space between the extreme western pillar and the door of entrance was finished, forming a projection on each side of the western extremity, and terminated by two towers. The Lady's Chapel, said to have been on the east side of the north transept, was built by William Parys, the prior, in the 14th century. At what period the west portico, with its three arches, was erected, is not precisely known, but we presume before the year 1274, as abbot Richard de London raised one of the western towers before that year. The new building, at the eastern extremity of the choir, was erected by Richard Ashton in the middle of the 15th century, and probably completed by abbot Kirton about 1518. This building formed the last addition made to the church before the dissolution of the monastery by Henry VIII. making a period of 400 years from the foundation of the present church to its final completion. On the south side were the cloisters, which are nearly destroyed. The annexed engraving of the West Front of the Cathedral is copied from the Gentleman's Magazine, accompanied with the following remark by the late Mr. Carter, who furnished the drawing. "The building (chapel, or song-school) raised within the centre arch (which arch is less in the opening than those on each side) is a later construction; probably of the 14th century, done, it is imagined, to act as a sustainment to some visible injury the arch itself might have undergone. The three grand arches, the receding walls, with their enrichments of door-ways, windows, groins, columns, pediments, compartments, niches, statues, ornaments, attending towers, pinnacles, and spires, constitute a gigantic and gorgeous west porch: the tower on the right restored according to Gunton. In the distance, centrally, is the transept tower, on which, to give an assimilating effect to the whole contour, I have introduced a spire. Whether the tower originally was so adorned, is not certain; but it is not beyond a reasonable supposition to conclude, that it once had such a glorious termination."

The abbots of the monastery were called to the house of peers in the time of Henry III. and were mitred in 1400. Queen Catharine, the first wife of Henry VIII. was interred here in 1535. In 1541 the monastery was converted into an episcopal see, and the conventual church into a cathedral. The government of it was entrusted to a bishop, a dean, and six prebendaries, whose jurisdiction extended over the city of Peterborough, and nearly the whole of the counties of Northampton and Rutland. In 1587, the funeral of the hapless Mary, queen of Scots, was here solemnized, unattended by splendour or ceremony: her remains were translated to Westminster in the reign of James I. 1612. During the rebellion of 1643, the cathedral experienced various acts of violence from the parliamentary forces; the stalls, organ, books, monuments, and every ornamental decoration, shared an equal destruction. After remaining eight years in a state of ruin and desolation, its damages were in some measure repaired, and the whole edifice restored for the performance of divine service.

On the left hand, as you enter the cathedral, stands the figure of Robert Scarlet, the sexton, who died at the age of 95, after he had buried all the housekeepers of

the town twice over. The following verses appear underneath:

You see old Scarlet's picture stand on high,
But at your feet there doth his body lie;
His grave-stone doth his age and death-time show,
His office by these tokens you may know.
Second to none for strength or sturdy limb,
A scare-babe, mighty voice, with visage grim.
He had inter'd two queens within this place,
And this town's householders in his life's space
Twice over; but at length his own turn came,
What he for others did, for him the same
Was done. No doubt his soul doth live for aye
In heav'n, though here his body's clad in clay.

The Close, to the west of the cathedral, is nearly surrounded by ancient monastic buildings, the south side of which presents several fine and interesting parts of ancient architecture. On this side is also the bishop's palace; north of the cathedral is the deanery, the entrance gateway to which was built by abbot Kirton, as the sculpture and arms plainly indicate.

There is but one parish-church besides the cathedral. It stands nearly in the centre of the city, is dedicated to St. John, and is said to have been originally erected about the year 1400, by abbot Genge, assisted by the citizens. The church is spacious, and contains several monumental slabs. Over the altar-table is a large picture, painted by sir Robert Ker Porter.

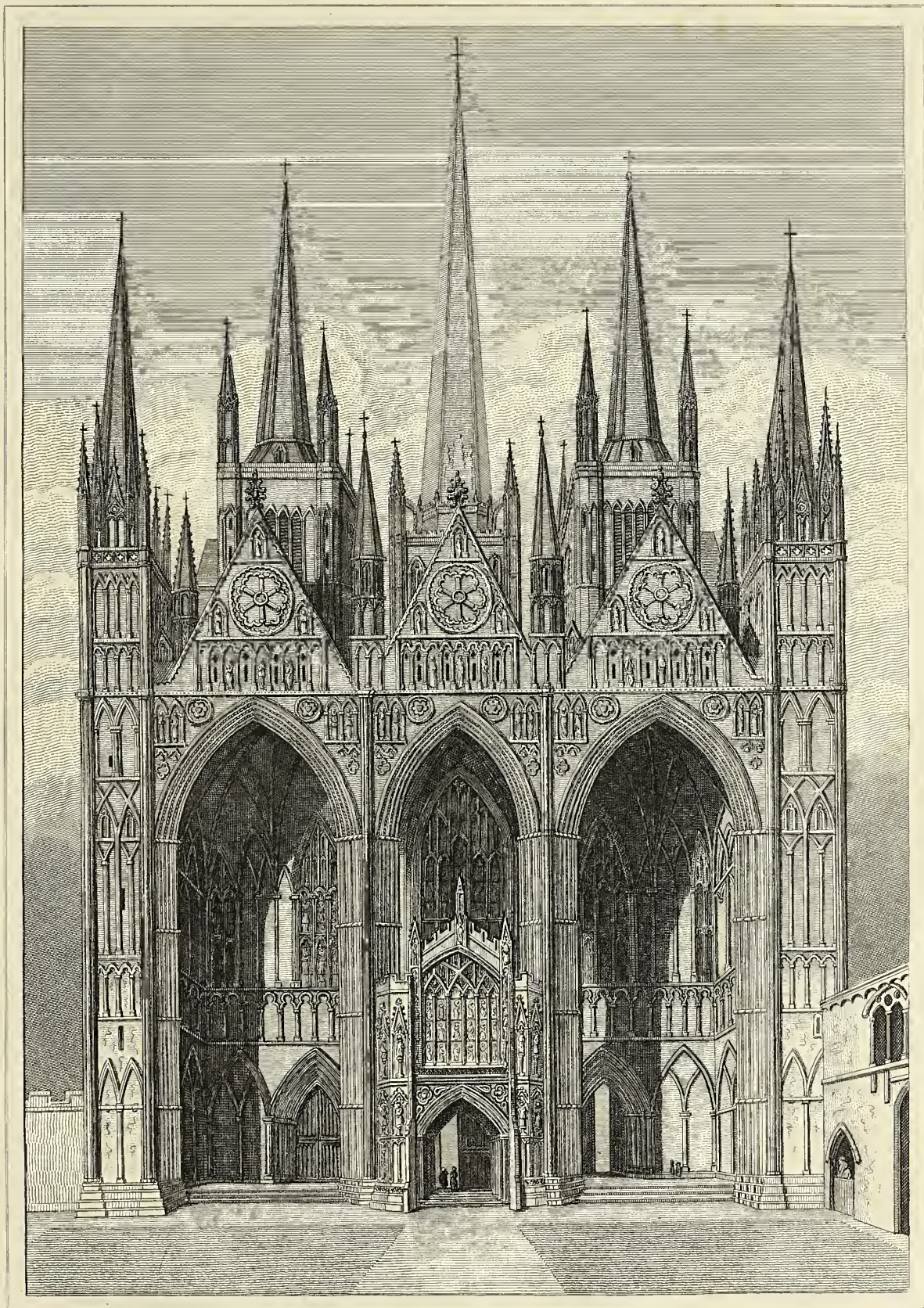
Peterborough is the only city in England without mayor and aldermen. The civil government of the city is vested in seven magistrates, and in the bailiffs to the lords of the manor. The jurisdiction of this place, commonly called the liberty or soak of Peterborough, is something particular, and extends over thirty-two towns and hamlets in the neighbourhood; in all which places the civil magistrates appointed by commission for the king for that purpose are invested with the same power as judges of assize, and accordingly hold in this city their quarterly sessions of the peace, oyer and terminer, and general gaol-delivery, and hear and determine all criminal cases, of what nature or kind soever within themselves.

It sends two members to parliament; the dean and chapter are lords of the manor, and appoint the returning-officer. The present members are sir R. Herne, bart. and Mr. Scarlett the barrister. This city is entirely independent in the exercise of its elective franchise. The inhabitants who pay scot and lot, and who are in number between four and five hundred, have all votes at elections for their members of the legislative assembly. This is reckoned the least city and poorest bishoprick in England. It first sent members to parliament anno 1547, 1 Edward VI.

The river Nen, which divides the counties of Northampton and Huntingdon, is navigable to Northampton, forty-two miles above Peterborough, and below empties itself into the sea. It is a noble river, and barges of considerable burthen are navigated thereon: it abounds with pike, eels, perch, bream, &c. To this day it remains a doubt by whom the bridge over the river leading into Peterborough should be kept up and repaired. It appears from history, that abbot Godfrey, elected in 1299, built of his own free will the bridge leading into the city, in the fourth year of Edward II. There was an inquiry made concerning the said bridge, which being gone to decay, the question was, how or by whom it should be repaired. To determine this there was a jury impanelled, six out of Northamptonshire and six out of Huntingdonshire, who, upon examination, returned an ignominious in the following manner: "That there was none of right bound to repair or sustain the same." But, the king and queen coming to Peterborough, the said bridge was repaired by abbot Adam for their passage into the city. The bridge has for many years been kept up by the

feoffees,

PETERBOROUGH.



J. Carter, del.

J. Chopman sculp.

West Front of Peterborough Cathedral.

Engraved for the Encyclopædia Londinensis, Aug. 1823.

feoffees, who, much to their credit, in the year 1790, undertook a thorough repair of the same. An act passed about the same time for the paving, lighting, and otherwise improving, the city.

Here is a plentiful market on Saturday, which is well stored with the best of meats, fish, and fowl, wild and tame, and at more reasonable prices than many neighbouring markets. Fruit is in general plentiful and cheap; as is firing, coals being seldom higher than 30s. a-chaldron. There are two chartered fairs; the first by king Richard, upon the feast of St. Peter, for eight days, but now contracted to two, on the 10th and 11th of July, which is noted for home-spun cloth, beast, horses, wood, haberdashery, and toys: the second fair, chartered by Henry VI. is called Brigg-fair, holden on the 2d and 3d of October: considerable sums are then turned in the articles of wood, cheese, cabinet-goods, haberdashery, upholstery, braziers, &c.

There is a charity-school in this city, founded by Thomas Deacon, esq. who endowed it with a freehold estate of a hundred and sixty pounds per annum. A very stately monument is erected on the south-east of the altar in the cathedral, sacred to the memory of that pious and benevolent man.

Mr. Wortley, who was formerly one of the representatives of this city, gave a very good house, with extensive grounds, as a workhouse for the poor. Their chief employ is spinning of wool, which is sent to Norwich and there manufactured. There being no manufacture in the city or neighbourhood, the number of idle and abandoned children was immense; but, since the excellent institution of Sunday-schools, the morals of the lower class of children are much mended.

By the census of 1801, Peterborough was stated to contain 727 houses, and 3449 inhabitants; in 1811, the numbers are given at 900 houses, and 3614 inhabitants; but the increase in the last ten years is very great indeed if our figures are correct, for the number of inhabitants in 1821 is noted as 8558; this perhaps includes some hamlets not numbered in the preceding returns.

Symon Gunton, author of the History of the Cathedral which we have quoted, was a native of this place, resided here the greatest part of his life, and died here in 1676.

At Helpstone, near this place, lives John Clare, called the Northamptonshire Peasant, who has published a volume of Poems. He was born July 13, 1793, of parents who are in a state of great poverty. He himself has partaken of their penury, and still continues a day-labourer, for low wages. By extra work, and helping his father early and late at threshing, he earned sufficient to procure for himself the benefit of being taught to read, and then procured a few books, among which he was peculiarly delighted with Thomson's Seasons. Through the assistance of a kind friend, he at length learned writing and arithmetic. His passion for poetry appeared very early, and flourished in spite of the discouragement of poverty and neglect. A singular accident led to the publication of the poems. In December 1818, Mr. Edward Drury, bookseller, of Stamford, met with a "Sonnet to the Setting Sun," written on a piece of paper in which a letter had been wrapped up, and signed J. C. Having ascertained the name and residence of the writer, he went to Helpstone, where he saw some other poems, with which he was much pleased. At his request Clare made a collection of the pieces he had written, and added some others to them. They were sent to London, and the publishers selected those which form the present volume. They have been printed with the usual corrections only of orthography and grammar, in such instances as allowed of its being done without changing the words: the proofs were then revised by Clare, and a few alterations made at his desire.

In mentioning a peasant-poet, we immediately remember Burns: but Clare must not be ranked with him whose talents would bear a comparison with the noblest

intellects of modern times, and whose compositions, though perpetually enriched with illustrations from the beauties of nature, were filled with the deepest and truest sentiment, or lighted up with the most brilliant wit. Clare, moreover, possesses but a small share of the acquirements of Burns, whose mind was well stored with much useful knowledge.

The last notice of Clare informs us, that he was living with his parents, working for any one who would employ him, without any regular occupation. His father is a helpless cripple, and a pauper, receiving 5s. a-week from the parish of Helpstone. (Gent. Mag. Feb. 1820.)

Fotheringay-castle is situated on a branch of the Nen-famous for the imprisonment and decollation of the unfortunate Mary queen of Scots. It seems to have been very strong, and it had a high mount or keep, environed with a deep ditch; it is mostly demolished, and the materials carried off; some say it was destroyed by order of king James I. in revenge of his mother's sufferings. They pretend to show the ruins of the hall where that princess was beheaded. It was the seat of Edmund Langley duke of York, whose body was buried in the collegiate church here; a very neat building, founded by Edward duke of York, likewise interred here. The chancel, in which they were buried, was entirely demolished at the suppression; but these monuments were restored by queen Elizabeth. The church-windows are filled with handsome painted glass, saved by a sum of money in the civil war, and represent St. Denys, St. Guthlac, Archbishop Scrope, &c.

Earl Fitzwilliam has a seat at Milton, about three miles from Peterborough, on the right of the road to Stamford. About one mile from Milton is Thorp-house, once sir Robert Barnard's, but now the property of earl Fitzwilliam also. At this seat, in the year 1720, a Mosaic pavement was found. This was undoubtedly a villa of some Roman of distinction. In the garden are some fine antique marble statues, from the Arundel collection, which suffer more from the weather than from age. In the middle is a Livia of a Colossean proportion: in the four quarters, Diana, Amphion, an Orator, and a Gladiator: upon the terrace, an admirable Hercules killing the Hydra: over most of the doors of the house are placed busts of Bavianus, Caracalla, and others; and, in the court, are two equestrian figures in copper, Henry IV. of France, and Don John of Austria.

Castor, a village three miles from Peterborough, and one from the river Nen, is supposed, from the chequered pavements found there, together with the Roman copper coins and urns, to have been part of the ancient city called by the Romans *Durobrivæ*, and by the Saxons *Dornanchester*. The Roman highway, called Erming-street, goes from hence to Lincolnshire. Its church, which appears to have been consecrated in 1174, stands on a hill where the castle stood which was the residence of the Roman governor. Some Roman discoveries have recently been made at Castor, by Mr. Artis of Milton. The scene of his labours is an isosceles triangle, two sides being about two miles long, the third about a mile and half, and the church-yard of Castor the vertex. In the church-yard and adjoining hill he has satisfactorily traced fifty-six rooms in a villa which appears to have covered between five and six hundred feet square. In Mill-field, at the south-east angle of the triangle, is another villa, about 300 feet long by 230 feet wide, containing twenty-two rooms; and at the south-west angle is a third villa, about 300 feet square, with thirty-seven rooms. In the portions of the intermediate space which have been explored, tessellated pavements, foundations of small houses, and a variety of miscellaneous curiosities have been brought to light. Between the base of the line and the river, probably the suburbs of a city, several skeletons have been dug up. Mr. A. purposes publishing by subscription, in numbers, a series of plates illustrative of his discoveries, consisting of plans and sections of the build-

ings and hypocausts, tessellated pavements, pottery, paintings in fresco, sculptured stones, coins, &c. *Monthly Mag.* Aug. 1822. *Beauties of England and Wales*, vol. xi. *Wilkes's British Directory*, vol. iv. *Genl. Mag.* 1814, 1818, 1820. *Monthly Rev.* Mar. 1820. *Ganton's Hist. of the Church of Peterborough*, 1670.

PETERBOROUGH, a town of New Hampshire: twenty-two miles east of Chesterfield.

PETERDORF, a town of Germany, in the duchy of Stiria: four miles north-north-east of Muckrau.

PETEREL, or **PETREL**, *f.* A kind of sea bird. See **PROCELLARIA**.—The *petereles*, to which sailors have given the name of Mother Carey's chickens: *Hawkejworth's Voyages*.

PETERFFI, (Charles), an Hungarian Jesuit who flourished in the 18th century, was descended from a noble family, but concerning the time of his birth we have no information. He entered the society in the year 1715; and, when he had finished his course of academical studies, was appointed professor of the belles lettres in the seminary belonging to his order at Tyrnaw. From that office he was removed by his superiors, to fill the philosophical chair at Vienna. Afterwards he devoted himself entirely to the study of the history of his country; and in the year 1742 he presented the public with the fruits of his application, in a work entitled, "Sacra Concilia in Regno Hungariæ celebrata, ab anno 1016 usque ad annum 1715," in folio, published at Vienna and Presburg. This collection comprises, besides the councils of Hungary, the ecclesiastical constitutions of the kings of Hungary, and of the legates of the papal see. It comes recommended to the reader by great beauty of style, as well as excellence of arrangement, and is accompanied by a variety of curious researches. It is also illustrated with engravings of the ancient monuments, &c. He died in the year 1746. *Gen. Biog.*

PETERHEAD, a market-town and sea-port in the county of Aberdeen, Scotland, is seated upon a peninsula projecting into the German Ocean, and connected with the main land by an isthmus about 800 yards in breadth. It is built in the form of a cross, and is divided into four wards. The town-house, placed at the head of the principal street, is a fine building of hewn stone, surmounted by a spire upwards of an hundred feet in height. Many of the private houses are also handsome in their exterior appearance. Peterhead is a borough of barony, under the superiority of the Merchants' Maiden Hospital; and is governed by a baillie and eight counsellors: the baillie is in the nomination of the superiors, and has his commission from them; but the counsellors are chosen by the feuars, at a general meeting called for that purpose. The revenue of the burgh, which is considerable, is expended in various improvements. The market day is Friday; and there are two annual fairs.

Peterhead occupies the most westerly point of Scotland; and is the nearest land to the northern continent of Europe. It lies within 300 miles of the cape which is called the Naze of Norway. Through this channel the grand body of the herrings pass in their annual migrations from Shetland and the North Seas to the more southern latitudes, attended with the all-devouring cod and ling; on which account Peterhead, or, as it is sometimes called, *Buchanefs*, hath always been the second station of the Dutch buffes after leaving the Shetland islands. Tradition says, that some hundred years ago the Dutch offered the Earl Marischal, then the proprietor of the coast, to cover a small island called Inch-Keith with silver for the purchase of it to carry on their fisheries; which for obvious reasons could not be accepted. Be that as it may, the Dutch, in time of peace, still frequent the coast in July and August, and sometimes a hundred sail are seen within sight of land, busily employed in the herring and white fisheries. The natives, to whom this treasure properly belongs, have lately made some attempts towards the white fishery, of which they cure and vend,

chiefly at the London market, 4000 barrels of delicate small cod and ling annually. They also fit out some vessels for the Hebride fishery off Barrahead for the Barcelona market; and they claim the merit of having taught the islanders how to take and cure the large fish which abound on their coasts. They have often gained the highest premiums allowed by government for curing white fish.

Few harbours in Great Britain are of more importance to navigation than this of Peterhead, as, in case of violent storms from the easterly points, large vessels embayed betwixt this and the mouth of the Forth have not a port that they can safely take at every time of the tide, that of Aberdeen excepted. If therefore they cannot make their way to sea in the teeth of a strong easterly wind, or double this headland that they may gain the Murray frith, they must inevitably come on-shore. This harbour lies on a spacious bay, where vessels of any burden may ride in all other winds; and is therefore the general rendezvous of the shipping which frequent the northern seas, where they cast anchor on clean ground, and ride safely till the storms have abated. But, though nature hath done so much for the benefit of navigation, something is left for the exercise of human aid. The harbour can at present contain in perfect safety forty or fifty sail of vessels drawing twelve feet water; but is capable of being extended so as to admit a greater number of ships drawing twenty feet; by which means not only casual merchantmen, but small ships of war with their convoys, would find this a most desirable refuge when pursued by superior force. The harbour is defended by a good battery. A mineral well in the summer-months gives great gaiety to the place; its salutary virtues have long, and we believe very justly, been celebrated. The waters of this spring are powerfully diuretic, and are thought to be efficacious in removing complaints in the bowels. Twelve pounds avoirdupois of this water were analyzed by Dr. Laing, who found it composed of

Muriate of iron, . . .	30'75 grains.
Carbonate of iron, . . .	3'25
Muriate of lime, . . .	7'00
Siliceous earth, . . .	2'00
Sulphate of lime, . . .	2'00
—————soda, . . .	13'25
Muriate of soda, . . .	7'5

Peterhead has long been a place of considerable trade; and has an extensive manufacture of thread, woollen cloth, and cotton, besides a large salt-work. Here is a respectable parochial school; also a school for writing and arithmetic, endowed by Dr. Anderson's trustees, with a salary of 20l. sterling. The town, with the lands in the vicinity, were formerly the property of the abbey of Deer, which was erected into a temporal lordship in 1589 in favour of Robert Keith, then commendator of Deer, by the title of Lord Altree. This peerage becoming extinct in 1593, the superiority of the town became the property of the Earl Marischal, by whom it was constituted a burgh of barony, under the name of Keith Inch. In 1715 it was sold to an English fishing-company, whose trustees transferred it to the present proprietors.

The parish of Peterhead, anciently called Peter Ugie, extends about four miles along the coast, and comprises nearly seven thousand acres of land, of which five thousand are arable, and the remainder consists of moor and moss ground. In this parish are the ruins of Old-Craig or Raven's-Craig castle. In 1793, the population was reckoned at 4100; and has been gradually increasing since. According to the first parliamentary returns, the number was 4491; in 1811, the returns were, 919 houses, and 4707 inhabitants; and by the last census, in 1821, the number of inhabitants is stated to be 4783. *Beauties of Scotland*, vol. iv.

PETERHOFF, in Russia, is situated about 20 miles from Petersburg, and is distinguished for its palace and gardens.

gardens. The palace was begun by Peter I. and finished by Elizabeth. As it is placed upon an eminence, it commands a most superb view of Cronstadt, Petersburg, the intervening gulf, and the opposite coast of Carelia. The palace is most magnificently furnished, and the suite of apartments are truly princely. The presence-chamber is richly ornamented with portraits of the sovereigns of the house of Romanof, who have reigned in Russia since 1613.

"The gardens of Peterhoff (says an intelligent traveller) have been celebrated for their taste and elegance; and from the number of jets-d'eau, fountains, basins, cascades, parterres; &c. they have been compared to those of Versailles: and indeed in one respect they are far superior; for the water-works of the latter only play upon particular occasions, while those of Peterhoff are perennial. These gardens, which at the time of their formation were greatly admired in this country, though not congenial to the present taste, are suffered to remain." A vast number of silver dolphins and gilded statues are scattered through them; but the most remarkable figures are those of two gladiators placed in a basin of water. These are represented, not with the sword and buckler, the ancient implements of war, but with a brace of pistols. These they point to each other in a threatening posture, while the water gushes impetuously from the barrels. In that part of the garden which lies between the palace and the gulf, close to the water, is a building which was the favourite retreat of Peter I. It is preserved, together with its furniture, entirely in its original state with a kind of religious veneration. Its plainness shows the frugal simplicity in which that monarch was accustomed to live. In the same celebrated gardens there is a remarkable building called the *mountain for sledges*, and often by travellers the *flying mountain*. "It stands (says Mr. Coxe) in the middle of an oblong area, inclosed by an open colonnade, with a flat roof, which is railed for the convenience of holding spectators. The circumference of this colonnade is at least half a mile. In the middle of the area stands the flying mountain, stretching nearly from one end to the other. It is a wooden building, supported upon pillars, representing an uneven surface of ground, or a mountain composed of three principal ascents, gradually diminishing in height, with an intermediate space to resemble valleys: from top to bottom is a floored way, in which three parallel grooves are formed. It is thus used: A small carriage containing one person, being placed in the centre groove upon the highest point, goes with great rapidity down one hill; the velocity which it acquires in its descent carries it up a second; and it continues to move in a similar manner until it arrives at the bottom of the area, where it rolls for a considerable way on the level surface, and stops before it attains the boundary: it is then placed in one of the side grooves, and drawn up by means of a cord fixed to a windlass. To a person unacquainted with the mechanism, this entertainment would appear tremendous; but, as the grooves always keep the carriage in its right direction, there is not the least danger of being overturned. At the top of the mountain is a handsome apartment for the accommodation of the court and principal nobility; there is also room for many thousand spectators within the colonnade and upon its roof. Near the flying mountain is a spacious amphitheatre, in which tournaments are usually exhibited." Coxe's Travels, vol. i. 1784.—These *Montagnes Russes*, as they are called, were introduced into Paris, as an amusement, a few years ago; and were exhibited at Sadler's Wells, London, in the present year 1823.

PETERKIN'GEN, a town of Swisserland, in the canton of Berne: nine miles north of Berne.

PETERS, a town of North America, in Franklin county, Pennsylvania; containing 1749 inhabitants.

PETERS (Rev. Charles, A.M.) Rector of St. Mabyn, in Cornwall, was one of the most elegant and vigorous polemic of the last century; but we are not acquainted

with the date of his birth or death. His "Critical Dissertation on the Book of Job" is the finest commentary in our language, whether it be considered with respect to verbal criticism, literary research, or evangelical illustration. In language it is elegant, and in learning profound: the argumentative part is unanswerable, and the wit is equally pleasant and good-natured. Bishop Warburton never had such an adversary as Mr. Peters, who completely succeeded in demolishing the ideal system advanced in the prelate's famous work on the Divine Legation of Moses. The bishop, however, affected to treat his acute antagonist with contempt, and in his usual coarse language designated him by the illiberal appellation of the Cornish Critic. Bishop Lowth, in his letter to the author of the Divine Legation, quotes the passage, and in a note subjoined observes thus: "The very learned and ingenious person of whom this decent language is used, is the Rev. Mr. Peters. I mention his name because the readers of the Divine Legation will hardly know it from thence, where he passes by the style and title of the Cornish Critic. What the true meaning and import of this title may be I cannot say: I suppose it may allude to some proverbial saying relating to Cornwall, perhaps like that of the Jews, equally false, concerning Galilee, that out of Cornwall ariseth no critic; but this is mere conjecture; I have never heard of any such proverb. I was thinking of explaining it by another common saying; but then the title would imply a commendation, and, what is worse, would have too great a propriety. Every one has heard of a *Cornish hug*; which, if a man has once felt it to the purpose, he will be fore of as long as he lives." Mr. Peters was also the author of a volume of admirable Sermons. *New Monthly Mag.* 1815.

PE'TERSBACH, a town of Bavaria, in the principality of Aichstatt: five miles north of Aichstatt.

PE'TERSBERG, a town of the duchy of Magdeburg: forty-eight miles south-south-east of Magdeburg.

PE'TERSBURG, or St. PETERSBURG, a city of Russia, and capital of the whole empire, situated on the river Neva. The beginning and increase of this great city were very extraordinary; for, till the year 1703, the only buildings on the spot where this flourishing metropolis now stands, were two small fishing-huts. But Peter the Great, having in that year taken the town Nyenschanze, seated on the river Neva, and made himself master of this country, its commodious situation for the Baltic trade determined him to build a town and fortrefs here. He immediately began to put his project in execution, calling the town by his own name. At first it was designed only for a place of arms, to which all kinds of military stores might be conveniently brought from the interior parts of the empire; so that, by that means, the war with Sweden might be carried on with more vigour and dispatch. At this time both the public edifices and private houses were built only with timber. The dock and the town had no other fortifications than a mean rampart of earth; nor were the streets paved. In short, if the czar had been then deprived of the place, the loss of it would not have been great. But the victory of Pultowa, and the conquest of Livonia, inspired Peter with hopes that he should be able to preserve his conquests, and to render Petersburg the capital of his empire. His fondness for maritime affairs, a desire for perpetuating his name, and his aversion to Moscow, where, in his younger years, he had received so much ill treatment, were the chief motives that induced him to lay the foundation of this new seat of empire; to which some add another inducement, namely, the pleasure of mortifying the Russians, who were so strongly attached to the city of Moscow. Upon this, Peter ordered the castle to be built with stone, the admiralty to be walled in with the same materials, and all the buildings to be erected in a handsome and more durable manner, and gardens to be laid out. In the year 1714, he removed the council to Petersburg; and handsome edifices were erected in a straight

line for the public offices, which, in 1718, were also translated hither. The principal families, likewise, were ordered to make this their residence, and build houses according to their abilities. But all this occasioned an irregularity in the buildings; for the situation of the town was not precisely laid out till the year 1721. The nobility and burghers had been directed to build their houses on the island of Peterburg; and not a few buildings, both public and private, were accordingly erected there. But afterwards, the emperor determined that the whole town should stand on the island of Wasili-Ostrow. The streets were marked out; canals were dug; the island was to be fortified with 57 bastions, and the nobility had their houses to begin a second time. Notwithstanding these changes, no metropolis in Europe can come in competition with Petersburg, with regard to regularity and embellishment. The diameter of the city, from east to west, from the Volkresenkoi monastery, is nine versts; and from south to north, from the town fosse across Kamennoi-ostrof to the Nevka, eight versts; the circumference, taking the Vyborg side by the right bank of the Neva, measures twenty-four versts, or somewhat more than twenty English miles. Of this space, however, much must be subtracted for the water; and the land is not yet completely built upon.

By the police ordinance of the year 1782, Petersburg is divided into ten precincts, each containing several quarters. The site of these primary divisions is generally determined by the natural boundaries formed by the river and its subordinate channels. The space between the left bank of the Neva and the river Moika is called the first Admiralty Quarter; between the Moika and the Katarina canal the second; and between the Katarina canal and the Fontanka, the third. The part lying beyond the Fontanka, along the Neva, is denominated the Styckhof; below the Styckhof, along the Fontanka, lies the Moskoffkoi; and along the Ligova canal, the Rojestvenskoi, to which the Yæmkoï quarter adjoins. Then follow the Vassilieofftroï, the Petersburgskoi, and the Vyborgskoi.

What the Quartier du Palais Royal is to Paris, the First Admiralty Quarter is to St. Petersburg; the heart of the city, in which luxury and opulence have established their seat, diffusing themselves around with increasing energy to the remotest borders of the town; the centre of amusement and business, the brilliant resort of pleasure and fashion. Within its circuit are between twenty and thirty structures of the first magnitude, of which the imperial *winter-palace* is the most conspicuous. The colossal dimensions of this edifice, being five hundred English feet in length, and three hundred and fifty in breadth, the magnificence which reigns within and around it, the treasures of costly works of art and curiosities of every kind that are here collected, render it the most striking object of the city. The exterior of this palace, which, including the Hermitage, occupies the space of a small town, is imposing by its huge and ponderous mass, though not remarkable for elegance of architecture. The style and the exuberance of decoration sufficiently betray the period when it came into being. The whole height, amounting to seventy feet, comprises only a basement-floor, with one grand story and an entresol. The situation of this palace is truly majestic. In front of it stands a magnificent crescent of lofty and superb edifices, forming a larger span than is to be seen in any other capital, and behind it flows the beautiful Neva within its granite banks. The left wing to which the Hermitage adjoins, has, by means of a projection, the prospect up the great Millione, one of the finest streets of the city; and on the right stands the admiralty.

The Hermitage is, strictly speaking, formed by three divisions of buildings fronting the river Neva, to the eastward of the winter-palace, from which you enter it through St. George's Hall. This hall, though not a part of the Hermitage, deserves a place in this sketch. A more splendid, or so large a saloon, there is not in Europe.

Its dimensions colossal; its materials variegated marble; a gallery for music and spectators on great occasions. The gallery has a rich balustrade, which, with the cornice, capitals, and base of the columns that support it, are of bronze. The throne magnificent, crimson velvet and gold; the chandeliers beyond description for size and lustre; the floor inlaid Mosaic of coloured stones and mother-of-pearl. At each end are *entre-jalles* for the court-officers, guards, and servants, in the same style. Through this hall, you enter the Hermitage, and find yourself in a long gallery, between which and a corresponding one on the other side is the summer-garden, built on vaulted arches, open to the sky, and having a loose wire net drawn over it, to prevent the escape of its winter inhabitants. The south end of the galleries leads to the apartments in the winter-palace; indeed, at one time, these apartments might be said to constitute the palace of prince Potemkin. The opposite or eastern gallery, when the empress Catharine grew old and feeble, was converted into a slope admirably constructed, going down to the apartments devoted to public-affairs, drawing-rooms, levees, &c. this reiterated slope allowing her, in her last years, to walk up and down without encountering any stairs, or to be wheeled up and down in a chair. A description of the slope may not be unacceptable to our readers, as many of the residences of the rich are large enough to adopt its comforts when ill-health or age may require them. Say its length was 100 feet, its breadth 20 feet: divide the breadth equally in three parts, the whole length, so that one-third of the floor forms a very easy descent, say of one inch in ten: then take the other third for the return; then again, if required; so that in four returns you get to the bottom, on inclined planes, not in the least abrupt. Indeed, in walking down or up, it was almost imperceptible.

It was in this vast palace, raised by the empress Elizabeth, though first inhabited by Catharine II. that the latter monarch displayed, through her long reign, that magnificence and liberality which made her court the admiration of foreigners, and obtained for her the just eulogiums of all literary travellers. It was here likewise that she ended her days on the 4th of November, 1796.

The summer-gardens likewise, or the principal public promenade, lie within the bounds of this Admiralty Quarter. By their original destination they belonged to the imperial *summer-palace*, a spacious wooden edifice, since demolished; but are now entirely devoted to the public. They are well laid out, and ornamented with fountains and statues. The balustrade by which they are entered, is a truly surprising work of art; it runs in a line with the houses on the bank of the Neva, and consists of thirty-six massy columns of granite, connected together by an iron palisade of exquisite workmanship, designed and executed by a Swede. The columns are two fathoms in height, and their diameter exceeds three feet, the shafts resting on granite pedestals of six cubic feet, and the pillars are decorated at top by a regular interchange of urns and vases. The huge masses of stone, the wonderful ingenuity displayed in the iron-work, the ornaments of which are highly gilt, the connexion of the whole with the superb edifices ranging at either extremity, and the view of the Neva with its noble granite quay, fill the beholder with astonishment and delight.

The winter-garden is about fifty feet square, in which there is a regular supply of exotic native plants and flowers, forming at the same time an aviary peopled with the most beautiful and rare birds, either for song or plumage, that are to be met with in the four quarters of the globe. Often would the empress amuse herself by feeding them, and then pursue her walk through the hermitage, which might, with great propriety, be denominated her exercise-house: indeed, its dimensions fully justify the title.

This quarter contains four public squares. In one of them stands the justly-famous monument of Peter the Great.

PETERSBURG.



Statue of Peter the Great.

Engraved for the Encyclopædia Londinensis 1823.

J. Pass 32

Great. This statue is truly a master-piece. It is of a colossal size, and is the work of Stephen Falconet, the celebrated French statuary, cast at the expense of Catharine II. in honour of her great predecessor. Falconet has succeeded in the resemblance to admiration; the features of the czar's countenance are admirably expressed. The artist represents the hero on horseback, as in the act of ascending a steep rock, the summit of which he proposes to attain. Peter is in an Asiatic dress, and crowned with laurels; he extends his right arm with graceful dignity, while with the left he holds the bridle of his horse, whose beauty of form, and elegant attitude, captivates the admiration of all spectators. The design is masterly, and the attitude is bold and spirited. If there be any defect in the figure, (says Mr. Coxe,) it consists in the flat position of the right hand; and for this reason the view of the left side is the most striking, where the whole appearance is graceful and animated. The fiery courser rises on his hinder feet, and is in the attitude of stretching to attain the summit of the rock. To combine solidity with excellence was therefore a difficult task; but this the ingenious artist found a way to accomplish. The brazen serpent, which is trampled on by the horse, is emblematical, doubtless, of opposition to the views of the monarch; but it artfully serves likewise to give the proper equipoise to the statue; the point of bearing being by this means not perceived, which is the full and flowing tail of the horse gently falling on the serpent writhing with pain.

The expense of this grand monument was truly imperial. When Falconet had conceived the design of his statue, the base of which was to be formed by a huge rock, he had to enquire where one could be found of magnitude correspondent to the dimensions of the equestrian figure. After considerable research, he discovered a stupendous mass half buried in the midst of a morass at Lachta in Finland. The expense and difficulty of transporting it were no obstacles to Catharine II. By her order the morass was drained, a road was cut through a forest, and carried over the marshy ground; and the stone, which, after it had been somewhat reduced, weighed at least 1500 tons, was removed to Peterburg. This more than Roman work was, in less than six months from the time of its first discovery, accomplished by a windlass, and by means of large friction-balls alternately placed and removed in grooves fixed on each side of the road. In this manner it was drawn, with forty men seated upon its top, about four miles to the banks of the Neva; there it was embarked in a vessel constructed on purpose to receive it, and thus conveyed about the same distance by water to the spot where it now stands. When landed at Peterburg, it was 42 feet long at the base, 36 at the top, 21 thick, and 17 high; a bulk greatly surpassing in weight the most boasted monuments of Roman grandeur. The pedestal, however, though still of prodigious magnitude, is at present far from retaining its original dimensions, as, in order to form a proper station for the statue, and to represent an ascent, the summit whereof the horse is endeavouring to attain, its bulk has been necessarily diminished. But the artist has been desirous to improve upon nature: and, in order to produce a resemblance of an abrupt broken precipice, has been too lavish of the chisel: the effect would have been far more sublime, if the stone had been left as much as possible in its rude state, a vast unwieldy stupendous mass. Be this as it may, the cost of placing it where it is, and as it is, was 70,000 rubles. Stephen Falconet, the statuary, received, during his nine years' stay, about 48,000 rubles; for his maintenance, 26,800 rubles; apart for the casting, 17,500 rubles; his three subordinate artificers, 27,284; the founder Chailof, 2500 rubles, besides incidental charges; the whole amounting, according to the report of the board of works, to 424,610 rubles, or near 70,000l. sterling. The statue is a bell-metal of copper, with a small mixture of tin and zinc, and weighed 44,041 Russian pounds. The figure of

the horse is seventeen feet in height; that of the king eleven; the head of the hero was modelled by Mad. Collet, who was afterwards married to Peter Falconet, son of the statuary. The whole was erected on the pedestal on the 27th of August, 1782. The ceremony was performed with great pomp, and was accompanied with a solemn inauguration. At the same time the empress issued a proclamation, in which, among other instances of her clemency, she pardons all criminals under sentence of death; all deserters who should return to their respective corps within a limited time; and releases all criminals condemned to hard labour, provided they had not been guilty of murder.

We have given an Engraving of this stupendous and beautiful monument, from a book published before the statue was fixed on its pedestal; and the defect noticed by Mr. Coxe, the flatness of the right hand, is very evident. This, however, is a very small drawback upon the general excellence of the work. The simplicity of the inscription (says Mr. Coxe) corresponds to the sublimity of the design, and is far preferable to a pompous detail of exalted virtues, which the voice of flattery applies to every sovereign without distinction. It is elegantly finished in brass characters, on one side in Russian, and on the opposite in Latin:

PETRU PERVOMU
EKATERINA VTORAIA.
LIETA 1782.

PETRO PRIMO
CATARINA SECUNDA.
MDCCLXXXII.

“Dedicated to Peter I. by Catharine II.”

In this quarter of the town, moreover, is the *marble palace*. This superb edifice, built originally by Catharine for the mansion of Gregory Orlof, at his death reverted to the empress, and during her life-time it remained uninhabited; but her son and successor Paul, having invited Stanislaus Poniatowky king of Poland to St. Peterburg, assigned him this palace for his residence; and here, by a singular turn of fortune, he terminated his troublesome and inglorious life.

The college of foreign affairs, the post-offices, the senate, and the loan-bank, are among the public structures; which, either from their magnificence or style of architecture, deserve to be reckoned remarkable objects in this quarter of the town; and the number of which is augmented by sixteen palaces of noblemen, and a multiplicity of other beautiful and spacious buildings.

A very important rank in the topography of the same district is also maintained by the Admiralty, with its lofty tower, from which it affords a view up the streets diverging from it as radii from their centre, and especially that called the Great Perspective, extending at least five miles in length. The body of the building is an oblong square, and, as is justly observed by M. Storch, remarkable for nothing so much as its ugly appearance. The side of the admiralty to the Neva occasionally presents the public with a magnificent spectacle; here being the wharf and dock-yard from whence ships of war of sixty to a hundred guns are built, and every launch is a great holiday.

The grand church dedicated to St. Isaac, which was intended by the empress Catharine II. to be the most sumptuous of all the city, was not completed in her reign. Like the marble palace, it is erected on a basement of granite, the superstructure, both within and without, being of marble, jasper, and porphyry. This church, which at the decease of Catharine had been building upwards of twenty-six years, was raised to the top of the walls, and a beginning had been made with the dome. Her successor, impatient to see the edifice completed, to the amazement of all who were not acquainted with his imperial taste, caused it to be finished of brick.

The square, contiguous to the summer-gardens, is remarkable for nothing except the ponderous monument erected to the memory of field-marshal Romanzof. Isaac
Place,

Place, on which the church of that name is built, is in the form of an obtuse triangle, and is enclosed by handsome houses. Peter's Place, in which the famous statue of that monarch stands, is the grandest of all, whether we consider it in itself, or in the prospect from it, composed of the noble river, the passing ships and boats, the thronged bridge, and the opposite shore of Vassily-ostrof, bordered by palaces, the imperial academies, and sumptuous houses. In this quarter of the town originate three straight, long, and elegant, streets, denominated Perspectives, because from their several points of view they afford a prospect of the admiralty's gilded spire. It proceeds in a direct line, one little curvature excepted, from the admiralty to the monastery of St. Alexander Neusky; and in breadth it may vie with the finest streets in Europe; being, according to the above-mentioned author, by one-half broader than Oxford-street, in London. Rents in this part of the town are considerably higher than in every other; and even the price of provisions and other necessaries is here much enhanced by the readiness wherewith the luxury of the inhabitants complies with the most exorbitant demands.

The principal public edifices of the Second Admiralty Quarter are the court-stables, the college of medicine, and the opera-house. This last is a spacious massy structure in a noble simplicity of style, in the construction of which, due regard was had to the several requisites of its destination. Within the purlieus of this quarter of the town stand two of the principal Greek churches. In that dedicated to God's Mother of Kazan, containing her portrait, which is held in the highest veneration, the solemn thanksgivings for the success of public affairs are usually celebrated, at which the sovereign is occasionally present in person. The church of Nicolai, or the Sailors' Church, consists of two stories, whereof the lower may be heated in winter. Its five cupolas are richly gilded.

The greatest curiosity of the Third Admiralty Quarter is the Bank, perhaps the most elegant building in all Petersburg. Of the churches in this quarter, only the Catholic and the Armenian are deserving of specification; both of them are rather conspicuous for the taste displayed in their structure, than for their grandeur and magnificence. The inhabitants of the two last-mentioned quarters belong chiefly to the trading classes.

Among the public buildings of the Styckhof, the Arsenal is the most remarkable. It forms an open quadrangle of three stories, is built in a grand style, and wears an aspect of dignity, correspondent to its design. Facing the Styckhof-road it has a magnificent portico, and the roof is ornamented with trophies and allegorical figures of excellent sculpture. Opposite the principal front, on the other side of the street, is a large square court filled with piles of cannon-balls and bombs. Remarkable of itself, and from the vicissitudes it has undergone, is the edifice that was formerly the Pantheon of prince Potemkin, which the empress Catharine II. afterwards purchased, and destined for her autumnal residence, denominating it the Tauridan Palace. At that time, this superb edifice consisted properly of only one floor; but the body of the building, having wings extending along the street, had over the grand portal, supported upon columns, two stories furnished with a large cupola. The left wing was greatly lengthened by the empress, by a series of additional erections, taking in one entire street, fitted up as dwellings for her retinue, orangeries, &c. She likewise changed the whole interior of the principal structure, and augmented it by the addition of a theatre. Above fifteen hundred labourers were employed in this work, which was even prosecuted during the night by the light of torches, as the empress had resolved to pass the ensuing autumn there. Dying a few years after its completion, this gorgeous palace was by her son and successor converted into barracks.

In this compartment are the Italian Gardens, the Tapestry-manufactory, the Foundry of Cannon, the Impe-

rial Brewery, and the Slobode of the Horse-Guards. Here are likewise the churches of St. Sergius and of the Preobajenskoi-guards, dedicated to the transfiguration of Christ, with the church of St. Pantaleon and Simeon on the Fontanka, and the subaltern Yæger church on the Ligova canal, which is the only one of timber. The Lutheran church of St. Anne, belonging to the Germans, stands here in the Third Artillery-street. The Styckhof contains likewise the palaces of the princes of Wurtemberg, and on the Fontanka that of prince Sheremetof, with its spacious court ornamented with statues and a pleasure-garden in the Dutch taste.

The Rojestvenskoi Quarter, though comparatively small and inconsiderable, yet contains the only monastery and the only convent within the city. The Volkresenkoi nunnery, or convent, was originally built and inhabited by the empress Elizabeth, while grand-duchess; and on her accession to the throne it was, in 1744, converted into a convent for twenty nuns. The building and walls inclose a large quadrangle, in the centre of which stands the church. Catharine II. suffered the nunnery to remain, but enlarged the structure, and founded in it a seminary for young ladies of noble families. The monastery of Alexander Neuski is built in the shape of a spread eagle, and contains in its ample bounds the palace of the metropolitan, the cells of sixty monks, five churches, a school, &c. The famous shrine of St. Alexander, composed entirely of wrought solid silver, occupies a considerable space in the elegant church, erected expressly for that purpose. Beneath the pavement is the vault constructed by Catharine II. for her relics, and those of her imperial successors.

Among the public edifices of the Moskoffkoi Quarter, is the imperial Yægerhof for the corps of chaffeurs. This spacious and noble edifice was just finished at the demise of Catharine II. and her son Paul converted it into barracks. The town-hospital is likewise situated here, and deserves notice from the grandeur of its architecture.

Vassili-ostrof is the seat of commerce and of literature. The Exchange and Academy of Sciences stand on this island. The Academy of Arts also here raises its majestic front on the shore of the Neva, over-against the Galherenhof. Ascending the river, the coast is lined with the spacious edifices of the land-cadet-corps; and the eastern promontory of the island is decorated with the three large structures which form the Academy of Sciences, at the extremity of which appears the superb Exchange. Among the numerous churches situate on the Vassili-ostrof, the Lutheran church of St. Catharine is principally conspicuous for the neatness and simplicity of its architecture, the portico of which is from the model of the Temple of Concord.

The Petersburg Quarter of the town consists of several islands; and, though it has no sumptuous edifices to boast of, yet contains the parent of all that exist in the imperial residence, namely, the original wooden palace or cottage of Peter the Great, over which is erected a brick building, on arches, to preserve it from the inclemencies of the weather, as a sacred relic of that creative genius. These islands are Petrofski-ostrof, which, besides a small wooden summer-house belonging to the grand duke Constantine, has nothing worth mentioning, and is partly covered with forest-trees. Of the same description is the Apothecary-island, which has its name from the garden upon it belonging to the medical college. Another petty island is occupied by the hemp-magazines, on which account, during the summer, a numerous fleet of barks and galleots are constantly collected about it. Kammenoi-ostrof, belonging to one of the imperial family, has upon it an elegant villa, a hospital for invalids, and a number of beautiful pleasure houses. The island Yelagin, so designated from the name of its proprietor, is highly embellished by art, and laid out in walks, parterres, and avenues, with plantations and shrubberies, so as to resemble the pleasure-grounds of an English nobleman.

nobleman. Krestoffski-ostrof, the largest of these islands, belongs to count Razumowski; and, though less transformed by art, is however, by reason of its delightful prospects arising from the noble vistas and walks, and the shores of the surrounding isles, very much frequented by the inhabitants of the city.

The last and greatest curiosity of this quarter is the citadel, which stands on the island in the Neva, four hundred fathoms long and half as much in breadth, near the Petersburg-isle, a little above Vassili-ostrof, and therefore nearly opposite to the marble palace. The date of its construction is memorable in the annals of the empire, as marking at the same time the era of this city. In the year 1703, while Peter the Great was causing an earthen rampart to be thrown up on this spot, little could he foresee that the hamlet, consisting entirely of a few fishermen's huts, would within the course of a century be garnished with marble temples and gorgeous palaces. Even his rampart of mud has met with a brilliant lot, being faced on the Neva side with a magnificent quay of granite. This was the work of the empress Catharine II. The fortress has two gates; one looking towards the Petersburg island, with which it has communication by a drawbridge, the other fronting the admiralty-side, to which the only access is by water. The most striking edifice within the walls is the church of St. Peter and St. Paul, which owes its origin to the ductile genius of the famous czar. It stands in an open place nearly in the centre of the whole enclosure; having, contrary to the usual custom, no more than one cupola, with a tower fifty fathoms in height, furnished with a chiming clock, for which no less than forty-five thousand rubles were paid by Peter the Great. From this tower the spire rises twelve fathoms, is gilt with ducat-gold, and the whole presents a beautiful object from various points of view. This church contains the bones of its heroic founder, and several of his successors. Among the other curiosities of the castle are to be noted the imperial gold and silver assay-offices, and the mint.

Lastly, the Vyborg Quarter has the most rural appearance of all; since, excepting the street along the bank of the Neva, it is entirely occupied by cottages of the peasantry, and its small population is chiefly employed in rustic labours. Notwithstanding this characteristic, it however numbers amongst its buildings two noble mansions. That belonging to the late count Besborodko, standing on the Neva, has wings of colonnades, which form an amphitheatre, and has an elegant garden in the English taste. The other of these villas, remarkable for its curious style of architecture, is the property of count Stroganof, and has likewise extensive gardens. The wharf for merchant-ships of all descriptions, in this quarter of the town, is the last particular we shall mention.

The population of St. Petersburg is computed at 250,000 persons, consisting of Russians, Germans, Finns, French, Swedes, English, Dutch, Poles, Italians, Spaniards, Portuguese, &c. St. Petersburg is therefore a colonial city, of the motley mixture of which the Russians form by far the major part of the people, though they are not the aborigines of the region which the sovereigns of the Russian empire have fixed upon as their imperial residence.

The revenue which the state draws from the traffic of the city, may at present be estimated at about five millions of rubles. If to this be added the tax on the sale of houses, on contracts, &c. on the lowest probable calculation, the total will perhaps be increased by one-half.

Bread-corn is brought to St. Petersburg from the countries bordering on the Volga. Both rye and wheat bread are eaten here; the latter is the common food of even the lowest and poorest classes. The rye-bread is well tasted, and yields more nourishment; it is universally eaten, and even in families of good condition, where they have the choosing between this and the other. The

poorer sort use what is called black bread, prepared of rye-meal unbolled, and is extremely nutritious.

To strangers, unaccustomed to the various changes produced in men and things by the influence of intense frost, nothing appears more wonderful than that part of the city dedicated to the sale of frozen provisions. Your astonished sight is there arrested by a vast open square, containing the bodies of many thousand animals, piled in pyramidal heaps on all sides; cows, sheep, hogs, fowls, butter, eggs, fish, all stiffened into granite. The fish are attractively beautiful, possessing the vividness of their living colour, with the transparent clearness of wax imitations. The beasts present a far less pleasing spectacle; most of the larger sort being skinned, and classed according to their species; groups of many hundreds are seen piled upon their hind legs against one another, as if each were making an effort to climb over the back of its neighbour. The apparent animation of their seemingly-struggling attitudes (as if suddenly seized in moving, and petrified by frost,) gives a horrid life to this dead scene. Had an enchanter's wand been instantaneously waved over this sea of animals during their different actions, they could not have been fixed more decidedly. Their hardness, too, is so extreme, that the natives chop them up for the purchasers like wood, and the chips of their carcasses fly off in the same way as splinters do from masses of timber and coal. The provisions collected here are the product of countries many thousand miles distant. Siberia, Archangel, and still remoter provinces, furnish the merchandise, which, during the frost's severity, is conveyed hither on sledges. In consequence of the multitudes of these commodities, and the short period allowed to the existence of the market, they are cheaper than at any other period of the year; and are, therefore, bought in large quantities to be laid up as winter stock. When deposited in cellars, they keep for a length of time.

Fish is here a very common article of consumption. The sterlet is one of the most esteemed kinds of fish, and is consequently the dearest. Of these about twenty-five thousand are every year brought alive to St. Petersburg from the Volga; which river moreover sends upwards of a million of sizeable fish of various other kinds. The town is supplied with the ordinary sorts of live fish from the Ladoga lake. Frozen, salted, and dried, fish are mostly the food of the lower classes. The Neva abounds with salmon, which however is inferior in point of flavour to those of Riga. Cray-fish are also caught in the Neva; besides which the Volga furnishes annually about a million. Vegetables are the sole article of consumption which the city obtains for the most part from its environs. The culture of the kitchen-garden is here brought to such perfection, that the most delicate exotics of this kind are to be had at every season of the year, and of uncommon excellence. Several of these, such as cauliflowers, asparagus, &c. are very common, and not dear. Sour cabbage, which the Russians call *schtschi*, the salutary antiscorbutic virtues of which have procured it a welcome reception also in other countries under the name of *four crout*, is a daily dish of the common people; it is even served up at great tables as a national delicacy. Salted cucumbers are eaten in equal abundance, and are extremely cheap. The fruit reared in the orchards and forcing-houses in and about St. Petersburg, is not nearly adequate to the demands of taste and luxury. Fruit of the country comes from the Ukraine, and from the regions of the Volga and the Occa; foreign fruit, especially apples, from Rostock and Stettin, to the amount of about a hundred thousand rubles annually. The first ships that arrive here in the spring import oranges of both kinds, and lemons in such abundance, that the sale of these goods often scarcely pays the freight. A chest containing four hundred lemons is usually to be had, at that season, for two or three rubles. Of the ordinary liquors, *quas* is an acidulous, cooling, and wholesome, beverage, peculiarly national, and is offered for sale at the

corners of all the streets. In summer it is customary to cool it with ice. The juice of the cranberry yields an excellent and refreshing liquor, in very frequent use under the appellation of *klukva*. By a mixture of *klukva*, it is by no means uncommon not only to improve the quass and other drinks, but it is used, even in good houses, for making punch, when lemons are at a high price, or not to be had. *Sbitten* is prepared of honey and pepper boiled in water, and hawked about the town by people who make it their trade, and are therefore called *sbittenshiks*. In the public houses may be had beer, mead, and brandy. Among the more delicious sorts of national liquors, the *vishnefca* and *malinfca* must not be forgot, a sort of wine made from cherry-juice put into fermentation by sugar and brandy; *kisljshih*, a species of quass of a superior quality, and several others. Their consumption, however, falls very short, when compared with that of foreign liquors. Wine, porter, and ale, are in general use. Of the first, upwards of 250,000 hogheads are imported every year, and of the two last to an amount exceeding 260,000 rubles, the greater part of which is here consumed. The wood for firing produced in the circumjacent district is not sufficient for the prodigious demand of this city; about 150,000 fathoms, mostly of birch, being annually brought in from other parts of the country.

No capital, except London, is perhaps so well supplied with water as this city. The Neva, with its numerous branches and canals, conveys it through every part of the town; so that no family can have far to fetch it. Sometimes indeed they have too much of it; for the Neva is apt to overflow, and inundate the city in a very distressing manner. On the 9th of September, in the evening, while Mr. Coxe was at Petersburg, a violent storm of wind blowing at first south-west and afterwards west, raised the Neva and its various branches to so great a height, that at five in the morning the waters poured over the town, but more particularly the Vassili Ostrof and the Island of St. Petersburg. The torrent rose in several streets to the depth of four feet and a half, and overturned, by its rapidity, various buildings and bridges. About seven, the wind shifting to north-west, the flood fell as suddenly; and at mid-day most of the streets, which in the morning could only be passed in boats, became dry. For a short time, the river rose ten feet seven inches above its ordinary level.

Mr. Kraft, professor of experimental philosophy to the Imperial Academy of Sciences, has written a judicious treatise upon the inundation of the Neva, from which the following observations were extracted by Mr. Coxe: "These floods are less alarming than formerly, as the swelling of the river to about six feet above its usual level, which used to overflow the whole town, has no longer any effect, excepting upon the lower parts of Petersburg; a circumstance owing to the gradual raising of the ground by buildings and other causes. Upon tracing the principal inundations, the professor informs us that the most ancient, of which there is any tradition, happened in 1691, and is mentioned by Weber, from the account of some fishermen inhabiting near Nieschauts, a Swedish redoubt upon the Neva, about three miles from the present fortress of Petersburg. At that period the waters usually rose every five years; and the inhabitants of that district no sooner perceived the particular storms which they had been taught by fatal experience to consider as forerunners of a flood, than they took their hovels to pieces, and, joining the timbers together in the form of rafts, fastened them to the summits of the highest trees, and repaired to the mountain of Duderof, which is distant six miles from their place of abode, where they waited till the waters subsided. The circumstances most liable to promote the overflowings of the Neva, are when, at the autumnal equinox, three or four days before or after the full or new moon, that luminary being near her perigæum, a violent north-west wind drives the waters of the Northern Ocean, during the influx of the tide, into

the Baltic, and is accompanied or instantaneously succeeded by a south-west wind in that sea and the gulf of Finland. All these circumstances concurred at the inundation of 1777: it happened two days before the autumnal equinox, four before the full moon, two after her passing through the perigæum, and by a storm at south-west, which was preceded by strong west winds in the northern ocean, and strong north winds at the mouth of the Baltic." See *Remarques sur les Débordemens de la Néva à St. Petersbourg, accompagnées d'une Carte représentant la Crue et la Diminution des Eaux, &c.* in Nov. Act. Pet. for 1777.

The benediction of the waters of the Neva, is a very interesting ceremony which takes place annually at Petersburg. The late celebrated Dr. Clarke was present at this spectacle; and in the last volume of his *Travels*, just published, he had described it in the following terms. "The benediction of the waters of the Neva, takes place on the 6th of January (Old Style), and was formerly celebrated with great splendour and magnificence, on the river. At present, a small temple, of an octagon form, made of wood, painted and adorned with crosses and pictures, representing parts of the history of John the Baptist, is erected on the Admiralty Canal: an inclosure is formed around it, and within is a hole cut in the ice. A platform, covered with scarlet cloth, leads from the palace to the temple; along which the procession advances, consisting of the archbishop, accompanied by bishops and dignitaries of the church, the imperial family, and persons attached to the court. Having arrived at the temple, different prayers are recited; after which, the archbishop descends a ladder placed within the octagon building, and dips the cross thrice in the water; the benediction being pronounced at the same time. Some of the water is then taken up in a vessel, and sprinkled on the surrounding spectators. The military with their standards, the religious orders in their different dresses, the presence of the imperial family, and the crowds of people assembled together, form a very striking scene. The last occasion on which Peter the Great appeared in public, was at the celebration of this ceremony. He was previously indisposed; a severe cold attacked him on the day of the benediction of the waters, increased his disorder, and in a short time brought on his death. At the celebration of a ceremony of the same kind, which was instituted in the early period of the empire, at Moscow, an image of the Holy Virgin was plunged into the river; the water was blessed by the patriarch, and the tsar, and the persons of the court who were present, were sprinkled with it."

The inhabitants of this large city, besides Russians, consist of all nations; so that a person hears a great variety of languages, and sees an infinite diversity of fashions and customs, at St. Petersburg. The splendour of the court is imitated by the inhabitants in general; though every thing belonging to apparel, and especially if made by foreign artificers, is very dear; and likewise furniture, and houses in an eligible situation, bear sometimes an extravagant price. The police is well regulated, and liberty of conscience is enjoyed to its utmost extent.

Peter the Great has been much censured for transferring the seat of the empire from Moscow to St. Petersburg; the former of which lay nearer to the centre of his dominions. But these objections will have little weight with those who consider the consequences of the removal. The new city is nearer than Moscow was to the more civilized parts of Europe; and from an intercourse with them the manners of the Russians have been improved, and the nobility in particular have lost much of their feudal importance. Above all, the grand object of Peter, that of having a formidable navy in the Baltic, has certainly been obtained; and the emperor of Russia is now the arbiter of the north, and, in some degree, the mediator of all Europe. In short, the erection of St. Petersburg was perhaps one of the best acts of Peter's reign, and has

in its consequences been the most beneficial. Indeed it is at least probable, that, if through any revolution the seat of government should be again transferred to Moscow, we should nowhere see the traces of those memorable improvements, which the passing century has given birth to, but in the annals of history; and Russia would again, in all probability, relapse into her original barbarism.

The chief publications consulted in this article are—Tooke's Translations from MM. Falconet and Diderot, particularly on the celebrated Statue of Peter the Great, now finishing by the former at Petersburg, with a Plate of the Statue; 1777. Coxe's Travels in Poland, Russia, &c. 1784. Clarke's Travels, 1823. Gent. Mag. 1775, 1777, 1782, 1783. Monthly Review for 1784. Times, Apr. 3, 1823.

PE'TERSBURG, a town of Westphalia, in the bishoprick of Osnabruck: one mile south of Osnabruck.

PE'TERSBURG, a post-town of Virginia, of considerable trade, in Dinwiddie county, on the south-east bank of Appamatox river, twenty-five miles south of Richmond. It contains about 400 houses, irregularly built, an episcopal church, a court-house, and a gaol. The Freemasons' hall is a handsome building. Here are several tobacco-warehouses, stores of dry goods, and some few neat and commodious dwelling-houses. In 1790 it contained 2828 inhabitants, including 1265 slaves. Its situation is rather low and unhealthy. The whole exports of this town, valued at the usual peace-prices, amount to 1,389,300 dollars, besides the value of peach and apple brandy, whiskey, &c. It is 80 miles west by north from Norfolk. Like Richmond, Williamsburgh, Alexandria, and Norfolk, it is a corporation; and, what is singular, Petersburg city comprehends part of three counties. The celebrated Indian queen, Pocahontas, from whom descended the Randolph and Bowling families, formerly resided at this place. In July 1815, a dreadful fire took place here, which consumed 300 houses, destroying two-thirds of the town, the office of discount, deposit, tobacco-warehouse, and its contents. Many lives were lost, owing to several houses being blown up. Lat. 37. 14. N. lon. 78. 8. W.

PE'TERSBURG, a very flourishing post-town of Georgia, in Elbert county, in a pleasant and salubrious situation, on the point of land formed by the confluence of Broad river with the Savannah. Several respectable merchants have settled in this town: twenty miles north by east from Washington. It contains, together with the county and Elberton-town, 12,156 inhabitants; the slaves of the county being 4291, those of the town 225, and those of Elberton 58. Lat. 33. 46. N. lon. 81. 32. W.

PE'TERSBURG, a town of the state of Kentucky, on the river Kentucky: twelve miles south-east of Frankfort. Lat. 37. 52. N. lon. 85. 4. W.

PE'TERSBURG, a township of America, in New York, in Rensselaer county, east of the village of Troy, incorporated in 1793, and containing 4322 inhabitants.—A post-town of Pennsylvania, in York-county, two miles north of the Maryland line; containing a Roman Catholic church, and about eighty houses: twenty-five miles north-west of Yorktown.—A town of Pennsylvania, in Huntingdon-county, with 194 inhabitants.

PE'TERSDORF, a town of Prussia, in the province of Siamland: twenty-four miles east of Königberg.

PE'TERSDORF, or PETRAMSTORFF. See BERCHTHOLDSORFF, vol. ii.

PE'TERSFIELD, a borough-town, in the county of Southampton, or Hampshire: fifty-five miles south-west from London. Though but a chapelry to the parish of Buriton, Petersfield is a market and borough town of considerable antiquity. Its first charter of incorporation was granted by queen Elizabeth, who vested its government in a mayor and commonalty, and empowered them to return two members to parliament; but two returns

had been previously made, one in the thirty-fifth of Edward I. the other in the time of Edward VI.

The right of election, as determined by the house of commons in 1727, is "in the freeholders of lands, or ancient dwelling-houses or shambles, or dwelling-houses or shambles built upon ancient foundations, within the said borough." The right has been more clearly stated by a committee of the house of commons, May 29, 1821, to belong to "the burgesses, and the freeholders of lands, houses, and tenements, within the borough." It signifies little, however, in what manner the right is expressed, as the whole property of the borough is in the hands of Hylton Jolliffe, esq. lord of the manor; and the titular mayor, who is the returning officer, is appointed by him at his court-leet. This gentleman, therefore, appoints the returning officer, and names both the members: he has named himself for one; sir Philip Musgrave, bart. is the other. The dwelling-houses and shambles give the right of voting, not to the occupiers or proprietors, but to the individual who has purchased the freeholds of those places, and conveys a few of them on the day of election to his servants or dependents, who thereby become voters for the day, and return the person they are directed. The members are never seen in this borough, nor known to any person connected with it, except the proprietor. There are thirty-six of these close or nominal boroughs in England, which send seventy-two members to the imperial parliament, some of them destitute of a single house or inhabitant: their establishments all existing in fiction. The borough itself, like Old Sarum, is a fiction, there existing no such place but by name. The electors in all these boroughs are fictitious named upon parchment for the day. The returning officer is also a fictitious character, called a bailiff, steward, portreve, or titular mayor, having no office, function, or power, but that of setting his name to the instrument which concludes these fictitious proceedings. These burgage-tenure boroughs are a greater abomination than even the corporation boroughs; for *there*, there are a certain number of individuals with an efficient officer at their head; but *here*, every thing is nominal except the members.

The regular place of worship is a chapel of ease, and near it stands an equestrian statue of William III. erected by William Jolliffe, esq. with an inscription on the pedestal. The passage of travellers from London to Portsmouth, forms the principal support of Petersfield. It has a market on Saturday; and two annual fairs, July 10 and December 11. The petty sessions are holden here. The number of houses is stated to be 192, of inhabitants 1159. But this town, which if it has not been going to decay, has experienced no improvement for some time past, is now, we are told, once more rearing its head, by the removing of nuisances, the repairing of houses, and the building of new ones; and it is confidently anticipated that, when the bridge and causeway between Havant and Hayling-island are finished, Petersfield will once more become a flourishing town. It was formerly a very considerable manufacturing place for woollen-cloths, at which upwards of a thousand persons were employed.

Mapledurham, about two miles south of Petersfield, was some time the seat and residence of the historian Edward Gibbon, esq. At Butser-hill, a short distance from Mapledurham, Aubrey places a considerable encampment.

A few miles to the west of Petersfield are the villages of East and West Meon, mentioned in the *Domesday-book* as the property of the bishop of Winchester, and then known by the general name of *Menes*. In the church at East Meon is a very ancient font, bearing an exact resemblance to that in Winchester cathedral, and most probably the work of the same artist, and given by the same bishop. The upper part, or basin, is placed on a circular shaft of three large single stones, and its corners

are

are supported on circular pillars without bases, and having capitals of plain upright leaves.

Six miles north-east from Petersfield, but a little out of the road, and in Suffex, is *Milland-house*, (now the residence of the Rev. John Coles,) which was for several years the seat of JOHN WILKES, esq. the original author and publisher of this work, and where the first ten volumes of it were almost wholly written. This gentleman died at Milland, on the 31st of March, 1810. For twenty years he had a warehouse in Ave-Maria-lane, London; but never published any works except those of his own writing or compiling; among which we may mention, 2. The British Directory, 5 vols. 8vo. containing a history of almost every town and village in England, with a list of the gentry and principal tradesmen. 3. Britanic Magazine, 13 vols. 4. Zoologic Magazine, 5 vols. 5. History of the Wars of England, 8 vols. 6. History of France, 4 vols. 7. Natural History, 14 vols. with 300 very handsome engravings.

PETERSHAGEN (formerly HOCKLEVE), a town of Westphalia, in the county of Minden, and once the residence of the bishop of Minden.

PETERSHAGEN, a town of Hinder Pomerania: twelve miles south-west of Corlin.

PETERSHAM, a pleasant post-town of America, in Worcester county, Massachusetts, formerly called by the Indians "Nichewang;" twenty-eight miles north-west of Worcester. It is traversed by Swift-river, a branch of Chickapee-river. The soil is rich, and here are large and excellent orchards; it contains 1490 inhabitants.

PETERSHAM, in Surrey. See vol. xi. p. 750.

PETERSHAUSEN, a princely Benedictine abbey near Constance, on a branch of the lake, late under the protection of the house of Austria; founded in the year 980. In 1802 it was, with the diocese of Constance, given as an indemnity to the margrave of Baden.

PETERSKIRCHEN, a town of Austria: five miles north of Sonneberg.

PETERSON (Joseph), was an actor long attached to the Norwich company, and of great versatility of talent. He looked the perfect gentleman on the stage, fenced and danced elegantly, excelled in the parts of Sciolto (Fair Penitent), and Sir Charles Raymond (Foundling), and was also a very good harlequin. He made his debut (as Lord Foppington) at Goodman's Fields theatre, under Mr. Giffard; and played the part of Buckingham when Mr. Garrick made his *entrée* in Richard the Third. His end was somewhat remarkable. In October 1758, he was performing the Duke in Measure for Measure, which he played in a masterly style. Mr. Moody was the Claudio; and in the third act, where (as the Friar) he was preparing Claudio for execution the next morning, at these words—

Reason thus with life:

If I do lose thee, I do lose a thing!

That none but fools would keep: a breath thou art—

he dropped into Mr. Moody's arms, and never spoke more!

He was in private life a gentlemanly, affable, and good-natured, man, and much beloved. He was interred at Bury, in Suffolk; and on his grave-stone are the words of his final exit. Mr. Peterson wrote one drama, entitled, the Rarer Show, or the Fox trap, an opera; printed at York in 1739. *Biographia Dramatica*.

PETERSTHAL (St.), a town of Germany, in the circle of the Upper Rhine: six miles south of Oppenau.

PETERSWALD, a town of Bohemia, in the circle of Leitmeritz: eighteen miles north-north-west of Leitmeritz.

PETERSWALDAU, a town of Silesia, in the principality of Schweidnitz: nine miles south of Schweidnitz.

PETERWARDEIN, a fortress of Hungary, on the north side of the Danube, opposite Peterwardein in Slavonia.

PETERWARDEIN, a town of Slavonia, on the Danube, strongly fortified. It is chiefly remarkable for the glorious victory obtained near it over the Turks, in the year 1716, by prince Eugene. It is 216 miles south-south-east of Vienna, and thirty-eight north-west of Belgrade. Lat. 45. 26. N. lon. 19. 37. E.

PETESIA, *f.* [derivation unknown.] In botany, a genus of the class tetrandria, order monogyna, natural order of rubiaceæ, *Juss.* Generic Characters—Calyx: perianthium one-leaved, bell-shaped, superior; with the mouth toothed. Corolla: one petalled, funnel-form: tube cylindrical, longer than the calyx: border four-parted; lobes rounded, blunt. Stamina: filaments four, awl-shaped, the length of the tube. Antheræ somewhat oblong. Pistillum: germ inferior; style filiform; stigma bifid, acute. Pericarpium: berry globular, crowned, two-celled. Seeds very many, roundish.—*Essential Character.* Corolla: one-petalled, funnel-form; stigma bifid; berry many-seeded.

1. *Petesia stipularis*: leaves lanceolate-ovate, tomentose underneath; flowers in lateral thyrses. This is a shrub. Leaves opposite, quite entire, two inches long. Racemes axillary; brachiate, shorter than the leaf. Native of Jamaica. According to Swartz, it is allied to *Rondeletia*, and should be referred to the class pentandria, as appears from Browne's figure and description.

2. *Petesia carnea*: leaves oblong-lanceolate, even; flowers in terminating trifid cymes. Native of the island of Namoka, in the great Southern Ocean.

3. *Petesia tomentosa*: leaves oblong, tomentose on both sides. Native of the woods about Carthagena in New Spain. Leaves three inches long.

4. *Petesia lygistum*. See MANETTIA.

5. *Petesia villosa*: leaves ovate, somewhat villous; stipules tipped with a bristle. Gathered by Mr. Browne along with the first species.

Loureiro has two other species, natives of Cochinchina, which he names *simplicissima* and *trifida*. Swartz's *P. spicata*, (Ind. Occ. 1945.) having numerous seeds and a cloven stigma, cannot belong to this genus.

PETESIOIDES. See WALLENTIA.

PETEUS, a son of Orneus, and grandson of Erechtheus. He reigned in Attica, and became father of Mnestheus, who went with the Greeks to the Trojan war. He is represented by some of the ancients as a monster, half a man and half a beast.

PETHER (Abraham), an ingenious and self-taught artist, born in the year 1756. Of his early life we know nothing; but the latter part of it he spent at Southampton, where a lingering disease, which had confined him during the space of three years under the most calamitous sufferings, terminated his existence, at the age of 56, April 13, 1812. Few men ever attempted, and at the same time attained perfection in, so many branches of science. As a landscape-painter, his abilities were striking, particularly in effects of fire and moon-light. The peculiar softness of his distances, and the brilliancy of his afternoon-scenes, conferred on him the appellation of the British Claude. He had a thorough knowledge of music, and at the age of nine years performed the organist's duty at Chichester cathedral. His philosophical and mathematical researches deserve every praise: he was an admirable mechanic, and had constructed telescopes, microscopes, and almost every instrument relative to science, upon the most improved principle. With an ardent pursuit after knowledge, he possessed such a happy and contented disposition, and was so unassuming and affable, that his company was courted by all classes. *Hampshire Chronicle*.

PETHERTON (North), a town in the hundred of North Petherton, in Somersetshire, 144 miles west by south from London. The town consists chiefly of one street, which is built along the road from Bridgewater to Taunton, and contains many good houses. It was formerly called *Pedredan*, or *Pedred's-town*, from its situation

ation on the river Pedred, now written Parret. It was formerly in the possession of the Saxon kings, and of such consequence, that it never was assessed to the Danegeld, nor rated to any other subsidy. The parish is extensive; and contains several hamlets. The church is dedicated to St. Mary, and is a large handsome structure, consisting of a nave, chancel, and side-aisles. At the west end is an embattled tower, richly embellished with sculpture, and open ornaments towards the summit. The pinnacles are particularly light and elegant. The market is on Saturday, and there was formerly a large market-place for corn. Here is one annual fair. By the census of 1801, the number of inhabitants was 2346; by that of 1811, the number of houses was 546, and of the inhabitants 2615.

Within the parish are several places, of little note now, but which at former periods have been the residence of great and eminent families. Mansel, or Maunsel, is the seat of John Slade, esq. the possessor of the manor and hundred of North Petherton. This estate had been the inheritance of the family of the Maunsels for many generations.

PETH'ERTON (South), a town in the hundred of South Petherton, Somersetshire, 137 miles from London, six from Ilminster, and (according to Wilkes's British Directory) above twelve miles south-east from North Petherton. It is the first considerable parish which the river Parret traverses in its way to the sea. It passes here under a stone bridge of three arches, a mile southward of the parish-church, at the intersection of the Roman fosse-road, coming from Ilchester. The bridge was formerly of wood, which having become ruinous, two children were drowned in the river near it; the parents of the children rebuilt it of stone, and caused their infant effigies to be placed thereon, to commemorate the circumstance. In a field near this bridge a large quantity of Roman coins, to the amount of six pecks, was dug up about the year 1720; and near Jailer's-mill, in the tithing of Southarp, a little below the surface of the ground, are the remains of Roman buildings, which the common people, from the name, suppose to be the foundation of an old prison. In this spot, also, coins, fragments of urns, pateræ, and pieces of terras, have been discovered. It is undisputed that South Petherton and its vicinity were known to, and occupied by, the Roman people, as it lies so near to one of their principal roads, and as their reliques have here been so frequently discovered. At Watergore, a small hamlet southward of the town, a Roman pavement was discovered in 1673; and Wigborough, not far distant, is supposed to have been a Roman town, not only from its name, but from the extensive foundations of buildings which have been traced there.

When that people relinquished this country, South Petherton became the possession and seat of the Saxon kings of Wessex. King Ina had a palace here, which was long ago destroyed; there is, however, an old house near the church, with ancient windows, and armorial shields, which bear that prince's name, but it is unquestionably the erection of more modern times. King Athelstan is reported to have occupied this place, which was thought an object of importance by all his successors, till after the Norman conquest. The parish-church stands on a little eminence near the centre of the town, and is dedicated to St. Peter and St. Paul. It is a large structure, built in the form of a cross; having two side-aisles, and a north and south transept, with an octangular tower at their intersection, crowned with a spire. Behind the altar is a vestry-room, which was formerly a confessional: many of the monuments, with the organ, were spoiled in the civil wars. The parish is divided into four tithings. A market is held here on Thursday, and there was formerly a large market-hall and cross, both which, with several houses, were destroyed in the last century. The annual fair is on the 5th of July, for bullocks, lambs, sheep, and

wool. A considerable manufacture of dowlas is carried on here. By the census of 1801, the number of inhabitants was 1674; in 1811, the parish contained 352 houses, and a population of 1867 inhabitants.

Crewkherne, five miles distant, is the nearest post-town; and Bridport, eighteen miles, the nearest sea-port.—The village or hamlet of Watergore is adjoining to South Petherton; Over Straton, just at the town's end; Lower Straton, one mile distant; Lopen, two miles; Hinton St. George, where earl Powlet has a seat, three; Dillington-house, seat of the earl of Guilford, four.—Norton under Hambden-hill, two miles from Petherton, and three from Crewkherne, is a royalty of 133l. a-year, and has large quarries of free-stone, (as good for use as Purbeck stone,) as well as of tile-stone, &c. *Collinson's Hist. Somersetshire*, vol. iii. *Wilkes's British Directory*, vol. iv. *England's Gazetteer*.

PE'THOR, in scripture-geography, the native place of Balaam, situated in Mesopotamia, about the east bank of the Euphrates, and not far from Thapsacus. *Num.* xxii. 5.

PETIC'ULÆ, *f.* The same as *petechiæ*, purple spots appearing on the flesh in malignant fevers.

PETIGLIANO, a town of Etruria: fifty miles south-east of Sienna, and twenty-seven north-east of Orbitello.

PETIL'IA, in ancient geography, now *Strongoli*, a town of Magna Græcia, the capital of Lucania, built or perhaps only repaired by Philoctetes, who, after his return from the Trojan war, left his country Melibœa, because his subjects had revolted. See *STRONGOLI*.

PETIL'IUM, *f.* in botany, a name given by Linnæus, in the first edition of his *Genera Plantarum*, to the crown imperial, which he at that time considered as a distinct genus from *FRITILLARIA*; see that article.

PETIMBUA'BA, *f.* in ichthyology. See *FISTULA tabacaria*, vol. vii.

PE'TIN, a small island in the Eastern Indian Sea. *Lat.* 2. 20. *S. lon.* 99. 27. E.

PETINA (La), a town of Naples, in Principato Citra: six miles south-west of Cagiano.

PETIOLE, *f.* in botany, the footstalk, or leafstalk; the stalk supporting a leaf.

PETIOLULE, *f.* A partial petiole, connecting the leaflet of a compound leaf with the main petiole. *Turton*.

PE'TIS DE LA CROIX (Francis), a learned French orientalist, born in 1654, was the son of the king's interpreter for the oriental languages, and received an education to qualify him for the same employment. At the early age of sixteen, he was sent by the minister Colbert to reside in the East. He passed several years at Aleppo, visited Ispahan and Constantinople, and employed himself in the most diligent study of oriental literature. He returned to Paris in 1680, and in two years afterwards he was sent to Morocco, as secretary under M. de Saint-Amand, to Muley Ishmael, king of that country. He pronounced before that sovereign the ambassador's harangue in Arabic, with an elegance and purity which excited the admiration of the whole court. In the two following years he accompanied the French armament against Algiers, in quality of secretary-interpreter of the marine, and was employed to translate into the Turkish language the treaty of peace in 1684. He performed the same office with respect to the negotiations with Tunis and Tripoli. When the latter power was engaged to pay the king of France the sum of 600,000 livres, by way of reimbursement, a considerable bribe was offered to Petis de la Croix, to put in the treaty crowns of Tripoli instead of French crowns, which would have made the difference of 100,000 livres; but his fidelity to his sovereign was incorruptible. In 1687 he was employed at Morocco under the duke de Mortemar; and, in short, it was through his intervention that all the affairs between the French ministry and the eastern courts were transacted, from the year 1680 to the time of his death. In 1692 he was appointed to the professorship of Arabic in the college

royal, and the survivorship of his father's office of oriental interpreter was conferred upon him. From this period he never left the kingdom, but employed himself in translations from the eastern languages, of which he was acquainted with the Arabic, Turkish, Persian, Tartarian, Ethiopic, and Armenian. He died at Paris in 1713. His principal publications are, 1. The Oriental Library of Hadji Calfa. 2. The History of all the Mahometan Monarchies, (from the Turkish.) 3. General State of the Ottoman Empire, from the foundation to the present time, with abridged lives of the emperors; (from the Turkish.) 4. The History of Gengis Khan, and The History of Timur-Bec, (from the Persian.) 5. The Thousand and One Days, (from the Persian;) besides other tracts, geographical and descriptive, and some grammars, dictionaries, &c. *Gen. Biog.*

PETISTAGUIT, a river of Canada, which runs into the river St. Laurence in lat. 50. N. lon. 66. 26. W.

PETIT, *adj.* [French.] Small; little; inconsiderable. —Do but view what *petite* things swell men up; the stage never presented the pride of a constable so really, as it is frequently to be found in men under that burdensome honour! I dare say Solomon, nay kings at this day, hold their scepters with more humility, than those small officers their staves! *Whitlock's Mann. of the Eng.*—By what small *petit* hints does the mind catch hold of, and recover, a vanishing notion! *South's Serm.*

PETIT (Samuel), a French Protestant divine, was born in the year 1594. He was the son of a respectable minister at Nîmes in Languedoc, from whom he received the elements of an excellent education. While a child, he discovered a powerful inclination for learning, and astonished the masters under whose tuition he was placed, by the rapidity with which he became a proficient in the Greek and Latin languages. Having laid a good foundation of grammar-learning, he continued to extend his acquaintance with the ancient languages, and afterward to applied his attention to rhetoric and philosophy. Being intended for the ministry, he spent three years at Geneva in attending the divinity-lectures of Diodati, and those of the other learned professors of that celebrated school. At the same time he applied himself to the study of the oriental tongues. The zeal with which he applied to learning is almost incredible: for a whole year he allowed himself rest only on each alternate night, the others being devoted to study. Such was his progress, that at the age of seventeen he was admitted to the ministry. Almost immediately after this, he was chosen to fill the chair of professor of divinity in the academy of Nîmes, to which was added the professorship of the Greek and Hebrew languages. These posts he retained with very high reputation during the remainder of his life; while he pursued his various learned studies with uncommon diligence. He was likewise eminent as a preacher, and devoted much of his time to the charitable duties of visiting the sick. To the deep regret of all who knew him, and to the loss of the learned world, he died in 1643, when he was only in the 49th year of his age.

He was a man of vast and profound erudition, and particularly excelled in his acquaintance with ecclesiastical antiquities. To the languages already mentioned, in which he was an adept, we ought to add, that he acquired an intimate knowledge of the Coptic. His learning, however, was accompanied with modesty and humility; and he is said to have exhibited a bright and amiable pattern of unaffected piety, and of all the moral virtues. His temper was uncommonly placid, as may be concluded from the following anecdote which is told of him. Having one day entered a Jewish synagogue at Avignon, accompanied by some friends, he heard one of the rabbis uttering the grossest abuse and invectives against them, but in the Hebrew language, which the Jew did not imagine that any of them understood. But, when he heard M. Petit mildly remonstrating with him, in that tongue, on the incivility and malignity which he discovered, he

was thrown into the utmost confusion, and in the most suppliant manner entreated forgiveness. This our author readily granted, and took no other revenge on the rabbi, than by exhorting him, in pure and elegant Hebrew, to renounce Judaism and embrace Christianity. Petit was the author of numerous works, for a list of which we refer to the General Biography. He also left behind him in manuscript, two large volumes of Notes upon Josephus, which, though imperfect, were purchased by lord Clarendon, it is said, for a hundred and fifty louis-d'ors, and presented to the university of Oxford, where they were deposited in the Bodleian Library. In that place they were consulted by our countryman Hudson, when he was preparing his valuable edition of the Jewish historian; and he acknowledged his obligations to them in his general preface.

PETIT (Peter), a celebrated French mathematician and natural philosopher, was born in the year 1598. He cultivated from a very early period the study of the mathematics and physics, in which he made considerable progress, and which recommended him to the acquaintance of M. Pascal. His father was comptroller of the elections in the district in which he lived, an office to which he succeeded, but which, in 1633, he sold, and removed to Paris. Here he distinguished himself by his writings, and became intimate with the most eminent men of his time. On several occasions he was employed by cardinal Richelieu, who gave him a commission to visit the sea-ports, with the title of engineer and geographer to the king. He was afterwards sent into Italy by his majesty, on special affairs. After his return, he became a convert to the principles of Des Cartes. About the year 1640, he received the appointment of intendant of the fortifications of France. During a part of the year 1645 and 7, he was stationed at Rouen, where, in conjunction with M. Pascal, he went through the same experiments on the subject of a vacuum, which Torricelli had made before in Italy. From this time there are no farther particulars relating to the life of M. Petit, though he lived to the year 1677, when he was about 79 years of age. He is described as having excelled particularly in astronomy, and as having a singular passion for experimental philosophy. He was author of many treatises on mathematical, physical, and astronomical, subjects, of which a long list is given in the *Gen. Biog.*

PETIT (Peter), a learned physician, was born at Paris in the year 1617, and obtained the degree of doctor in the university of Montpellier, and of bachelor of medicine in that of Paris. He was also elected a member of the academy of Padua. Although he had acquired an extensive acquaintance with the medical science in the course of the studies by which those degrees were obtained, yet the bias of his mind was not so much directed to the practice of the profession as to philosophical and literary pursuits, and especially to the study of history, and to the cultivation of Latin poetry. It was by the excellence of his poems that he obtained the honour of admission into the Paduan academy; and the same merit occasioned him to be ranked as one of the Pleiades of Paris, an appellation given to a party of seven of the most accomplished Latin poets of that capital. A collection of his poems was published in 1683, dedicated to M. Nicolai, president of the chamber of accounts, and prefaced by a curious dissertation on the mania of poetry. His poem of "Codrus," and that entitled "Cynomagie," are much praised for the elevated sentiments, the elegance of expression, and the strength and harmony of the verse, which they exhibit. One of his poems was on the subject of tea, and was printed at Leipzig, in 1685, with the title of "Thée, five de Sinensi Herba Thé," with an epigram of Nicholas Pechlin respecting this herb, and the descriptions of several other authors. The writings of Petit, however, were not limited to poetical essays; he was the author of several curious tracts, of which the following are the titles. 3. De Motu Animalium Spontaneo, Par. 1660, in which

which he defended Aristotle against Descartes. 4. De Lacrymis, Libri tres, 1661, 12mo. 5. Exercitationum de Ignis et Lucis Natura Defensio, 1664, 4to. 6. Dissertatio de novâ Renati Cartesii Philosophia, 1670, 8vo. 7. Miscellanearum Observationum, Libri quatuor, 1682, 8vo. 8. De Amazonibus Dissertatio, 1685, 12mo. 9. De Sybilla, Libri tres; Lipsi. 1686, 8vo. 10. De Natura et Moribus Anthropophagorum; Traj. 1688, 8vo. 11. Homerî Nepenthes; five, de Helenæ Medicamento luctum avolente Dissertatio, ibid. 1689, 8vo. 12. Commentarii in tres priores Aretæi Cappadocis Libros, Lond. 1726. 13. Traité de la Nourriture qui peut se tirer de l'Eau. *Eloy Dict. de la Med.*

PETIT (Francis), a distinguished physician, who is better known by this name than by that of *Pourfour du Petit*, was born at Paris on the 24th of June, 1664; and lost his parents, who were engaged in trade, during his childhood. He is said to have been slow of apprehension, and weak in memory, when a boy; so that, though he laboured much at school, his progress was extremely slow, until his mind was interested, and his faculties called forth, by the philosophy of Descartes, which his tutor put into his hands. That subject became the leading object of his pursuits; and he began his travels early, with the view of increasing his knowledge. At Rochelle he became intimate with M. Blondin, who had a valuable library, a garden of medicinal plants, and a museum of natural curiosities, and who instructed him in anatomy, and recommended him to study medicine. He adopted this counsel, and in 1687 repaired to Montpellier, where he graduated, and returned to Paris in 1690. Here he studied anatomy under du Verney, botany with Tournefort, and chemistry with Lemery; and obtained the friendship of these celebrated men. After three years of study, and attendance on the hospital of La Charité, he became attached to the army; and, in his superintendance of the hospitals at Mons, Namur, and Dinant, he obtained considerable distinction, and established in them dissecting rooms and chemical laboratories, and directed the studies of the pupils in botany. After the peace of Ryſwick, in 1697, he returned to Paris: but the war of the Spanish succession called him again to the military hospitals, and it was not till the peace of Utrecht took place, in 1713, that he settled in Paris. In 1722 he was elected a member of the Academy of Sciences; and three years afterwards he was appointed pensionary anatomist, on the superannuation of M. du Verney. His reputation obtained for him this honourable appointment, and he was now extensively employed in the practice of his profession. He was particularly successful in the treatment of diseases of the eye, which he illustrated by various models, and remedied by improving the instruments and operations of his predecessors, in relation to this delicate organ.

This ingenious man died at Paris on the 18th of June, 1741, aged 77. He left several works behind him, besides the papers which he communicated to the academy. They were written in a negligent style; for the constant occupation of his time in observation and experiment rendered him careless about the turn of his phrases. His works are; 1. *Trois Lettres d'un Medecin des Hospitaux du Roi à un autre Medecin de ses Amis, sur un Nouveau Systeme du Cerveau*; Namur, 1710, 4to. 2. *Dissertation sur une Nouvelle Methode de faire l'Operation de la Cataracte*; Par. 1727, 12mo. 3. *Lettre dans laquelle il est démontré que la Crytallin est fort près de l'Uvée, et où l'on rapporte de nouvelles preuves de l'Operation de la Cataracte*; 1729, 4to. 4. *Lettres contenant des Reflexions sur ce que M. Hecquet, M.D. a fait imprimer touchant les Maladies des Yeux*, 1729, 4to. 5. *Lettres contenant des Reflexions sur les Decouvertes faites sur les Yeux*, 1732, 4to. He invented an *ophthalmometer*, to measure exactly all the parts of the eye, and direct the course of the needle in the operation, and also other machines to illustrate his doctrines and assist the operator. Some of

his essays, printed in the *Mem. de l'Acad. des Sciences*, related to the comparative anatomy of the eye, which he examined in various animals with great nicety of dissection. *Gen. Biog.*

PETIT (John Louis), a celebrated surgeon, was born of a respectable family at Paris, on the 13th of March, 1674. From his childhood he displayed an acuteness and penetration beyond his years, which gained him the attachment of M. de Littre, a celebrated anatomist, who resided in his father's house. This kindness of M. de Littre, and his own curiosity, sometimes attracted the boy to the dissecting-room of the former, where he soon evinced an interest in anatomical pursuits. This able anatomist did not fail to cultivate this inclination; and from the age of seven years, his young pupil regularly attended at his demonstrations; and made such rapid progress, that he had scarcely attained the age of twelve, when M. de Littre confided to him the superintendance of his anatomical theatre. He afterwards studied surgery under Castel and Marechal, and was admitted master at Paris in 1700. He was born, it has been said, for the art which he practised; and would have created surgery, if it had been previously unknown. He became the first practitioner, and, as it were, the oracle, of surgery in Paris; he was consulted in all cases of importance; and there were few operations of difficulty and delicacy which he did not superintend, or actually perform; and his hand and his counsels were alike successful. Such a reputation was of course not limited to his native city, but extended throughout Europe. In 1726 he was sent for by the king of Poland; and again, in 1734, by Don Ferdinand, afterwards king of Spain. He re-established the health of both these princes, who endeavoured to retain him near their persons with the offer of great rewards: but he preferred his native place to the most brilliant situations, and found there a sufficient number of persons who properly estimated his merits. He became a member of the Academy of Sciences in 1715, and was appointed director of the academy of surgery, and censor and royal professor at the schools. He was likewise chosen fellow of the Royal Society of London. He died at Paris on the 20th of April, 1750, aged 76.

Petit was equally beloved for the qualities of his heart, as he was admired for those of his understanding; for his disposition was naturally lively and hospitable, and his manners were indicative of openness and warmth of heart, rather than the result of a studied politeness. He was extremely animated in every thing that concerned his profession; and an oversight irritated him more than an insult. But his anger was of short duration, and he entertained no enmities. His benevolence towards the suffering poor was unbounded, and he spared no labour or exertions for their relief. He communicated many memoirs to the Academy of Sciences, and several to the Academy of Surgery, which were printed in their first volume. His only separate publication was, his "*Traité des Maladies des Os*," printed at Paris in 1705, in 12mo. and frequently reprinted, with additions: an edition, in 1758, in two volumes, 12mo. was published by M. Ant. Louis, with an Historical and Critical Essay. His pupil, M. Lesne, published his posthumous works in 1774, with the title of "*Traité des Maladies Chirurgicales et des Opérations qui leur conviennent*," in three volumes, 8vo. with many plates of surgical instruments. His Treatise on the Bones involved him in several controversies; but the only chagrin which he felt arose from finding Winslow, who, as censor royal, had approved the work, retract his approbation, in a letter inserted in the *Journal des Savans* for May 1725. *Eloy Dict. Hist.*

PETIT (Anthony), an eminent physician, accoucheur, and anatomist, was a native of Orleans. He was admitted a doctor of the faculty of Paris in 1746, and became a member of the Academy of Sciences in 1760. He acquired great reputation as a practitioner; and in 1768 was appointed inspector of the military hospitals through-

out France. In the following year he was made professor of anatomy and surgery at the Royal Garden, in which office he was attended by an extraordinary course of auditors. He finally retired on business, and died at Olivet near Orleans, in 1794, at the age of 92.

This physician published the following works. 1. Lettre d'un Medecin de Montpellier, au Sujet de l'examen public que le Sieur Louis a subi à Saint Côme, en 1749, pour servir d'Eclaircissement à ce qu'en dit M. Fréron, 4to. 1749. 2. Discours sur la Chirurgie, an introductory lecture delivered at the schools of medicine, 1757. 3. Consultation en faveur des Naissances tardives, 1764, 8vo. 4. Premier et second Rapport en faveur de l'Inoculation, 1766, 8vo. 5. Deux Consultations Medico-legales; relative to a case of supposed self-murder, and to a supposed infanticide, 1767. He also edited, "Anatomie Chirurgicale, publiée ci-devant par Jean Palfin," 2 tom. 8vo. 1753, and some early experiments of his on submersion are related in Hist. de l'Acad. des Sciences, 1740. *Gen. Biog.*

PETIT CA'PE. See CAPE, vol. iii. p. 747.

PETIT CO'DIAK, a river of America, which falls into an arm of the bay of Fundy, called Chegnecto-channel. The Indians have a communication from the head of it with St. John's river, by a portage across to the head of Kennebecus.

PETIT-DIDIE'R (Matthew), a learned French monk, and a titular prelate, was born in the town of St. Nicholas in Lorraine, in the year 1659. He received the first part of his education in the College of the Jesuits at Nancy; and, when he was sixteen years of age, took the monastic habit in the abbey of St. Michael, belonging to the Benedictines of the Congregation of St. Vannes and St. Hydulphus. He distinguished himself so highly by his assiduity and improvement, that in the year 1682, when he was only sub-deacon, the chapter-general of his congregation devolved on him the office of lecturing in philosophy and divinity to the young members of the community. Some time afterwards he was placed at the head of a kind of academy, consisting of several of the monks, with whom he undertook to read all the early fathers of the church. At the same time they read M. Dupin's Account of Ecclesiastical Writers, making notes and remarks on his work as they proceeded. As father Petit-Didier thought them of sufficient importance to be laid before the public, he corrected and enlarged them, and sent them into the world under the title of "Remarks on the first Volumes of M. Dupin's Bibliotheque Ecclesiastique," in 3 vols. 8vo. the first of which appeared in 1691, and the third in 1696. These remarks discover extensive reading, are sometimes very judicious, and display no little portion of critical acumen. M. Dupin himself has done ample justice to the author's learning and abilities, while he has vindicated his work against some of the remarks which he considered to be cavils rather than reasonable or fair objections. In the mean time father Petit-Didier was occupied in drawing up an Answer to the Dialogues between Cleander and Eudoxus, written against the celebrated Provincial Letters of M. Pascal, and attributed to Father Daniel the Jesuit. This answer is under the form of seventeen letters, with the title of "An Apology for the Provincial Letters of Louis Montalte, against the last Reply of the Jesuits, &c." 12mo. Though this work was well known to come from his pen, and was often acknowledged by him to his friends, his wish to secure the good opinion of the papal court led him some years afterwards to disavow it. This disavowal is contained in a letter to cardinal Corradini, and printed at Rome in 1726, in a collection of pieces entitled, "Documenta sanæ et orthodoxæ Doctrinæ P. Matthæi Petit-Didier," in folio. In 1699, he was elected abbot of Bonzonville; but was obliged to resign, owing to the interference of the duke of Lorraine, who nominated his brother prince Francis to that dignity. About the year 1700, our author published, in Latin, "Critical, Histori-

cal, and Chronological, Dissertations on the Sacred Scriptures of the Old Testament," 4to. In 1715, he was chosen abbot of Sennones, and, after a contest for some years with the bishop of the diocese, was finally confirmed in the possession of that benefice. His next publication, which appeared in 1724, was "A Theological Treatise in Defence of the Authority and Infallibility of the Pope," 12mo. This piece was attacked by different writers, Catholic and Protestant, and defended by him in several tracts; the titles of which, as well as some of his other polemical publications, the reader may meet with in Moreri. In the year 1725 he paid a visit to Rome, where he was very favourably received by Benedict XIII. on account of his writings, in which he had maintained the infallibility and highest pretensions of the papal see, and declared hostility against the liberties of the Gallican church. As a reward for such obsequiousness, in 1726, the pope nominated him bishop of Macra, in *partibus infidelium*, and performed in person the ceremonies of his consecration. He also granted him an indulgence to retain the possession of his abbey. Our prelate's episcopal honours, however, were but of short duration; since he died suddenly at Sennones in 1728, in the 69th year of his age. He is supposed to have been the author of an anonymous "Historical and Dogmatical Treatise on the Subject of Ecclesiastical Privileges and Exemptions," which was printed at Metz in 1699, in 4to. *Dupin. Moreri.*

PETIT GOA'VE. See GOA'VE, vol. viii.

PETIT JU'RY. See JU'RY, vol. xi.

PETIT LAR'CENY. See LARCENY, vol. xii.

PETIT-PIE'D (Nicholas), a French clergyman and magistrate, was descended from an honourable family, and born at Paris about the year 1630. Having been educated for the church, he took orders, and obtained the living of St. Martial, in his native city. In 1658, he was admitted to the degree of doctor by the faculty of the Sorbonne; and, in 1662, was appointed a clerical counsellor of the Chatelet. Afterwards he was made sub-chanter and canon of the church of Paris; and he died in 1705, when he was about the age of 75. He had for several years held the post of clerical counsellor at the Chatelet, and officiated, during the same time, as incumbent of the parish of St. Martial, till one day in the year 1678, when the lieutenants were absent, he, being the senior counsellor present, was proceeding to take the chair. In this design he was opposed by the lay-counsellors, who maintained that, being a clergyman, he had no right to preside in a secular court. After entering his protests, M. Petit-Pied commenced a legal process against them, which lasted about four years, and was terminated by a definitive arret in favour of clerical counsellors. This contest induced him to compose and publish "A Treatise on the Right and Prerogatives of Ecclesiastics in the Administration of secular Justice," in a large 4to. volume; which is said to be an excellent work of the kind, to display much curious research, and to reflect great honour on the learning and abilities of the author. *Moreri.*

PETIT-PIE'D (Nicholas), nephew of the preceding, and a very voluminous writer in the Janesist controversy, was born at Paris in the year 1665. He was early destined to the ecclesiastical profession, and prosecuted his studies in the university of Paris with great diligence and reputation, particularly distinguishing himself when entering upon his licentiate. In 1692, he was admitted doctor of the house and society of the Sorbonne; and, in 1701, he was appointed professor of the sacred scriptures in the schools of that faculty. In the year last mentioned, together with thirty-nine other doctors, he gave his signature to the famous *Case of Conscience*, the History of which has been published in 8 vols. 12mo. The part which he took on this occasion, involved him in the proscription which was issued out against the opposers of the bull *Unigenitus*; and, in 1703, he received an order from

from the king, which exiled him to Beaune in Burgundy. Afterwards he withdrew from Beaune to a place of secret retirement, whence he wrote a letter to his brother, M. de Vaubreuil, explaining the reasons for his conduct in the affair of the Cafe of Conscience, which was printed, and is inserted in the history above mentioned. Tired, at length, of the confinement to which he was obliged to submit, in 1705 he retired from France and joined his friend Quesnel in Holland. Here he remained till the year 1718, when he obtained permission at first to come to Troyes, and afterwards to Paris. During the following year, the Faculty of Theology, by unanimous consent, re-established M. Petit-Pied in his place as doctor, and in all the rights and privileges attached to it; upon which he took his seat among them according to his rank of seniority. This proceeding, however, gave displeasure at court; and, within a month, the king gave orders for reversing all the measures which had been taken in favour of our divine. Thus circumstanced, he was taken under the protection of the bishop of Bayeux, who made him his chaplain. In this asylum M. Petit-Pied continued till the death of the bishop in 1728; when, finding that he was in danger of being arrested, he once more withdrew privately into Holland. Having been recalled to his native country in 1734, he spent the remainder of his life in tranquillity at Paris, where he died in 1747, at the age of 82. He was the author of a great number of well-written pieces in French and Latin, against the constitution Unigenitus, and in defence of the principles of the bishop of Ypres; of which no fewer than eighty-one are particularized by *Moreri*.

PETIT PORT, a harbour on the west coast of Newfoundland. Lat. 47. 52. N. lon. 59. 15. W.

PETIT PORT, a harbour on the coast of Peru, near the Equator.

PETIT SER/JEANTY. See SERJEANTY, and the article TENURE.

PETIT SES'SION. See SESSION.

PETIT TREASON. See TREASON.

PETITES CHIEF/LES, a town of France, in the department of the Jura, and chief place of a canton, in the district of Saint Claude. The place contains 578, and the canton 11,923, inhabitants.

PETITE GUER'RE, [French.] The minor operations of war; the operations of detached parties, and the war of posts. See the article WAR.

PETITE PIER'RE. See LUTZELSTEIN.

PETITE RIVIER'E, a town of Hispaniola: fifteen miles east-north-east of St. Marco.

PETITE RIVIER'E, a town of Canada, on the St. Laurence: sixty-five miles north-east of Quebec.

PETITE TER'RE, a small island in the West Indies, near Defeada.

PETITE TROU', a town of the island of Hispaniola: nineteen miles east of Jeremie.

PETITIA, *f.* [so named by Jacquin, in memory of Francis Petit; see p. 797.] In botany, a genus of the class tetrandia, order monogyna, natural order of vitices, *Juss.* Generic characters—Calyx: perianthium one-leaved, small, upright, four-toothed, inferior, permanent. Corolla: one-petalled; tube cylindrical, upright, long; border four-cleft; segments ovate, acute, flat, reflex, half the length of the tube. Stamina: filaments; four, awl-shaped, very short, in the upper part of the tube; antheræ upright. Pistillum: germ roundish, superior; style awl-shaped, upright, the length of the stamens; stigma simple. Pericarpium: drupe roundish. Seed: nut ovate, blunt, two-celled; kernels solitary, oblong. The flowers are often three-stamened, with the calyx and corolla trifid.—*Essential Character.* Calyx four-toothed, inferior; corolla four-parted; drupe with a two-celled nut.

1. *Petitia Domingensis*, a solitary species. This is a small tree, with four-cornered striated branches. Leaves ovate-oblong, acuminate, quite entire, opposite, smooth, veiny

underneath, six inches long, on slender footstalks. Flowers numerous, white. Dr. Mæter, whose discoveries, though not acknowledged, have greatly enriched the Vienna gardens, has observed, that this plant is truly a species of *CITHAREXYLUM*. It was found in the island of St. Domingo, in woods, by Jacquin.

PETITIO PRINCIP'II, in logic, the taking a thing for true, or for granted, and drawing conclusions from it as such, when it is really dubious, perhaps false, or at least wants to be proved before any inferences ought to be drawn from it.

PETITION, *f.* [*petitio*, Latin.] Request; intreaty; supplication; prayer.—We must not only send up *petitions* and thoughts now and then to heaven, but must go through all our worldly business with a heavenly spirit. *Laur.*—Thou didst choose this house to be called by thy name, and to be a house of prayer and *petition* for thy people. 1 *Mae.* vii.—Let my life be given at my *petition*, and my people at my request. *Ezther* vii. 3.

My next poor *petition*

Is, that his noble grace would have some pity
Upon my wretched women. *Shakespeare.*

Single branch or article of a prayer:

Then pray'd that she might still possess his heart,
And no pretending rival share a part;
This last *petition* heard of all her pray'r. *Dryden.*

PETITION of RIGHT, was a parliamentary declaration of the liberties of the people, assented to by king Charles I. in the beginning of his reign: in which it is enacted, that none should be compelled to make or yield any gift, loan, benevolence, tax, and such-like charge, without consent by act of parliament; nor, upon refusal so to do, be called to make answer, take any oath not warranted by law, give attendance, or be confined or otherwise molested, concerning the same, &c. And that the subject should not be burthened by the quartering of soldiers or mariners; and all commissions for proceeding by martial law to be annulled, and none of like nature issued thereafter, lest the subject (by colour thereof) be destroyed or put to death, contrary to the laws of the land, &c. See stat. 3 Car. I. cap. 1.

To PETITION, *v. a.* To solicit; to supplicate.—The mother *petitioned* her goddess to bestow upon them the greatest gift that could be given. *Addison.*

You have *petition'd* all the gods
For my prosperity.

Shakespeare's Coriol.

PETITIONARILY, *adv.* By way of begging the question.—This doth but *petitionarily* infer a dextrality in the heavens, and we may as reasonably conclude a right and left laterality in the ark of Noah. *Brown.*

PETITIONARY, *adj.* Supplicatory; coming with petitions.—Pardon thy *petitionary* countrymen. *Shakespeare.*

It is our base *petitionary* breath
That blows 'em to this greatness.

B. Jonson.

Containing petitions or requests.—*Petitionary* prayer becometh only to such as are in themselves impotent, and stand in need of relief from others. *Hooker.*—I return only yes or no to *questionary* and *petitionary* epistles of half a yard long. *Swift.*

PETITIONER, *f.* One who offers a petition.—When you have received the petitions, (and it will please the *petitioners* well to deliver them into your own hand,) let your secretary first read them, and draw lines under the material parts. *Bacon.*—What pleasure can it be to be encumbered with dependences, thronged and surrounded with *petitioners*? *South.*

His woes broke out, and begg'd relief
With tears, the dumb *petitioners* of grief. *Dryden.*

PETITORY, *adj.* [*petitorius*, Lat. *petitoire*, Fr.] *Petititioning*; claiming the property of any thing:

Of't have I feason'd favoury periods
 With fugar'd words, to delude Gustus' taste:
 And oft perfum'd my *petitory* fyle
 With civet-ſpeech, to entrap Olfactus' noſe! *Brewer.*

PETITOT (John), an artiſt at the ſummit of excel-
 lence in his particular branch, that of painting in enamel,
 was born at Geneva in 1607. His father, a ſculptor and
 architect, placed him with a jeweller. In this employ-
 ment, having frequent occaſion to make uſe of enamel,
 he found means to give it ſo fine a tone of colour, that
 his friend Bordier, a painter, (who was afterwards his
 brother-in-law,) thought that, if he would apply to por-
 trait, he might carry the art farther than had hitherto
 been done. Petitot took his advice, and was ſucceſſful:
 he executed the heads and hands, whiſt Bordier painted
 the hair, drapery, and grounds. The two friends tra-
 velled together for improvement, viſiting not only the
 workſhops of painters, but the laboratories of chemiſts,
 for the purpoſe of diſcovering new colours. It was in
 England that Petitot acquired the greateſt addition to
 his knowledge in this point, from his fellow-countryman,
 ſir Theodore Mayerne, then phyſician to Charles I.
 Mayerne introduced him to the king, who took pleaſure
 in ſeeing him work, and honoured him with knighthood,
 and an apartment in Whitehall. Vandyke gave him in-
 ſtructions in portrait-painting; and ſome of Petitot's beſt
 works are copies from that maſter. The whole-length of
 Rachel de Rouvigny, counteſs of Southampton, from
 Vandyke, is aſſerted to be the moſt capital piece in enamel
 any where extant; its execution is bold, and its colour-
 ing the richeſt and moſt beautiful conceivable. There
 are ſeveral other fine works of his in England, conſiſting
 of the king and royal family, ſeveral of the nobility, &c.
 After the death of Charles, Petitot accompanied the
 exiled family to Paris, and ſhewed great attachment to
 them. His aſſociate, Bordier, however, ſtaid ſome time
 longer, for it appears that he executed an enamel of the
 battle of Naſeby, as a preſent from the parliament to Gen.
 Fairfax. Charles II. during his reſidence in France, took
 great notice of Petitot, and introduced him to Louis XIV.
 who retained him in his ſervice, and gave him a penſion
 and apartments in the Louvre. He married in 1651; and,
 being much employed by the king and court, obtained
 great emoluments. He continued to work in conjunc-
 tion with Bordier, who was become his relation by mar-
 riage. They lived together till their families grew too
 numerous for one houſe; and, during their long connex-
 ion (fifty years), they never had the ſmalleſt difference.
 Petitot was a ſtrict proteſtant; and, at the revocation of
 the edict of Nantes in 1685, he requeſted permiſſion to
 retire to Geneva. The king, however, who had now a
 paſſion for proſelyting, reſolved to try the effect of a little
 coercion, and confined the reſpectable old man in Fort-
 l'Eveque, giving him Boſſuet for an inſtructor. The elo-
 quence and arguments of this celebrated prelate were,
 however, loſt upon him, and his uneaſineſs at being con-
 fined threw him into a fever. He was thereupon liberated,
 and immediately withdrew with his wife from the land of
 perſecution to Geneva. His children threw themſelves
 at the feet of the monarch, deprecating his reſentment
 for this exerciſe of natural liberty; and he graciouſly
 pardoned "an old man who had the fancy of being bu-
 ried with his anceſtors." Petitot continued to exerciſe
 his art, notwithstanding his advanced years; and the re-
 port to ſee him was ſo great, that he retired for quiet and
 privacy to Vevay. There, as he was employed on the
 portrait of his wife, he was taken ill, and died on the
 ſame day, in 1691, at the age of 84, univerſally reſpected,
 as well for his moral worth as his profeſſional talents.

He had a numerous family, of whom one ſon followed
 the ſame branch of art, and ſettled in London. Though
 he was not by any means equal to his father, yet he ob-
 tained very conſiderable employment and repute. His
 age and the period of his death are alike unknown. *Wal-
 pole's Anecdotes.*

PETIVARS, a tribe, inhabiting towards the north-eaſt
 of Braſil, who are ſaid to be benevolent and hophitable.
 They bore their lips, and adorn them with a green ſtone,
 of which they are ſo vain as to deſpiſe all other nations.
 When the wife has brought forth a child, the husband
 confines himſelf to his bed for a month, and receives viſits
 of congratulation. Eſtalla obſerves, that this cuſtom is
 not only common in many parts of America, but was
 alſo known to the ancient Spaniards, as mentioned by
 Strabo. The reaſon of this fooliſh cuſtom is, that if any
 accident were to befall the father, the new-born babe muſt
 ſuffer.

PETIVER (James), an induſtrious naturaliſt, eſpe-
 cially in the botanical branch, was probably a native of
 London, as Dr. Pulteney has aſcertained that he ſerved
 an apprenticeship to Mr. Feltham, apotheary of St.
 Bartholomew's Hoſpital. He entered into buſineſs for
 himſelf in Alderſgate-ſtreet, became apotheary to the
 Charter-houſe, and obtained a conſiderable ſhare of prac-
 tice. He manifeſted an early propenſity to the collection
 of natural curioſities, for which purpoſe he engaged the
 ſervices of captains and ſurgeons of ſhips in bringing him
 from diſtant parts dried plants, ſeeds, ſtuffed ſpecimens of
 animals, inſects, &c. He thus became proprietor of a
 muſeum which made him well known to naturaliſts both
 at home and abroad; and ſuch was its extent, that a
 ſhort time before his death ſir Hans Sloane offered him
 4000l. for it. He was elected a fellow of the Royal So-
 ciety, to which he was a very uſeful member, on account
 of his frequent communications of curious intelligence.
 He was an early correſpondent of the excellent Ray, to
 whom he gave ſome valuable aſſiſtance in the compoſition
 of his *Hiſtory of Plants*. Petiver in 1692 made a botani-
 cal tour through the midland counties of England, and
 ſoon after began the publication of his firſt work. This
 was entitled "*Muſæi Petiveriani ſecuræ decem*," 1692-
 1703, 8vo. containing the names and ſynonymes of vari-
 ous rare animals, foſſils, and plants: among theſe were
 ſeveral new plants of the cryptogamous claſs, in the in-
 veſtigation of which he was very ſucceſſful. His next
 publication was "*Gazophylacii Naturæ et Artis decades
 decem*," 1702-1711, tab. 100. fol. This was a work of
 great value at that time, containing engravings with ſhort
 deſcriptions of animals, vegetables, and foſſils, among
 which were many American ferns and plants from the
 Alps and Cape of Good Hope, all very rare or non-de-
 ſcript. He communicated in 1695 a Catalogue of the
 Middleſex Plants for Gibſon's edition of Camden's *Britan-
 nia*; and he furniſhed the third volume of Ray's
Hiſtory of Plants with a Catalogue of rare Plants of
 China, Madraſpatan, and Africa; another, of the Plants
 in his *Hortus Siccus*; and a third, of Indian and Ameri-
 can plants of uncertain origin. In 1712 he publiſhed
 "*Pterigraphia Americana*," being figures of more than
 400 ſpecies of the fern tribe, with ſome ſubmarine pro-
 ductions. He performed a valuable ſervice to Engliſh
 botany by the publication of "*A Catalogue of Ray's
 Engliſh Herbal, illuſtrated with figures*," 1713-1715, fol.
 the figures are arranged in the order of Ray's *Synopſis*;
 they are little more than outlines, and final, but neat.
 A new impreſſion of them was given by Sloane in 1732.
 Petiver was alſo the author of a great number of ſmaller
 publications, conſiſting chiefly of ſmall catalogues and
 ſingle prints of rare plants, by which he extended an ac-
 quaintance with the vegetable creation, and kept up an
 intereſt in botanical reſearches. He wrote more than
 twenty papers for the Royal Society, printed in its *Tran-
 ſactions* from 1697 to 1717. In one of theſe he purſues
 the idea that the virtues of plants may in general be de-
 termined by their botanical affinities. This occurs in
 vol. xxi. N^o 255, under the denomination of "Some at-
 tempts made to prove, that herbs of the ſame make, or
 claſs, for the generality, have the like virtue, and ten-
 dency to work the ſame effects." The idea had indeed
 been ſuggeſted by Cæſalpinus, but it was firſt exemplified
 by

by Petiver. Linnæus afterwards carried it further, nor can any reflecting person doubt of the soundness of the doctrine.

It would be impossible as well as useless to particularize the publication of every one of Petiver's lists and catalogues. They were all, as far as could be collected, re-published in two vols. folio, under the title of *Jacobi Petiveri Opera*, by John Millan in 1767, price plain six guineas; or with the insects coloured, which is the best, seven guineas; and with the whole coloured, which must chiefly have been done from imagination, twenty guineas.

It does not appear that Petiver had any family, or that he was ever married. He died at his house in Aldersgate street, on the 20th of April, 1713; but of his age we find no mention. His body lay in state at Cooke Hall, and was probably interred at his parish-church, to the charity-school attached to which he left fifty pounds, and five guineas to Dr. Brady for preaching his funeral sermon. His pall was supported by Sir Hans Sloane, Dr. Levit, physician to the Charter-house, and four other physicians. We know not that any portrait of him is extant. The collections of dried plants, and other natural productions, which belonged to Petiver, and after his death were bought by Sir Hans Sloane, now make a part of the British Museum. *Pulteney's Sketches of Botany.*

PETIVERIA, *f.* [named by Plumier in honour of the subject of the preceding article.] GUINEA-HEN WEED; in botany, a genus of the class hexandria, order tetragynia; or, according to Swartz, class heptandria, order monogynia; natural order of holoraceæ, (atriplices, *Juss.*) Generic characters—Calyx: perianthium four-leaved; leaflets linear, blunt, equal, spreading, permanent. Corolla: none (except the coloured calyx.) Stamina: filaments six or eight, unequal, awl-shaped, converging; antheræ erect, linear-sagittate, bifid at top. Pistillum: germen ovate compressed, emarginate; style very short, lateral, in the groove of the germen; (styles four, permanent, finally bent outwards, spinescent, *Gærtner.*) Stigma: pencil-shaped. Pericarpium: none, except the crust over the seed. Seed single, oblong, narrower below, roundish, compressed, emarginate: with four barbed hooks, bent back outwards, rigid, acute, the middle ones longer: (naked, but armed above with reflex spines; *G.*) The flowers have mostly seven stamens.—*Essential Character.* Calyx four-leaved; corolla none; seed one, with reflex awns at top. There are two species.

1. *Petiveria alliacea*, or common Guinea-hen weed: flowers six-stamened. Root strong, striking deep into the ground. Stems from two to three feet high, jointing and becoming woody at bottom. Leaves oblong, three inches long and an inch and a half broad, of a deep green and veined, placed alternately on short foot-stalks. The flowers are produced in slender spikes at the ends of the branches; they are very small, and make no figure. Seed cuneiform-oblong, round-flatted, with an obscure ridge on one side and a depressed line on the other, armed at top with four pungent spines, at first almost upright, but afterwards reflected to the back; of a bay or pale-green colour. It is a common plant in most of the islands in the West Indies, where it grows in shady woods, and all the savannas, in such plenty as to become a troublesome weed. As this plant will endure much drought, it remains green when others are burned up: the cattle then feed on it, and it gives their milk the taste of garlic, and an intolerable rankness to their flesh. It flowers here in June. Browne informs us that it is very common in all the lower lands of Jamaica, and that it is so remarkably acrid, as to render the smell and taste hardly tolerable. On chewing a little of the plant, it burns in the mouth, and leaves the tongue black, dry, and rough, as it appears in a malignant fever. It is however thought to be coveted by Guinea-hens, and hence its name. It thrives most in a dry gravelly soil and a shady situation. Cultivated in 1758 by Mr. Miller.

2. *Petiveria octandra*, or dwarf Guinea-hen weed: flowers eight-stamened. This is very like the first, but differs in having a shorter and narrower stalk, and in the flowers having eight stamens; but, except to a nice observer, they may both pass for the same species. Linnæus adds, that the leaves are more rigid and quite smooth, the filaments purple and not white. It is a mere variety of the preceding, according to Swartz. Jacquin describes it differing from the common sort only in having eight filaments, which are all unequal, and the pencil-shaped body placed on the germen red, whereas in the other it is white. Native of the West Indies: according to Jacquin, frequent in Martinico and the other Caribbee Islands, flowering almost all the year.

Propagation and Culture. These plants may be increased by slips or cuttings, as well as seeds; which must be sown on a hot-bed early in the spring. When the plants are come up, transplant each into a separate pot, and plunge the pots into a moderate hot-bed. When the plants have obtained a good share of strength, inure them by degrees to the open air, into which remove them towards the end of June, placing them in a warm situation where they may remain till autumn, when they should be placed in the stove, and during winter have a moderate degree of warmth. They will produce flowers and seeds every summer, and will continue several years, remaining constantly green throughout the year.

PET'KUM, a town of East Friesland: three miles south-east of Emden.

PET'NHOFEN, a town of Bavaria, in the principality of Aichstatt: seven miles south-south-east of Aichstatt.

PETOLA, *f.* in botany. See **MOMORDICA**.

PETOM'BO. See **TUMBO**.

PETOUNE HO'TUN, a town of Chinese Tartary, in the government of Kirin Oula: 485 miles north-east of Peking. Lat. 45. 15. N. lon. 124. 34. E.

PETOUNE KIA'MEN, a post of Chinese Tartary: nine miles north-west of Petouné Hotun.

PETRA, in ancient geography, has been slightly mentioned under the word **KRAC**, in vol. xi. It is supposed to be the same with *Rekem*, so called from *Rekem* king of the Midianites, slain by the Israelites (Num. xxxi. 8.) Ptolemy places it in lon. 66. 45. from the Fortunate islands, and lat. 30. 20. It declines therefore eighty miles to the south of the parallel of Jerusalem, and thirty-six miles, more or less, from its meridian to the east. Josephus says, that the mountain on which Aaron died stood near Petra; which Strabo calls the capital of the Nabatæi; at the distance of three or four days' journey from Jericho. This Petra seems to be the *Sela* of Isaiah xvi. 1. and xlii. 11. the Hebrew name of *Petra*, "a rock;" though some imagine Petra to be no older than the time of the Macedonians.

Under the Romans, at any rate, it gave the name of *Petræa* to the surrounding district. It is the chief town of the Nabatæi, and is laid down by Burckhardt in latitude 30. 20. a position which accurately agrees with Ptolemy, Eratosthenes, Strabo, and Pliny. Mr. Burckhardt also confirms the testimony of Josephus, that near to this city was the sepulchre of Aaron in Mount Hor; and it is now evident that the present object of Mussulman devotion, the *tomb of Haron*, occupies the very spot which has always been regarded as the burying-place of Aaron: consequently, that the mountain west of Petra is the Mount Hor of the Scriptures.

The ruins which have acquired the name of *Wadi Moosa*, from that of a village in their vicinity, are the wreck of the city of Petra, which, in the time of Augustus Cæsar, was the residence of a monarch, and the capital of Arabia Petræa. The country was conquered by Trajan, and annexed by him to the province of Palestine. In more recent times, Baldwin king of Jerusalem, having made himself also master of Petra, gave it the name of the Royal Mountain.

Mr. Banks, who has very recently visited some of the most

most celebrated scenes in Arabia, intends, it is understood, to publish an account of his excursion to Wadi Moofa (the Valley of Moses), with engravings of the drawings which he made, of the hitherto-undescribed excavated temples there; as well as of the ruins of Jerrafsch, which excel in grandeur and beauty even those of Palmyra and Balbec. This gentleman, in company with several other English travellers, left Jerusalem for Hebron, where they viewed the mosque erected over the tomb of Abraham. They then proceeded to Karrac, along the foot of mountains, where fragments of rock-salt indicated the natural origin of that intense brine, which is peculiarly descriptive of the neighbouring waters of the Dead Sea. Karrac is a fortress situated on the top of a hill. The entrance is formed by a winding passage, cut through the living rock. It may be described as a mass of ruins. The inhabitants of the place are a mingled race of Mahometans and Christians, remarkably hospitable, and living together in terms of free intercourse than at Jerusalem. The women were not veiled, nor seemed to be subject to any particular restraints. They passed into the valley of El-lasar, where they noticed some relics of antiquity, which they conjectured were of Roman origin. They pursued their journey partly over a road paved with lava, and which was evidently a Roman work, to Shubac. In the neighbourhood of this place, they encountered some difficulties from the Arabs. The travellers, however, after some captious negotiation, at last obtained permission to pass, *but not to drink the waters.*

On crossing a stream, they entered on the wonders of Wadi Moofa. The first object that attracted their attention, was a mausoleum, at the entrance of which stood two colossal animals, but whether lions or sphinxes they could not ascertain, as they were much defaced and mutilated. They then, advancing towards the principal ruins, entered a narrow pass, varying from fifteen to twenty feet in width, overhung by precipices, which rose to the general height of two hundred, sometimes reaching five hundred, feet, and darkening the path by their projecting ledges. In some places, niches were sculptured in the sides of this stupendous gallery; and here and there rude masses stood forward, that bore a remote and mysterious resemblance to the figures of living things, but over which time and oblivion had drawn an inscrutable and everlasting veil. About a mile within this pass, they rode under an arch, perhaps that of an aqueduct, which connected the two sides together; and they noticed several earthen pipes, which had formerly distributed water. Having continued to explore the gloomy windings of this awful corridor for about two miles, the front of a superb temple burst on their view. A statue of Victory, with wings, filled the centre of an aperture in the upper part, and groups of colossal figures, representing a centaur, and a young man, stood on each side of the lofty portico. This magnificent structure is entirely excavated from the solid rock, and preserved from the ravages of the weather by the projections of the overhanging precipices. About three hundred yards beyond this temple, they met with other astonishing excavations; and, on reaching the termination of the rock on their left, they found an amphitheatre, which had also been excavated, with the exception of the proscenium; and this had fallen into ruins. On all sides the rocks were hollowed into innumerable chambers and sepulchres; and a silent waste

of desolated palaces, and the remains of constructed edifices, filled the area to which the pass led. The travellers, having gratified their wonder with the view of these stupendous works, went forward to Mount Hor, which they ascended, and viewed a building on the top, containing the tomb of Aaron, a simple stone monument, which an aged Arab shows to the pilgrims. They finally proceeded to view the ruins of Jerrafsch, which greatly exceed in magnitude and beauty those of Palmyra. A grand colonnade runs from the eastern to the western gates of the city, formed on both sides of marble columns of the Corinthian order, and terminating in a semi-circle of sixty pillars of the Ionic order, and crossed by another colonnade running north and south. At the western extremity stands a theatre, of which the proscenium remains so entire, that it may be described as almost in a state of undecayed beauty. Two superb amphitheatres of marble, three glorious temples, and the ruins of gorgeous palaces, with fragments of sculpture and inscriptions, mingled together, form an aggregate of ancient elegance, which surpasses all that popery has spared of the former grandeur of imperial Rome. *Burchhardt's Travels in Syria, 1823. Gen. Mag. Aug. 1819.*

PE'TRA, a river of Naples, which runs into the sea 13 miles north-east of Bova.—A town of Sicily, in the valley of Mazara; two miles north-north-west of Girgenti.—A sea-port town, in the island of Metelin, situated on a rock almost inaccessible. Lat. 39. 27. N. lon. 26. 14. E.

PETRÆUS (Theodore), a learned Dane in the 17th century, the time of whose birth is unknown, was a native of Flensburg, in the duchy of Sleswic. He was particularly attached to the study of the oriental languages, which he prosecuted with great success at Leyden and other universities. That he might perfect himself in them, Frederic III. king of Denmark, sent him to travel through Greece, Syria, Palestine, and Egypt. Having spent several years in those countries, he returned to Denmark with a number of valuable manuscripts which he had collected, and which he began to publish at Leyden, in conjunction with George Nisselius, in 1654. In 1660 he went to London, where he remained two years; and he was afterwards invited to be professor of the oriental languages at Leyden, Kiel, Copenhagen, and other places; but all these offers he declined, and lived in great poverty, as a private individual, sometimes at Amsterdam, and sometimes at Copenhagen, till the year 1673, when he died. His publications consist of four separate volumes of Ethiopic, Arabic, Coptic, and Armenian, translations of parts of Scripture, with Latin versions annexed. 5. *Doctrina Christiana Armenice, cum versione Latina, 1667, 8vo.* 6. *Dissertatio Guelphica de Linguarum Orientalium studio, 1669, 8vo.* 7. *Mensa Solis, seu Animæ dapes salutiferæ, ab Æthiopicibus supra Ægyptum petita, 1669, 4to.* *Gen. Biog. vol. viii. and x.*

PETRAHA'R, a town of Hindoostan, in Bahar: twenty miles east of Ramgur.

PETRA'LIA, a town of Sicily, in the Valley of Demona: seventeen miles south of Mistrella.

PETRAL'TA, a town of Naples, in Calabria Citra: five miles east-south-east of Colenza.

PETRAN'TA, a town of Etruria, near the sea-coast: fifteen miles north-west of Lucca. Lat. 43. 58. N. lon. 10. 21. E.

INDEX to the Article PATHOLOGY.

- A**BERNETHY's classification of tumours, 86; his directions for diet and exercise, 104, 5; his blue-pill, 146.
- Abcesses, 230.
- Abforbents, 96.
- Absorption, how increased or diminished, 99.
- Achilles, skilled in medicine, 4.
- Acids forming calculi, 348.
- Acron of Agrigentum, 4.
- Acrotica, diforders affecting the surface of the skin, 350.
- Actuarius, his era doubtful, 17.
- Æsculapius, or Afclepias, and his descendants, 3; when first worshipped at Rome, 9.
- Aesthetica, difeases affecting sensation, 299.
- Aetius, his practice in gout and palsy, 15.
- Agathinus, founder of the Eclectic sect, 12.
- Agnesia, impotence, 331.
- Agrypnia, wakefulness, 310.
- Ague, cured by pepper, 55.
- Air, an important agent in the cure of indigestion, 141; cautions about exposure to, 141, 2.
- Albinos, 289, 364.
- Albucæus, an Arabian surgeon, 19.
- Alcmæon of Crotona, 4.
- Alexander Trallianus, 15.
- Alexandrian school, 9.
- Alphofis, white leprosy, 289.
- Alusia, illusion, 299.
- Anatomical Museum of Hunter, 36; at Straßburg, 72.
- Anatomy, early cultivated, 1; improvement of, by Vesalius, 21; by Fallopius and Eustachius, 22; modern system by Bichat, 39, 45; present state of, in England, 45; in France, 45, 6.
- Anetus, intermittent fever, or ague, 224.
- Aneurifm, le Roux's method of operating, 47; various species of, 297, 8.
- Angina pectoris, 190; caufes and treatment, 192.
- Anthelmintics, 96.
- Anthrax, the plague, 279.
- Antidote of Mithridates king of Pontus, 8; the ingredients, 25; of the theriaca, 25, 6.
- Antipathia, antipathies, 310.
- Antispasmodics, 96.
- Antyllus, an eye-doctor, 12.
- Apalotica, diforders of the soft parts, 365.
- Aphexia, reverie, 299.
- Aphonia, dumbness, 178.
- Aphoria, sterility, 331.
- Apoplexy, nervous, 136; sanguine and ferrous, 319; general symptoms, 320; treatment, 321.
- Apostema, or deep-seated abcess, 230.
- Appetite, wonderfully great, 119; depraved, 122, 3.
- Arabians, or Saracens, preserved the knowledge of physic and surgery in the dark ages, 18; exclusively, 19.
- Arachnoiditis, characters of, 47; the progress of the disorder fully detailed, 236, 7; appearance on dissection, and treatment, 238.
- Archagathus, the first practitioner at Rome, 10.
- Archigenes and Aretæus, 12.
- Aristæus, king of Arcadia, 4.
- of Cilicia, founder of the pneumatic sect, 12.
- Aristotle, his universal knowledge, 8; not acquainted with the circulation of the blood, 29.
- Armstrong's system of congestion in fever, 211, 213.
- Arteries, contractility of, 192; inflammation, 246, 7.
- Arthrosis, the gout, rheumatism, &c. 268.
- Afclepiades, an eminent physician of ancient Rome, 10.
- Pharmacion, 11.
- Apellius, his discoveries, 33.
- Asthma, the theory of Dr. Bree, 185; dry, 186; moist, 189; treatment, 187, 189.]
- Astringents, 96.
- Astrology connected with medicine by the Arab physicians, 18.
- Attalus, king of Pergamus, 8.
- Avenzoar and Avicenna, 19.
- Authors quoted, 372.
- Bancroft's description of the yellow fever, 216, 17.
- Barrenness from various caufes, 331.
- Bateman on Cutaneous Difeases, 86.
- Bathing recommended by Hippocrates, 6; for indigestion, 146, 7.
- Beer, an eminent German lecturer on the eye, 67.
- Bell, a very eminent writer on surgery, 37.
- Berengar, 22.
- Berberia, a term for two diforders, 310.
- Bevan, Mifs, without legs or arms, 367.
- Bex, cough, 181.
- Bezoar of the intestines, 162.
- Bichat, his excellent system of anatomy, 39, 45.
- Black vomit, 216.
- Bladder, inflammation of, 263; protrusion of, 334.
- Bleeding, the chief remedy in fever, 209, 10; in inflammation, 236.
- Blennorrhœa, clap and gleet, 327.
- Blood, action of, how accounted for by Hippocrates, 13; by Galen, 14; by Nemesius, 16; circulation of, 22; steps which led to the discovery, 28; morbid changes in, 94; difeases of, 191; from quantity, 192; from quality, 194.
- Blumenbach and his museum, 59, 60; a collector of skulls, but not a craniologist, 60.
- Boer, professor of midwifery at Vienna, 68; his practice, 69.
- Boerhaave, 34; his high reputation, 35.
- Borelli, his mechanical calculations, 33.
- Bougies, first invention of, 22; their use, 329.
- Brain, particularly the object of attention at present in France, 46, 7; how it acts on the stomach, 106; and the stomach upon it, 132; principally affected in fever, according to Dr. Clutterbuck, 195; not at all, according to Dr. Lind, 196.
- Bremser (Dr.), and his cabinet of worms, 63.
- Briffot of Poitou, 21.
- Bronchitis, 266.
- Bronchocele, two kinds, 288.
- Brouffais, his theory of inflammatory difeafe, 43; examined à la Moliere, 46; à la Rabelais, 50; his theory of fever, 197, 205; followed by Harrison, 198.
- Brown's system of diseased action, 40; examined and refuted, 41; improved by Darwin, 43.
- Bucnemia, Barbadoes leg, 292.
- Cachexies, whence they arise, 280.
- Cælius Aurelianus, 11.
- Cæfalpinus, 22; approached very near to the discovery of the circulation, 30.
- Calculus of the intestines, 161; composition of, 162; of the kidney, 346; bladder, 347; composition of, 348, 9; treatment, 348, 350; how to be extracted from women, and occasionally from men, 350.
- Calomel, action of, 156.
- Camphis, a bent bone or cartilage, 366.
- Canine madness, 311.
- Carcinus, cancer, 291; treatment, 292.
- Carditis, or inflammation of the heart, 243, 4; how to be distinguished from pericarditis; 244, 5; chronic carditis, 247.
- Carlisle (Mr. A.) his remarks on cathartic medicines, 96, 7.
- Carpotica, difeases affecting impregnation, 335.
- Carus, fuspended animation, 318.
- Cassius the Iatrophist, 12.
- Catacaufis, internal burning, 292; curious cafes, 293.
- Catagma, fractures, 365, 6.
- Catalepsy, or trance, 319.
- Catarrh, 264; common, 265; as distinguished from pneumonia, 266; treatment of, 267; epidemic, 267, 8.
- Cathartics, 96.
- Catotica, internal diforders of the fluids, 338.
- Caufes of difeafe, 90; proximate or local caufes, 91.
- Cauteries, bold use of by Oribafius, 15.
- Celfus, improves upon Hippocrates, 12; his enlightened practice, 13; remarks on the pulse, 93.
- Cenotica, diforders affecting the fluids, 322.
- Cephalæa, head-ache, 315.
- Cephalitis, or phrenitis, 238; caufes and cure, 239.
- Chamberlaine's remedy for worms, 166.
- Charlemagne, founds the celebrated school of Salerno, 19.
- Charms for the ague, 226.
- Chemical system of Sylvius, 31.
- Chicken-pox, 276; perhaps a modified small-pox, 277.
- Chilblains, treatment of, 235.
- Children, difeases of, 89, 90.
- China, degraded state of medicine, there, 3.
- Chiron the centaur, 3, 4.
- Chlorosis when proceeding from indigestion, 139; two species of, 330.
- Cholera morbus, 159; Indian, 159, 60; extremely fatal, 161.
- Chololithus, gall-stones, 160.
- Chordee, 328.
- Chryfippus, fonder of cabbage than of physic, 8.
- Cinetica, diforders of the muscles, 303.
- Clap, not followed by secondary symptoms, 327; but degenerates into gleet, 328.
- Clark's account of the remittent fever of Bengal, 220.
- Classification of difeases, 101.
- Clergy, at first physicians, afterwards had dominion over the physicians, 20.
- Clinical lectures at Vienna, 64.
- Clonus, hiccough, sneezing, &c. 309.
- Clutterbuck's theory of fever, 195; opposed by Dr. Bateman, and Dr. Lind, 196.
- Clysters, their use, 97.

- Cœliaca, or diseases of the digestive organs, 101.
- Colchicum, for the cure of gout, 272.
- Colica, or griping of the guts, 149.
- Columbus (Realdus), 30.
- Constantine the African, 20.
- Consumption, 282.
- Contagion, not the only cause of fever, 207; how to guard against, 208.
- Coprostasis, or retention of the fœces, 154.
- Cordova, university of, 19.
- Corns, to cure, 343, 4.
- Corpulence, nature and causes of, 336; not easily got rid of, 337.
- Corvisart, funeral of, 51.
- Coryza, cold in the head, 177, 8.
- Costiveness, 154.
- Coughing, phenomena of, 180; common, 181; dry, 182; whooping, 183.
- Cow-pox, 276.
- Cramp, or spasms, 308.
- Craniology, loses ground at Paris, 49.
- Cretinism, 287, 8.
- Crichton's Table of Diseases, 84.
- Croup, 241, 2.
- Crufades, their effect on the study of medicine, 21.
- Cullen's theory of diseases, 39; particularly of fever, 40; his classification, 83; why abandoned by us, 80, 1; 83, 4; his arrangement of the *materia medica*, 95.
- Cutaneous diseases, as arranged by Plenck and Willan, and completed by Bateman, 86; general remarks, 141, 351.
- Cuvier, the anatomist, 49.
- Cyrtosis, cretinism and rickets, 288.
- Dandelion, a remedy for indigestion, 148.
- Dandriff, 353.
- Darwin, a poet in medicine, 43; his sympathetic theory, 43, 4; farther descanted upon, 85.
- Democetes of Crotona, a travelling physician, 4.
- Democritus of Abdera, 4.
- Default, an eminent French surgeon and anatomist, 38.
- Diabetes, 344; causes of, 345.
- Diaphoretics, 96; action of, 98.
- Diarrhœa, 156; symptoms and cure, 157, 8; a peculiar kind, 158, 9.
- Diathosis, separation of hard parts, 366.
- Diet, or regimen, first noticed by Hippocrates, 6; of great importance in medicine and surgery, 37; well regulated, and properly considered, in the hospitals of Vienna, 64, 5; examination of its effects on the stomach and general health, 102-106, 143.
- Digitalis, the first in the class of sedatives, 236; its use in consumption, 287.
- Dinus, dizziness, 315.
- Diocles of Carystus, 8.
- Dioscorides of Anazarba, 11; his Herbal enriched by the Saracens, 18.
- Diplosis, morbid thirst, 118.
- Dissention, facility of, in Germany, 57.
- Diuretics, 96; their peculiar action, 97, 8.
- Dogmatists, sect of, 7.
- Dolichos, or cowhage, a destroyer of worms, 165.
- Dover's powder, 98.
- Drinking at meals, 102.
- Dropsy, nature and causes of, 338; of the chest, belly, womb, &c. 339; of the head, 340; of the spine, 342.
- Drowned or hanged persons to restore, 319.
- Dubois, an excellent lecturer, 50.
- Dutens, a French writer, endeavours to deprive Harvey of the honour of his discovery, 28.
- Dysentery, 154; symptoms and cure, 153; compared with diarrhœa, 156.
- Dyspepsia, or indigestion, 128.
- Dysphagia, stoppage in the throat, 115.
- Dysphonia, imperfect speech, 179.
- Dysphoria, reflexiveness, 310.
- Dyspœna, or difficulty of breathing, 184, 5.
- Dysthetica, or cachexies, 279.
- Ear-ache, 239; treatment, 240.
- Eccritica, diseases of the excrement functions, 336.
- Eccyefia, extra-uterine gestation, 336.
- Eclêtic sect, founded by Agathinus, 12.
- Echphlysa, blains, or blebs, 355, 6.
- Echphonia, insanity, 298.
- Echphyma, corns, warts, &c. 363.
- Ecpyesis, the running tetter, 358.
- Egyptians, origin of medicine among them, 3.
- Electricity and galvanism, 99, 100.
- Elephantiasis, a peculiar kind of leprosy, 292.
- Emetics, 96; their action considered, 97.
- Emmenagogues, 96, 98.
- Emollients, three kinds of, 96.
- Empathema, passion, 299.
- Empirics, sect of, 7; not founded by Serapion, 8.
- Emplyphis, miliary fever, &c. 276.
- Emphyma, tumours, 337.
- Emphysema, wind-dropsy, 342.
- Empresna, internal inflammation, 235.
- Empyefis, small pox, 277, 8.
- Enanthesis, scarlet fever, measles, &c. 273.
- Enecia, continued fever, including typhus, nervous, putrid, &c. 227.
- Entasa, spasm, 303.
- Enterica, or disorders of the alimentary canal, 101, 108.
- Enterolithus, or stones in the bowels, 161, 2.
- Enthesis, obstructions, 365.
- Epanetus, or remittent fever, 226, 7.
- Ephemera, or simple fever, 222.
- Ephialtes, or night-mare, 189, 90.
- Ephidrosis, diseases from sweat, 350.
- Epichrosis, discolorations of the skin, 364.
- Epilepsy, how treated, by Oribasius, 14, 15; its nature little known, 137, 317; symptoms, 317; treatment, 318.
- Erasistratus, 8; his skill in noting the cause of disease, 9; his practice, *ibid.*
- Erithism, as it affects infants, 132; torpid, 133; of the brain, 136.
- Errhines, 96, 98.
- Erysipelas, 234, 277.
- Erythema, to be distinguished from erysipelas, 234.
- Esquirol, his practice with the insane, 51; his account of madhouses throughout France, 51, 2.
- Eudoxus of Cnidos, 8.
- Eustachius, his anatomical figures, 22.
- Exanthematica, eruptive fevers, 273.
- Exangia, aneurism, 297.
- Exanthesis, cutaneous bluish, 350, 1.
- Exarthrema, dislocation, 366.
- Exercise, moderate, recommended by Hippocrates, violent by Herodias, 5; as a cure for indigestion, 142; for gout, 172; for consumption, 287.
- Exormia, pimples, 352.
- Expectorants, 96.
- Eye, discoveries as to its functions by Kepler, Scheiner, &c. 33; much studied in Germany, 62; lectures on, 66; inflammation of, 264.
- Fabricius ab Aquapendente, 22.
- Falconer (Dr.), his remarks on the pulse, 93, 94.
- Fallopian, 22; anatomist and surgeon, 23.
- Faking, remarkable instances of, 120, 1; from the Harl. Misc. 121, 2.
- Feeling, depraved, 302, 3.
- Feline madness, 311.
- Fever, Cullen's theory of, 40; Brown's, 41; Darwin's, 43, 44; the subject farther examined, 194, & seq. Dr. Clutterbuck's theory, 195; Broussais's, 197; Harrison's, 198; Nicholls's, 108, 9; 205; general course of, 200; crises, 203; fatal symptoms, 204; gastric theory, 204, 5; nervous or capillary theory, 205, 6; 210; Park's explanation, 206; Clutterbuck's, 207; not always from contagion, 207, 8; treatment of simple fever, 209; Dr. Armstrong's hypothesis, 211; more particular account of the epidemic fevers of England, 211; attended with bronchitis and gastritis, 212; with disorder of the liver, 213, 14; treatment, 214; yellow fever, 215; simple fever, three species, 222; intermittent, 224; its three stages, 225; remittent; 226; hectic and continued, 227; of the brain, 236; scarlet, 273; miliary, 276; vesicular, 277.
- Fire, its effect in purifying the air, and curing fever, 208, 9.
- Flatulence, three kinds of, 124.
- Food of man, 102; its chemical qualities, 105.
- Foundling-hospital at Vienna, 69.
- France, state of surgery there in the 17th century, 37, 8; eminent surgeons of the 18th century, 38, 9; schools of surgery and medicine; 38; present opinions and systems, 45, 6; surgery, 47; pharmacy, 47, 8; new Pharmacopœia, 48; new school, 50; lunatic asylums, 51, 2; lying-in hospitals, 74; their regulations recommended for adoption in England, 75.
- Franco, Peter, first uses the high operation for the stone, 23.
- Frank's description of gastric fever, 212, 13.
- Frederic II. a royal author, 61.
- Fumigations with sulphur, by De Carro at Vienna, 71; by Affalini at Naples, 72.
- Galactia, disorders of the milk, 329, 30.
- Galvanism, as applied to humoral asthma, 189.
- Galen, and his system of four qualities and three faculties, 13; found blood, not air, in the arteries, 14; his works do not contain all the knowledge of the ancients, 17; acquainted with the small pox, 19; his errors corrected by Vesalius, but defended by Sylvius, 21, 22; how far he advanced towards the discovery of the circulation of the blood, 29.
- Gall-stones, 160.
- Galvanic electricity, 99, 100.
- Gangrene, 229, 268.
- Gases, their use in medicine, 100.
- Gastritis, a rare disease, 107; attends fever, 205, 256.
- Geber, the father of chemistry, 18.
- Geoffroy de St. Hilaire, 50.
- General hospital at Vienna, 61; its great extent, 63; lectures, 64.
- Genetica, diseases of the sexual function, 322.
- George IV. presents books to the library at Göttingen, 58; visits the place, 60, 1.
- German surgeons in the 18th century, 37; universities and schools of medicine in the nineteenth century, 56; general character, 57.
- Gleet, 328, 329;
- Goitre and bronchocœle, 288.
- Gonorrhœa. See *Blenorrhœa*.
- Good (Dr. Mason), his nomenclature and medical nomenclature, 81; his review of Cullen's classification, 83.
- Göttingen, university of, 37; its professors, lectures, library, &c. 58; visit of the king, 60, 1.

- Gout, ancient remedies for, 15; similar to the modern, *ibid*; arising from indigestion, 137, 267, 8; its varieties, 170; detail of symptoms, 171; treatment, 172.
- Granville (Dr.), his classification of the diseases of children, 86, 7.
- Gravel, arising from indigestion, 138.
- Greece, the early physicians there, 3; or rather surgeons, 4; modern, 75.
- Gum-bile, causes of, 111; treatment, 112.
- Hæmatica, diseases of the blood, 191; causes of, 192.
- Hæmorrhagia, flux of blood from various parts, 280, 282.
- Hair, diseases of, 364.
- Haller, a most enlightened physiologist, 35.
- Hamilton's directions in salivation, 113.
- Harrison's theory of fever, 198, 205.
- Harvey, discovers the circulation of the blood, 22; history of the discovery, 28; under what circumstances, 30; opposes Aësius, 33.
- Haygarth's rules for preventing infection or contagion, 208.
- Head-ache, dizziness, &c. 315.
- Hearing, defects in, 301, 2.
- Heart, action of, 80; how affected by indigestion, 133; diseases of, 244, et seq.
- Heart-burn, 123.
- Heberden's remarks on the pulse, 93, 4.
- Heliiodorus, an early surgeon at Rome, 12.
- Helminthia, worms of the intestines, 162.
- Helmont (Van), his curious tenets, 26.
- Hepatitis, 160.
- Heraclides of Tarentum, 8.
- Herennius, Philo, of Tarsus, 11.
- Hernia, rupture, 365.
- Herodius, made his patients take violent exercise, 5.
- Herophilus, his cruel practice, 9.
- Hiccough, 309.
- Hildenbrand of Vienna, 63, 4; an excellent lecturer and writer, 65.
- Himley of Gottingen, 59.
- Hindoos, cultivated medicine very early, 3.
- Hippocrates, a descendant of Esculapius, styled the father of medicine, 4; his system, 5; practice, 6, 7; opposed by Asclepiades, 10; his theory of the blood's motion, 28; his skill in diagnosis, 92; his practice and opinions now tacitly acted upon, *ibid*.
- Hoffman and his opinions, 34.
- Hospital for sick children at Vienna, 69, 70.
- Hospital gangrene, supposed cause of, 70.
- Humoral pathology, 90.
- Hunter (John), a most distinguished anatomist, 35; his museum, 36; character, by Mr. Lawrence, *ibid*.
- Hunter (William), 36.
- Hydrocephalus, symptoms of, 340, 1; treatment, 341, 2.
- Hydrocyanic acid, 149.
- Hydrophobia, 311; cases, 312; symptoms, 313; treatment, 314, 15.
- Hydrops, dropsy, 338.
- Hypertrophy, or enlargement of the heart, 249, 50; combined with dilatation of the ventricles, 252.
- Hysterics, from uterine irritation, 316.
- James's observations on inflammation, 45.
- Jaundice, 171; black, 174, 5.
- Ibis instructs mankind in the use of clysters, 2.
- Icterus, yellow jaundice, 171; causes, 172, 3; treatment, 174.
- Ignis sacer, 234; treatment, 235.
- Iliac passion, 150.
- Impotence from various causes, 331.
- Incubus, or nightmare, 189, 90.
- Indigestion, causes of, 101, 2; more fully traced, 128; first class of diseases arising from, 129; treatment, 141; second class of disorders, 133; treatment, 147.
- Inflammation, 193; inquiry into the causes and phenomena of, 194; the effect, not the cause, of fever, 197; diseases connected with, 227; external, 230; internal, 235; of the brain, 236; of the lungs and pleura, 242; of the heart, 244; of the arteries, 246; of the bowels, 259; liver, 260; spleen and kidneys, 262; bladder, 263; womb, 263, 4; testicles, 264; eye, *ibid*; bronchia, 265.
- Injections, first used in anatomy by Vesalius, 21.
- Ionthus, tubercles in the face, 232.
- Josephine academy, connected with the military hospital, at Vienna, 70.
- Italy, surgery there in the 18th century, 57; mad-houses in the 19th, 52, 3; Dr. Sir Charles Morgan's account of the present state of medicine there, 53, 4, 5.
- Itch, varieties of, 362.
- Kepler, applies mechanical principles to explain vision, 33.
- Kern, and his surgical clinic, 65; his very singular practice, 66.
- Kidneys, inflammation of, 262; cure, 263; gravel or stone in, 346.
- Lagnesis, inordinate desire, 330.
- Lallemand, his work on the brain, 46; his opinion as to the cause of delirium, 47.
- Langenbeck, 58; an excellent surgeon at Gottingen, 59.
- Larrey, his opinions on the yellow fever, 215.
- Lacteals and lymphatics, 33.
- Lawrence, his character of Hunter and Cuvier, 30.
- Le Dran, his improvement in lithotomy, 23; his works, 38.
- Leeuwenhoek's microscopical discoveries, 33.
- Leonides of Alexandria, 12.
- Lepidus, scaly diseases, 353.
- Leprosy, common, 353; white, 289, 354; black, 354.
- Lethargy, or somnolency, 319.
- Leucanthropia, or wolf-madness, 14.
- Leucorrhœa, or whites, 323; mucous, 324; watery, 325; distinguished from Blenorrhœa, 327.
- Libraries, &c. in Germany, 57.
- Limosis, morbid appetite, 119.
- Linnaeus, his modification of Sauvage's system, 82.
- Lithia, stone and gravel, 346.
- Lithotomy, improvements in during the 16th century, 22; the high operation, 23.
- Liver, its effects on the head, 106, 7; how affected in indigestion, 148; abscess in, 230; inflammation of, 160.
- Lobstein, his account of the anatomical museum of Strasburg, 72-4.
- Lower, Margaret, curious and incredible case of, 151.
- Lues, the venereal disease, 292.
- Lunatic Asylum at Charenton, how regulated, 50, 51; the Salpêtrière, &c. 51; treatment of the insane in the provinces, 52; in Italy, 52, 3.
- Lungs, how affected in indigestion, 139, 40; their action, 180; inflammation of, 242.
- Lying-in hospital at Vienna, 68; where all the children die, 69; at Paris, 74.
- Lyssa, feline and canine madness, 311.
- Macbride's system praised by Dr. Good, 84.
- Machaon, son of Esculapius, 3.
- Majendie, a French physiologist, 46.
- Maggi, refutes an error as to gunshot wounds, 22.
- Malis, lousy disorder, 363.
- Marasmus, atrophy, 282.
- Marinus, the restorer of anatomy, 11.
- Materia medica, arrangement of by Cullen, Murray, and Parr, 95; by Kirby, 96; alphabetical list, 369.
- Measles, 274; how distinguished from scarlet fever, 274, 5; treatment, 275.
- Mechanical principles absurdly applied to the functions of the human frame, 26, 32; the system not, however, useless, 33.
- Mediate auscultation. See Stethoscope.
- Medical magazines, first publication of, 37.
- Medicines distinguished into chemical and galenic, 26.
- Melæna, black jaundice, 174.
- Melampus discovers the virtues of the melampodium, 2; his skill, 4.
- Menecrates, author of 155 books, 11.
- Menses, obstructed, 322; profuse, &c. 323.
- Mercury, various preparations of, 146; cautions in the use of, 148.
- Mefotica, disorders of the parenchyma, 336.
- Metafis, or transmission of diseases, 90, 99.
- Methodics, or Methodists, 10; their tenets, 11; compared with Brown's, 40.
- Metrocelis, mother's marks, 366.
- Midwifery in the 16th century, 23.
- Milk, defects in, 329; in the breasts of males, 330.
- Mimosis, a term used by Dr. Hall to denote certain species of indigestion, 131, 2; Murgens, 133, 4; M decolor, 139.
- Mithridates king of Pontus, 8; his universal remedy, or antidote, 25.
- Muliere, alludes to the dispute between Sylvius and Vesalius, 22.
- Monro, Dr. the first of the Scottish lecturers on surgery and anatomy, 37.
- Moore (Anne), her case related, 120, 1.
- Moria, foolishness, 299.
- Morphica, monstrosities, 366.
- Murray's arrangement of the materia medica, 95.
- Museum of natural history at Vienna, 63; of morbid anatomy, 65; of anatomy at Strasburg, 72, 3, 4.
- Narcotics, 96.
- Nature will not always cure diseases, 90.
- Nausea, or loathing, 124, 5.
- Nemesius bishop of Emisa, said to have discovered the circulation of the blood, 16; his pretensions examined, 29.
- Nervous system, 80, 94.
- Nettle-rash, 275, 353.
- Neuralgia, tic doloureux, 308.
- Neurotica, nervous disorders, 298.
- Nicanor of Culophon, 8.
- Nicholls's theory of fever, 198, 9; some of his positions not proved, 205.
- Nightmare a common disease, 190.
- Nose restored, 23; ulcerated, 178; polypus in, *ibid*.
- Nutology, or classification of diseases, 80; Good's, 81, 101; Plater's, 81; Sauvages's, 81, 2; Linnaeus's, Vogel's, and Sagar's, 82; Cullen's, 83; Selle's, Plouquet's, &c. 84; Darwin's and Parr's, 85; Young's, Willan's, &c. 86; Granville's of the diseases of children, 87.
- Nonifer's remedy against worms, 165.
- Nymphomania, 330, 1.
- Odontia, disorders of the teeth, 108.
- Oedoptosis, protrusion of some of the genital organs, 331, 2.
- Cefoplasia, obstructions in, 115; cases, 116, 17.
- Oil as a remedy against worms, 167; oil of turpentine, 167.
- Olophonia, defect of voice, 366.
- Omentum, enlargement of, 176, 7.
- Ophthalmy, curious cases of, 71.
- Opium, its constituent parts, 48.
- Orgastica, diseases affecting the organs, 330.
- Oribasius, one of the chief physicians after Galen, 14; his discoveries and practice, 14, 15.
- Oñander and his museum, 60.

- Ossification of the heart, 249; of various parts, 337, 8.
 Ophthalmia, ossification of certain parts, 337, 8.
 Oxygen gas, 100.
 Painter's colic, 150; remedies for, 151.
 Palamedes, the Greek physician, 4.
 Palladius the Sophist, first wrote satisfactorily upon urine, 16.
 Palpitation of the heart, 244, 309.
 Pally, three varieties of, 322.
 Parabysma, internal tumours, 175, 6; treatment, 177.
 Paracelsus, his doctrines, 25.
 Paracusis, defect of hearing, 301, 2.
 Paracyesis, morbid pregnancy, 335.
 Paræsthesis, defects in the senses, 366.
 Parageusis, depraved taste, 302.
 Paramenia, disordered menses, 322.
 Parapsis, depraved feeling, 302, 3.
 Paré (Ambrose), a very eminent French surgeon, 22.
 Paris, present state of medical opinions there, 48, 9.
 Pariset, his account of the yellow fever at Cadix, 49.
 Park's pathology of fever, 206.
 Parodynia, difficult labour, 335, 6.
 Paroniria, morbid dreaming, 299.
 Paropsis, diseased vision, 299, 300.
 Parosmia, depraved smell, 300.
 Parostia, diseased bones, 337.
 Parr (Dr.), his nosological arrangement, 85; its merits and defects, 86.
 Paruria, diseases of the urine, 343.
 Pathology, as distinguished from physiology, 1; early history of, 2; among the Egyptians, Jews, Hindoos, and Chinese, 3; in Greece, 3; gymnastic system, 4; under Hippocrates and his followers, 4-7; dogmatic and empirical sects, 7; Alexandrian school, 9; among the Romans, 9, 10; methodic sect, 10, 11; pneumatic and eclectic sects, 12; chemical system, 31; mechanical, 32; Bichat's system, 39; Cullen's, 39, 40; Brown's, 40, 41; Rastor's, 41, 2; 53, 4; Broussais's, 43, 46, 50; Darwin's sympathetic system, founded on physiology, 43, 4; present state of in England, 44, 5; in France, 45, 74; Italy, 52; Spain and Portugal, 55; Germany, 56; Greece, 75; Turkey, *ibid*; general principles, 79, 80; nosology, 80-87; causes of disease, 88-91; symptoms, 91-94; materia medica, 94-96; alphabetical list of therapeutics, 96-100; classification, 101-367; materia medica, 369.
 Paulus of Ægina, the last of the Greek classical physicians, 15, 16.
 Pectoriloquism, 285.
 Pediluvium, 460.
 Pepper (black), a cure for intermittent fever, 55.
 Pericarditis, 245, 6; sub-acute, 247, 8.
 Peripneumony, or inflammation of the lungs, 242; treatment, &c. 243.
 Peritonitis, acute, 253; chronic, 254, 5.
 Perspiration, or sweat, 206.
 Perosplanchnia, internal defects, 366, 7.
 Pessary, 332; different kinds, and how to apply them, 333.
 Petit, an eminent French surgeon, 38.
 Peromelia, defects in the limbs, 367.
 Phimosis and paraphimosis, 231.
 Phlebotomy taught by the hippopotamus, 2; much used by Hippocrates, 6, 7; edict respecting it, 21; stimulative and sedative, 99.
 Phlegmon, or abscess near the surface, 230.
 Phlogotica, or inflammatory diseases, 227.
 Phlysis, whitlow, 233.
 Phonica, disorders of the vocal organs, 177.
 Phosphates in calculi, 349.
 Phrenica, disorders of the mind, or brain, 298.
 Phrenitis. See Cephalitis.
 Phyma; boil, carbuncle, &c. 231.
 Physicians, quarrel with the surgeons and patronize the barbers, 27; their oath, 28.
 Physiology, necessary to be studied previously to pathology, 1, state of at the present time, 45.
 Pica nasi, or snuff-taking, 123.
 Piles, blind, 168; bleeding, 169, 70.
 Pinel's system, 84.
 Plater, first arranged diseases by their symptoms, 81.
 Plenck's arrangement of the diseases of the eyes and skin, 86.
 Plethora, 280.
 Pleuralgia, or pain in the side, 191.
 Pleurisy, 242, 3.
 Pleuritis verminosa, 140; three other varieties, 242.
 Pliny the elder, 11.
 Plouquet's outlines of a system, 84.
 Pneumatic sect, 12.
 Pneumatica, disorders of the respiratory functions, 177.
 Pneumonia, disorders of the lungs, 180.
 Polyperia, monstrosities, 367.
 Polypodia, a remedy against worms, 165.
 Polypus in the nose, 178; uterus and vagina, 335.
 Polyfarcia, corpulence, 336.
 Portugal, state of pathology there at present, 55, 6.
 Port, an excellent English surgeon, 37.
 Praxagoras, a bold practitioner, 8.
 Prickly heat, 352.
 Priests, whether originally physicians among the Egyptians and Jews, 2, 3; by being permitted to marry, the connection between physic and divinity was destroyed among the Catholics, 20.
 Pring's "Indications," extracts from, 89, 90.
 Prochaska and his museum, 63.
 Proctica, diseases of the anus, 166.
 Præotia, premature puberty, 330.
 Professorships in the French schools, sold, 49.
 Prussic acid in consumption, 287.
 Prussian army, absurd practice, 71.
 Pseudismus, stammering, lisping, &c. 179, 80.
 Pfellus, contradictory accounts of him, 17.
 Pseudocyesis, spurious pregnancy, 336.
 Ptyalismus, or spitting disorders, 113.
 Pulse, phenomena of, 93; influenced by stature, time of day, &c. 94; cessation of, curious case, 307.
 Purgatives, 96; various kinds, 97.
 Pyretica, or fevers, 195.
 Pythagoras, and his sect, 4.
 Quinly, 240; treatment of the malignant putrid kind, 241.
 Rabies canina, 46.
 Raphania, contraction of the joints, 310.
 Rastor's contra-stimulant system, 41; wherein it differs from Brown's, 42; explained by Dr. Morgagni, 53, 4, 5.
 Rectum, disorders of, 170; cure, 171.
 Refrigerants, 96.
 Retching and vomiting, 125.
 Rhazes, an Arabian physician, 18; proves that the small-pox was known to Galen, 19.
 Rheyma, laceration, 365.
 Rheumatism, 168; acute, 169; chronic, 170.
 Rhoncus, hoarseness, 178.
 Richerand, 50.
 Rickets, 288, 9.
 Ringworm, 357, of the scalp, 359.
 Riolan, endeavours to disprove the circulation of the blood, 30.
 Robiquet, his experiments upon opium, 48.
 Romans, long without physicians, 9.
 Rose-rash of summer and autumn, 352.
 Roux, his success in a curious and difficult operation, 50.
 Royer-Collard, some curious anecdotes of him, 48, 9.
 Rudbeck (Olaus), discovers the absorbents of the large intestines, 33.
 Rufus of Æphesus, 11.
 Rumination in the human subject, 125; curious cases, 126, 7; dissection, 123.
 Ruft (of Berlin), on ophthalmia, 70.
 Sagar's arrangement of diseases, 82.
 Saint Vitus's dance, 309.
 Salerno, its celebrated school of medicine, 19; first confers degrees, 20.
 Salivation, 113; its uses, 114.
 Sanctorius, 31; his theory of disease, 32.
 Sarpi (Paul), 30.
 Sauvages, 81; his classification, 82.
 Scalled head, 359.
 Schirrhus, as distinguished from cancer, 291.
 Schmidt (John Adam), a writer on diseases of the eye, 66, 7.
 Scotch surgeons in the 18th century, 37.
 Scrofula, or king's evil, 289; symptoms of cure, 290, 1.
 Scurvy, sometimes confounded with syphilis, 21; in the gums, 111; history of the disease, 294; land, 295; sea, 296; treatments, 297.
 Secretion and absorption, 80.
 Sedatives, how they act, 99.
 Seleucus, gives up his wife to his son, 9.
 Selle's classification of diseases, 84.
 Serapion the empiric, 8.
 Servetus, 22; a good philosopher and divine, burnt for his religion, 29; approached very near to the full discovery of the circulation of the blood, 29, 30.
 Sharp, an eminent English surgeon, 37.
 Shields's account of the yellow fever of Batavia, 219.
 Shingles, 356.
 Sialogogues, 96.
 Simeon of Antioch, 17.
 Small-pox, of greater antiquity than commonly supposed, 19; its varieties, 277; treatment, 278, 9.
 Smell, depraved or wanting, 302.
 Sneezing, 309.
 Soranus, an eminent teacher of the methodic sect, 11.
 Spain, its public libraries in the 12th century, 19; present state, 53.
 Sparganosis, milk-spread, 268.
 Spasm, 308; convulsive, 309.
 Speechlessness, 178, 9.
 Spermorrhæa, involuntary emission of seed, 329.
 Spinal marrow, inflammation of, 47.
 Splaunchica, disorders of the viscera, 33.
 Spleen, inflammation of, 262.
 Squinting, 301.
 Stahl, his theory of life founded on the Cartesian philosophy, 34.
 Stephen the Athenian, 16.
 Stereotica, fractures, dislocations, &c. 365.
 Sternalgia, or angina pectoris, 190, 1.
 Stethoscope, 244; described, 245; its action in diseases of the heart, 248; of the lungs, 285; in dropsy of the chest, 339.
 Stimulants, 96; general, 98, 9.
 Stomach, how affected by disease, 101; more particularly, 107; by eating too fast, 142; inflammation of, 256.
 Stones in the bowels, 151.
 Strangury, 343; from worms, 344.
 Stricture in the rectum, 151, 2; 166, 7; how to be treated, 153, 167, 8; in the urethra, 328; treatment, 329.
 Struma, scrophula, or king's evil, 289.
 Stuttering, or stammering, 179, 80.
 Sugar first used in medicine by the Arabians, 18.

- Surgery, the first branch of pathology that was cultivated, 1; evidenced in the practice of Patroclus, 4; at Rome, 12; military in the 16th century, 23; of France in the 16th century, 27; separated from barbarism, 27, 8; in the 18th century, 37, 8, 9; in France in the nineteenth, 47.
- Syncope, or fainting, 315.
- Sweat, of various colour and smell, 350.
- Sweating-sickness, first appearance of in England, 21; history of, 222, 3; treatment, 223; cause of, 223, 4.
- Swine-pox and hives, 277.
- Sydenham, a very enlightened author, 31; his judicious practice, 32; praised by Sauvages, 81.
- Sylvius, his absurd defence of Galen, 21; alluded to by Moliere, 22.
- Sylvius de le Boe, a supporter of the doctrine of the circulation, and founder of the chemical system, 31.
- Symptoms of diseases, 91; as explained by Dr. Marshall Hall, 92.
- Synclonus, general spasm, 307.
- Syncope, or fainting, 315.
- Syphasia, convulsions, 315.
- Syftatic, diseases of the senses, 310.
- Taliacotius, the restorer of noses, 23.
- Tarare, the wonderful eater, 119, 120.
- Taste, depraved, 302.
- Taylor, Martha, the Derbyshire fasting-woman, 122.
- Tea, praised by Dr. Reid, and why, 103.
- Teeth and teething, disorders of and from, 108.
- Tenefmus, as distinguished from scirrhus rectum, 167; description and cure, 168.
- Testicle, inflamed, 264, 328.
- Tetanus, a nervous malady, 303; its dreadful symptoms, 304; diagnostics, 305; treatment, 306; in the Tonga Islands, 307.
- Tetter, 356; running, 358; milky, 359; honeycomb, 360; dry and scurfy, 361.
- Themison, the founder of the methodic sect, 10, 11.
- Therapeutics, 94, 5; 367, 3.
- Theriac Andromachi, or Venice treacle, 25; a very famous remedy, 26.
- Theflalus of Trallis, a conceited physician, 11.
- Thirst, excessive, 118, 19; want of, 119.
- Thlafma, bruises, 365.
- Thomas (Mary), a fasting-woman, 121.
- Thrush, white and black, 276.
- Tic douloureux, 308.
- Tocolof, a curious remedy for tetanus, 307.
- Tongue, sometimes too large, 117, 18; wanting, 178; yet not occasioning the party to be absolutely dumb, 179.
- Tonics, 96.
- Trefis, wounds, 365.
- Trichosis, disorders of the hair, 364.
- Tubercles, common to scrofula and consumption, 283.
- Tumours, internal, 175, 6; symptoms and treatment, 177; external, 337.
- Turkey, state of pathology there, a few years back, 75, 6; an account of the first publication on anatomy at Constantinople, 76, 7, 8; present state of the hospitals there, 78, 9.
- Tychica, accidental disorders, 365.
- Tympany, or wind-dropsy, 342; of the abdomen and womb, 343.
- Vaccination in Turkey, 78; varieties of, 276.
- Vauquelin, an excellent chemist, 50.
- Veneral disease, 21, 292.
- Vesalius, his great discoveries in anatomy, 21, 22.
- Vis medicatrix nature, 40.
- Vision, defects of, 300.
- Ulcus, ulcer, 298.
- Universities of Italy, 55; of Germany, 56; Protestant, 56-60; Catholic, of which the chief is that of Vienna, 61.
- Vogel's arrangement of diseases, 82.
- Vomits much commended by Hippocrates, 6.
- Vomiting, or nausea in action, 125.
- Urine, first treated of by Palladius, 16; diseases of, as stranguary, diabetes, &c. 343 et seq.
- Uterus, inflammation of, 263, 4; protrusion of, 331; treatment, 332; application of the pessary, 333; inverted uterus, 334; prolapsus of, 335.
- Warner, a good English surgeon, 37.
- Warts, how to destroy, 363.
- Water, used by Kern instead of ointments, 66.
- Water-brash, 123.
- Weaning-brash, 158.
- Werneck on hospital gangrene, 70.
- White, of Manchester, 37.
- White-swelling, 272, 3.
- Whitlow, 233, 4.
- Whooping-cough, 21; symptoms and treatment, 183, 4.
- Willan's work on cutaneous diseases, completed by Dr. Bateman, 86.
- Willis, gives some hints at a system of craniology, 33.
- Wind-cholera, 159.
- Wind-colic, its cause and cure, 151.
- Worms in the intestines, 162; symptoms, 164; treatment, 165.

P E R U.

- AGRICULTURE encouraged and honoured, 748.
- Almagro, one of the first discoverers of Peru, 741; lays claim to Cuzco, put to death by his friend Pizarro, 743.
- Almagro the younger, assists in the murder of Pizarro, is himself put to death, 743.
- Arequipa, and its mines; 753.
- Atabalipa, inca of Peru, murdered, 742.
- Bartholomew de las Casas, 744.
- Callas, or Bellavista, 752.
- Carjaval, the abettor of Gonzales, Pizarro, 742; put to death, 743.
- Chasca, or Venus, worshipped in Peru, 750.
- Chili declares itself independent, 746.
- Cochrane, lord, assists the Peruvians, but afterwards retires to Brasil, 747.
- Colonna, or the Land of the Missions, 741.
- Commerce, 756, 7.
- Condercanqui raises an insurrection in Peru, 745; put to death with all his family, 746.
- Condesuyos, and its mines, 753.
- Council of the Indies, 751.
- Court of Audience, 750; divided into three chambers, 751.
- Chica, an intoxicating liquor, 755.
- Cuzco, the first built city, 748; present state of, 753; temple of the Sun there, 749; intendency of, 753.
- Encomiendas, nature of, 751.
- Gasca, viceroy, his cautious proceeding, 744; quells the rebellion, 745.
- Guamanga, an internal province, 753; the town, 753, 4.
- Guantavelica and its quicksilver-mines, 754.
- Higher Peru, the mineral district, 741.
- House of Trade, 751.
- Huana Capac, twelfth inca, 742; a thousand persons murdered at his funeral, 749.
- Incas of Peru, absolute, marry their sisters, govern mildly, 748.
- Language of Peru, 751, 2.
- Lima, intendency of, 752; trade, 756.
- Lower Peru, 740; climate and productions, 741.
- Luque, one of the original discoverers of Peru, 741; made the first bishop, 742.
- Mama Ocollo, the wife of Mango Capac, 748.
- Mango Capac, the first inca of Peru, 742; his miraculous appearance and proceedings, 748.
- Mate, a liquor used in Peru, 754, 5.
- Moon worshipped by the Peruvians, 750.
- Nuncz Vela, the viceroy, defeated and killed, 744.
- Pampas del Sacramento, 741.
- Peru, ancient and present boundaries, and natural divisions, 740; discovery by the Spaniards, 741; conquered by them, 742; a frame of government formed by the emperor king Charles, 744; the reduction completed, and followed by a peace of two hundred years, 745; unwilling to take part in the late troubles, 746; at length declares for independence, 747; primitive history, &c. 748; religious worship, 749; toleration, 750; government established at the conquest, 750, 1; relieved from the encomiendas, the repartimientos, and the mita, 751; language, 751, 2; population, 752; the seven intendencies, or provinces, 752, 4; character and manners, 754; manufactures, 755; commerce, 756; army, 757.
- Pizarro, Francis, the chief of the discoverers and conquerors of Peru, 741; establishes the first colony, murders the inca, and extends his conquests, 742; puts Almagro to death, and is himself murdered, 343.
- Pizarro, Ferdinand, 743; imprisoned twenty-three years, 745.
- Pizarro, Gonzales, 743; declared governor of Peru, 744; betrayed, surrenders, and is put to death, 745.
- Privateering, bad policy in the present state of Peru, 748.
- Quito, formerly joined with, now separated from, Peru, 740; their gods worshipped in the same temple, 750.
- Rainbow worshipped by the Peruvians 749, 50.
- Repartimientos, nature of, 751.
- San Martin the liberator of Chili and Peru, 746; his noble behaviour, 747.
- Slaves, state of in Peru, 752.
- Sun worshipped by the ancient Peruvians, 748; temple of, 749.
- Tarma, and its extensive silver-mines, 754.
- Temple of the Sun, 749; of the Moon, Venus, Thunder and Lightning, &c. 750.
- Thunder and Lightning, &c. objects of worship, 749, 50.
- Truxillo, the largest province in Peru, 753.
- Tumbez, the first town visited by Pizarro, 741.
- Tupac Amaru, the last of the incas, 745.
- Vaca de Castro, governor of Peru, 743.

DIRECTIONS for placing the COPPER-PLATES to VOL. XIX.

1. Frontispiece—PATHOLOGY	-	to face the Title.	
2. PATHOLOGY, Plate I. Sycofisis,	-	page 231	
3. ———— Plate II. Ionthus,	-	233	
4. ———— Plate III. Rofalia, scarlet fever	-	273	
5. ———— Plate IV. Rubeola, measles	-	274	
6. ———— Plate V. Porphyra and Exanthefis	-	295	
7. ———— Plate VI. Strophulus and Lichen	-	352	
8. ———— Plate VII. Prurigo and Lepriafis	-	353	
9. ———— Plate VIII. Varieties of Pforiafifis	-	354	
10. ———— Plate IX. Ichthyofifis and Herpes	-	355	
11. ———— Plate X. Rhyphia and Impetigo	-	357	
12. ———— Plate XI. Porrigo and Ecthyrna	-	359	
13. ———— Plate XII. Ecthyrna and Scabies	-	362	
14. Portrait of Father PAUL	-	412	
15. PAVO, Plate I. The Common Peacock	-	422	
16. ————, Plate II. The Chinefe Peacock	-	425	
17. PAUSUS and PEDICELLARIA	-	428	
18. PEDICULARIS, Plate I. Sceptred Loufewort	-	456	
19. ————, Plate II. Upright and Lapland L.	-	457	
20. PEDICULUS, the Loufe; feven fpecies	-	458	
21. PEGASUS, Fifh; and the Temple at PEGU	-	473	
22. PEKIN; View of one of the Gates	-	483	
23. PELARGONIUM, Stork's-bill; Plate I.	-	491	
24. ————; Plate II.	-	492	
25. ————; Plate III.	-	493	
26. PELECANUS, Plate I. Large White Pelican	-	499	
27. ———— Plate II. Man-of-War Bird, Shag, &c.	-	500	
28. PENELOPE, the Turkey Pheafant, four fpecies	-	535	
29. PENN, the Quaker	-	541	
30. PENNANT, Portrait of	-	548	
31. PENNATULA, the Sea Pen	-	551	
32. PENTAGRAPH and PERAMBULATOR	-	567	
33. PENTSTEMON, Shrubby Penftemon	-	573	
34. PEPLIS, Water Purlane	-	577	
35. PERCA, the Perch, Plate I.	-	583	
36. ———— Plate II.	-	587	
37. ———— Plate III.	-	590	
38. ————, Plate IV. Five fpecies of Holocenters	-	591	
39. PERICONIA and PERIFLOCA	-	618	
40. PERIFLOCA. Efculent Periploca	-	625	
41. PERSEPOLIS, Ruins and Sculpture there	-	651	
42. PERSIA, Map of	-	655	
43. ————, Plate II. The prefent king, &c.	-	692	
44. ————, Plate III. Coftume of the modern Perfians	-	715	
45. PERSONIA pinifolia and hirfuta	-	729	
46. PERU, Plate I. Religious Proceffion	-	749	
47. ———— Plate II. The Inca and his Queen	-	750	
48. ———— Plate III. Virgin of the Sun, &c.	-		
49. PETERBOROUGH Cathedral	-	784	
50. PETERSBURGH. Statue of Peter the Great	-	789	
