









## S Y S T E M

OF THE

ANATOMY

OF THE

HUMAN BODY.



## SYSTEM

OF THE

ANATOMY

OF THE

## HUMAN BODY;

ILLUSTRATED BY

UPWARDS OF TWO HUNDRED TABLES, TAKEN PARTLY FROM THE MOST CELEBRATED AUTHORS,

AND

PÁRTLY FROM NATURE.

By ANDREW FYFE.

IN THREE VOLUMES.

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## GENTLEMEN

Attending the Medical Classes of the University of Edinburgh,

## THE FOLLOWING WORK

IS DEDICATED,

With much respect,

And with best wishes,

By their most obedient,

And very humble Servant,

ANDREW FYFE.

University of Edinburgh,



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## PART I.

0 F

# THE BONES.



#### OF THE BONES IN GENERAL.

#### 

THE Bones are the most hard, compact, and inflexible parts of the Body

They are more or less of a white or red colour, according to the proportions of Earth or Blood entering their reddest in the Child, more Earth heing found in the former, and more Blood in the latter.

pearing through their surface

Bones are composed of Lamella, or Plates, which are formed of Fibres running longitudinally, or in a radiated manner, according to the natural figure of the Bone.

them to the heat of a strong fire; or to the weather; or wards its extremities, while the Cancelli in proportion beby boiling them under an increased pressure; or by oh- come more numerous. serving their exfoliations when in the diseased state.

have every where a cellular texture.

The Plates of Bones are originally formed by the Vessels of the Periosteum Exteroum and Membrana Me- former being irregular, and the latter cylindrical dullaris, and not, as has been supposed by some Authors, from Layers detached from the external Periosteum.

The Plates are connected by Frores, which some have considered as Claviculi or Nails, and called Perpendicular, Oblique, &c. according to their different directions.

The outer Plates of Bones are firmly compacted, so as the Arteries which secrete the Marrow,

to appear like one solid substance.

round, or flat, have their Plates and Threads running in with the Bone, and for lodgement to Blood-vessels which various directions, intersecting each other, and forming pass into its substance the Cancelli, or Spongy Substance of the Bones; the Cancelli every where communicating with each other.

The Caucelli, in the middle of long Bones, are Fibrous, and form the Reticular Substance which divides the

Bone into large Cells.

Towards the extremities of long Bones, the Cancelli are lamellated, and much more numerous than in their middle.

are also placed between the Tables of flat, and inner parts Some serve for the transmission of Blood-vessels, and of round Bones.

In some of the broad Bones, however, as the Scapuls, ments of the Joints. the solid parts are so much compressed, as to leave little or no room for Cancelli.

On the contrary, in the middle of the long Bones, as the Os Humeri, the Cavities are so large as to give to the

Bone the appearance of a hollow Culinder.

In some of the largest of the long Bones, as the Os composition; and are therefore whitest in the Adult, and Femoris, their solid sides, near their middle, are remarkably thick, and there the Cancelli are almost imperceptible; while, at their extremities, their sides are scarcely In living Animals, they are of a bluish colour, in con- thicker than writing-paper, and the Caucelli are so sequence of the Blood contained in their small Vessels ap- numerous as to occupy the whole space between their

The Cancelli of Bones are formed by the intercal Plates passing inwards, and decussating each other; and in the long Bones, the sides of the Bone, in consequence The lamellated structure may be seen, by exposing of sending off the Cancelli, become gradually thinner to-

The Cancelli, though extremely minute, exist even in A late Author, SCARPA, deuies the lamellated struc- the most solid parts of Bones, as can be seen by exposure ture of the Bones, and endcavours to prove, that they to heat, or in Bones enlarged by disease. In either of these cases, small Cells may be observed, and are distinguishable from the Canals for containing the Vessels, the

> The Cancelli support the Membranes containing the Marrow, as the Cellular Substance does the Fat, and prevent one part of the column of Marrow from gravitating upon another in the various positions of the Body. They also furnish a wider surface for the dispersion of

Upon the surface of Bones there are numerous Fis-The inner Parts of Bones in general, whether long, sures, for the more intimate connection of the Periostenm

Many minute Orifices are observed upon the surface. and particularly in the Furrows of Bones, for the trans-

mission of Blood-vessels into their substance.

Near the middle of most of the Bones, especially the long ones, there is a slanting Canal for the passage of the principal Medullary Vessels, which consist of Arteries and Veins.

Numerous Orifices, some of them very considerable in Cancelli, of a similar nature to those of the long Bones, size, are observed at the extremities of long Bones. others for giving attachment to the Fibres of the Liga-

> The principal Vessels pass lato the Cancelli, interoal Membranes, and Marrow, and return to the solid sub-

stance

from the Periosteum.

In some flat Bones, as those of the Cranium, the Bones are entirely supplied from the Vessels of the surrounding Membranes, and the Vascularity there is uniform.

In the Subject, the Arteries of the Bones, and sometimes the Veins, can be shewn by a successful injection thrown into them; but the latter are more readily seen in Subjects that die with their Veins full of Blood; and in living Animals, when the Bones are cut across, their Vascularity appears by the Blood which oozes from their divided extremities.

The Vascularity of Bone is also shewn, hy feeding an Animal for some time on the Rubia Tinctorum, or Madder-root, after which the Bones are found to be completely tinged with the colouring matter of the Madder.

As a person advances in life, the Blood-vessels of the Bones contract in their diameters, as appears from the Bones of old people having less Blood in them than those of a person at an early period of life; from Injections being thrown into the Vessels of the Bones of old persons with more difficulty than in youth; from less of the injected matter being received in the former; and from the Bones of old Animals receiving less of the tinging matter of Madder than those of young ones.

From comparing the Bones of people of different ages, it is found, that there is a constant waste and renewal of their substance; that the Bones increase in weight as a person advances to maturity; that they continue nearly of the same weight till old age begins, and then become lighter; that the specific gravity of their solid sides, on the contrary, increases hy age; for then they become harder and more compact, but thinner, and have larger

Cavities than the Bones of young persons,
Bones, like other parts, have their Lymphatics, as a pears by the absorption of Madder found deposited in the ibstance of the Bones of Animals receiving it with their Food, by the absorption of part of the Bone itself, when in the diseased state; by the absorption of Bone as a person advances in life; and even by injection.

The Nerves of the Bones are small, but may be observed in certain parts of them; and it is presumed they exist in all.

From the minuteness of the Nerves, and rigidity of the parts on which they are dispersed, Bones are not sensible in the sound state; and even in the diseased, the pain felt may be owing to the Membranes within them.

The component parts of Bones are, an Earthy Matter, Cartilage, Gelatin, and Marrow, and these varying in proportion in different persons, in different Bones of the same person, and in the same Bone at different ages. The Earthy Matter, however, bears the largest proportion; but this is less in Children than in persons of more

The Earthy Matter is obtained by Calcination, or by maceration in a diluted acid, and afterwards precipitating it, when it is found to consist chiefly of Phosphate of

stance of the Bone, where they meet those sent inwards its shape; but in the former it is brittle, and of a pure white colour, while in the latter it is flexible, consisting principally of Cartilaginous Matter

By boiling in water for a sufficient length of time, and especially if under an increased pressure, as in Papin's Digester, the Fat and Gelatin of Boues are dissolved and separated, and the Bone retaining its Earthy Matter,

preserves also its white colour. The general Use of Bones is, to give firmness and shape to the Body, to furnish attachment to the Muscles, and serve as Levers for these to act on, and to lodge, protect, and support the Bowels.

#### PERIOSTEUM.

The Periosteum derives its name from its furnishing a general Covering to the Bones.

In certain parts, however, it is perforated by Muscles. Ligaments, or Cartilages, which are fixed immediately to the surface of the Bones; and at the Joints it separates from the Bones, to give a Covering to the Capsular Ligaments.

It is formed of many Fihres, which, in certain parts, can be divided into Layers.

The outer Surface of this Membrane is connected to the surrounding parts by Cellular Substance

The inner Surface is more uniform than the outer, and its Fibres run, most frequently, in the same direction with those of the subjacent Bone.

The inner part of the Periosteum is intimately con-

nected to the surface of the Bones by short Fihres; and this connection is much stronger in the Child than in the Adult. Some of these Fibres may he considered as Ligamentous, but most of them are found by Injection to consist of Blood-vessels.

The Periodrum, as well as other Membranes, must be supplied with Nerves, but these are too minute to be readily traced.

The Sensibility of the Periosteum, like that of other Membranes, is by no means acute. In the influence state, its sensibility is very considerable

The principal Uses of this Membrane are, to transmit the Vessels which are spread out upon its surface into the substance of the Bones;—to give attachment to Muscles;—to prevent the effects of Friction between them and the Bones;—to assist in binding the latter together;—to assist in setting limits to the increase, and to check the overgrowth of Bones;—and, in young persons, to strengthen the junction of the Bones with their Epiphyses, Cartilages, and Ligaments.

#### MEMBRANA MEDULLARIS.

This, improperly called Periosteum Internum, is an extremely fine Membrane, which lines the inside of the Bones in general, sends Processes into the solid sides of these, and is divided into numberless small parts, which Lime. In either of these processes, the Bone retains also line the different Cancelli. It forms so many irregu-

lar bags, communicating with each other, and affording a large surface for the dispersion of the secretory Vessels of the Marrow.

#### MARROW.

The Marrow may be considered as an Appendage to the general Corpus Adiposum. It is found to be a speeies of fixed oil possessing peculiar properties, and is deposited by the Arteries in the Cavities of the Bones, at the same time that the rest of the Body is supplied with Fat.

The Blood-vessels of the Marrow, surrounded by the Periosteum, enter the Bones by oblique Canals, which have already been taken notice of in the description of

the Bones in general.

When the Arteries have entered the Cavities of the Bones, they divide into Branches, which are spread out upon the Cancelli, Membrana Medullaris, and Marrow; from these many minute Branches are reflected outwards to the Tables of the Bones, which communicate with those sent from the inner surface of the Periosteum.

The Veins which return the Blood from the Marrow and Substance of the Bones, are collected into small Trunks, which pass out where the Arteries penetrated the Bones, and discharge their contents into the neigh-

bouring Veins.

The greater degree of Vascularity of the Solide in Children than in Adulta, is no where more conspicuous than here; for Injections which pass readily in these Vessels in Children, cannot be made to penetrate so far in those of persons more advanced in life. In consequence of which the Marrow is found to be thin and bloody in Children, oily and thick in Adults, and watery

The Marrow, like the Fat, when viewed through a Microscope, resembles a cluster of pearls;—or it is contained in spherical Sacs, upon which Vessels are minutely dispersed, but from which no Excretory Ducts have

been discovered to pass out.

It possesses little Sensibility in the sound state; and what it does possess is considered by the latest Authors as belonging rather to its Membranes than to the Marrow itself.

But that this part of the Body is not without Nerves, seems to be proved by the experiments made on the Marrow when the Bones of living Animals are cut, and by the pain a person frequently suffers from Diseases within the Bones.

#### CARTILAGES.

Cartilages are of a white Colour, of an elastic Sub-stance, and much softer than Bones, in consequence of the smaller quantity of Earth entering their composi-

The Structure is not so evidently Fibrous as that of Bones, yet, by long Maccration, or by tearing them of the adjoining Bones. asunder, a Fibrous disposition is perceptible,

Their Vessels are extremely small, though they can be readily injected in Cartilages where Bone is beginning to form. The Vessels of the Cartilages of the Joints seem entirely to exclude the red Blood. No Anatomist has, been able to inject them; and Madder, mixed with the food of Animals, does not change their colour as it does that of Bones.

The existence of Lymphatic Vessels in them, is proved by their being absorbed during the process of Ossification,

or in certain diseases.

No Nerves can be traced to them; nor do they possess any sensibility in the sound state. Yet the Granulations which rise on the surface of Cartilages, after Amputation at the Joints, are very sensible.

Upon their surface there is a thin Membrane, termed Perichondrium, which, in Cartilages supplying the place of Bone, as in those of the Ribs, or at the ends of the long Bones in Children, is a continuation of the Periosteum, and serves the same general purposes to Cartilago

as the Periosteum does to Bone.

The Perichondrium of Cartilages which supply the place of Bone, or by their flexibility possess a degree of motion, has Blood-vessels, which, like those of the Periosteum, can be injected. But the Vessels of this Membrane belonging to other Cartilages, particularly those covering the Articular Cartilages, cannot be injected.

Unon the surface of Articular Cartilages, the Peri-

chondrium is a Reflection of the inner surface of the Capsular Ligament, and is so very thin, and adheres so close-

ly, as to appear like part of the Cartifage itself.

They have no internal Cavity, nor Cancelli, nor in-

ternal Membrane, for lodging Marrow; their weight is nearly a third less than that of Bone. Their texture is less changed by acids; but a much greater proportion of them than of Bones is destroyed by the action of a strong fire. They are softened by maceration in water; and the Articular Cartilages, by long boiling, are in a great measure dissolved.

They are found to consist chiefly of albumen and water,

with a small proportion of phosphate of lime.

One set of Cartilages supply the place of Bone; -or, by their flexibility, admit of a certain degree of motion, while their elasticity recovers their natural position ;as in the Nose, Laryny, Cartilages of the Ribs, Cartilages supplying Brims to Cavities, &c.

Another set, in Children, supply the place of Bone, until Bone is formed, and afford a Nidus for the Osseous Fibres to shoot in ; - as in the long Bones of Children. A third set, the most extensive, by the smoothness and

slipperiness of their surface, allow the Bones to move readily, without any abrasion ;- as in the Abducent or Articular Cartilages. By their elastic nature, they render the motions easier, and lessen the concussion in the more violent motions of the Body, as running, jumping, &c. They also prevent the inordinate growth of Bones at their articulating surfaces, and the coalescence of the Fibres

A fourth set supply the office both of Cartilage and Ligament, Ligament, giving the elasticity of the former, and flexibility of the latter; uniting some immoveably together, and allowing to others a small degree of motion ; as in

the Cartilages of the Bones of the Pelvis and Spine.

Cartilages are divided by some Anatomists into two Sets, viz. Temporary and Permanent. The first include those in which Bone is formed in the Child; the other consist of those of the External Ear, of the Eye-lids, Nose, Larynx, and Trachea, and of the Articular, Interarticular, and Intervertebral.

### OF THE FORMATION OF BONB.

The generality of Bones are originally formed, either

between Membranes, or in the Substance of Cartilages; the Teeth are formed in distinct Bags. The Ossification of broad Bones begins, in some, as in those of the Cranium, between Membranes only, and

in others, as in the Ossa Ilia, in Cartilage, and it appears in each Bone in one or more places: There the Osseous Particles are so joined together, as to have a Fibrous appearance.

The Fibrous Structure is most distinctly seen in the

Cranium of a Fœtus about three months after Conception, where the beginning of the Ossification is like a fine irregular Net-work, in the middle of which the Fibres are more closely connected than in the circumterenes.

In viewing the flat Bones of a Feetus a little more advanced, the bony particles are observed to be so disposed, as to have a distinct radiated appearance.

The vacancies between the Fibres, which occasion the radiated appearance, are found by Injection to be chiefly passages for Blood-vessels.

As the Feetus becomes larger, the Osseous Fibres increase in number, but become less apparent, the Interstices being now filled with Osseous matter, which inereases in quantity till a Lamina is produced; and as the Bone continues to grow, more Lamina are added, till the more solid part of a Bone is formed

The Inner Layers of the Bones are observed to be more porous than the Outer, and none of them are found to have the solidity they acquire in the Adult state, till they

have arrived at their full growth.

The Ossification of long Bones begins between the Periosteium and Membrana Medullaris, in a Jelly which afterwards hardens into Cartilage, and forms a Central Ring, from which the Fibres extend towards the ends of the Bones.

The Inferior Lamella, forming the solid sides of the long Bones, are considerably shorter than the Exterior. because they pass gradually inwards to form the Cancelli. while the exterior parts are continued to the extremities of the Bones.

The Ossification of spherical-shaped Bones, as in the Wrist, begins by one Nucleus, and that of irregularformed Bones, as in the Vertebra, by different Nuclei; and both of these sets of Bones have their origin in Car-

In proportion as Osseous matter is deposited, the Cartilage is absorbed, leaving behind it the different Cavities and Cancelli.

All the Epiphyses, likewise, have their original for-mation in Cartilage.

The Ossification which begins in Cartilage is considerably later than that which has its origin between Membranes, and this is at very different times in different parts of the Body; the processes being soonest completed in those Bones which cover the Organs most essential

When Ossification is about to begin in a particular part, the Arteries, which were formerly of the Serous kind, become dilated, in consequence of a greater determination of blood to them, and receive oow the red Blood from which the Osseous matter is secreted. This matter retains, for some time, the form of the Vessels which give it origin, till, more Arteries being by degrees dilated, and more Osseous matter deposited, the Bone at length attains its complete form

Some Bones are completely formed at the time of

Risch, as the small Bones of the Ear.

The generality of Bones, however, are incomplete until the age of puberty, or between the fifteenth and twentieth year, and in some few instances not until a later period. In Children, the greater number of parts in Bones are Epiphyses or Appendices, which, in Adults, become Apo-

The Epiphyses begin to appear after the Body of the Bone is ossified, and are themselves ossified at seven or eight years of age, though their external surface is still somewhat Cartilaginou

In the early part of life, the Body and Fud.
Bones make three distinct parts, each of which the centre of Ossification, and the parts can readily be separated by boiling, or by maceration in water.

The Epiphyses are joined to the Body of the Bone by Cartilages, which are thick in Children, but gradually become thinner, in consequence of absorption, as Ossifi-cation advances, till at last, in the Adult, the external marks of division are not to be seen; though frequently some mark of distinction may be observed in the Can-

The Epiphyses belong chiefly to such Bones as are destined for much motion, and have larger diameters than the Bones to which they are fixed, in consequence of which they form a firmer Articulation, and give a more commodious attachment to Museles.

#### 7

#### DIFFERENT KINDS

OF

### CONNECTION OF BONES.

	STNARTHROSIS, Or Connection without inter- mediate Substance.	Suture, Like a Seam.	The Bones of the Cranium, and greater part of those of the Upper Jaw with each other.
Or		Gomphosis, Like a Nail in a Board.	The Teeth in the Alveoli.
		Schindelysis, Or Furrowing.	Bones of the Septum Navium to each other.
On	SYMPHYSIS, Or Connection by interme-	Synchondrosis, Or Connection by Cartilage.	The Bodies of the Vertebrae to each other: The Ribs to the Sternum: The Ossa Innominata to the Os Sacrum, or to each other.
diate Substance.	Syndesmosis, Or Connection by Ligament.	The Lower Jaw and Os Hyoides to the Head: The Ribs to the Spine: The Processes of the Vertebrey, and also the Bones of the Extremities to each other.	

#### DIFFERENT KINDS OF MOTION.

Where the flat ends of Bones are opposed to each other with little motion.			
GINGLIMUS; The Bones mutually receiving each other, and the Liga-ments admitting of a hinge-like motion.	One Bone, in moving, forming an angle with another. Lateral or Circular.		

Compound.

like motion.

ENARTHROSIS,

Or Ball and Socket, the Ligaments allowing motion in all directions.

Jamer end of the Clavicle. Head of the Os Humeri. Between the Fore-arm and Wirist, and between the two rows of the Carpal Bones. At the rost of the Metacapal Bone of the Thamb, and root of the first Plahaax of the Fingers. At the lead of the Thigh-bone. Between the Astragalus and Os Naviculare, and at the root of the first Plahaax of the Toes.

different Vertebræ. And between the Ribs and Ver-

Though the term Skeleton be applied to a variety of Substances, yet, in Anatomy, it is always understood to signify the Bones of Animals, connected together in their natural situation, after the soft parts of the Body in general are removed.

It is termed a Natural Skeleton, when the Bones are

joined by their own Ligaments;

And an Artificial Skeleton, when joined by Wire, &c. Small Subjects, and the Bones of those which are not fully ossified, are most conveniently prepared the first way; while the Bones of large Adult Animals are more readily cleaned when single, and are easily restored to their natural situation.

In viewing the Bones in their natural situation in the in a perpendicular direction to another; yet in an creet posture, a perpendicular line from their common centre of gravity fulls in the middle of their common base. On this account, the Body is found to be as firmly supported, as if the axis of all the Bones had been a straight line perpendicular to the horizon, and much greater quickness, ease, and strength, is given to the Body, in several

of its most necessary motion The Human Skeleton is generally divided into Head,

Trunk, Superior and Inferior Extremities.

#### OF THE HEAD OR SKULL IN GENERAL.

By the Head is meant all that part of the Skeleton tageous situation for the Ears, that they may receive a which is placed above the first Bone of the Neck. It therefore comprehends the Cranium and Bones of the

The Cranium varies in shape in different Persons, according to the original form of the Brain upon which it is

The variety in shape not only exists in different Persons, but in the opposite sides of the same Skull, scarcely sons, but in the opposite suces is the same excellent open any one being found perfectly similar there when minutely examined. The variety of shape has been supposed by some Anthors to be increased by the different management of the Heads of Children at an early period of life. From this the difference of shape observed in the Skulls of people of different nations has been accounted for. The form, however, does not appear to be much affected by the ma-nagement of the Head at an early period of infancy, since its characteristic marks are found to remain nearly the same, however much the customs in dress and general management may vary.

The Cranium forms a vaulted Cavity for lodging and defending the Brain, with its Membranes, Vessels, and

Nerves.

The General Figure of the upper part of the Cranium is compared to that of an Egg. Tab. VIII. The medium length of it appears to be about six inches and a half, and the greatest transverse diameter, which is a little behind the External Auditory passages, about five

The Cranium is of a flat form at its sides, partly by the action of the Temporal Muscles. Tab. IV.

The flatness of this part of the Head is found to in-

crease the sphere of vision, and to give a more advan-

greater quantity of sound, while they are less exposed to

The Surface of the upper and outer part of the Cranium is smooth, where it is little affected by Muscles, and is covered by the Periosteum common to all the Bones, but in the Skull termed Pericranium.

The under and outer Surface of the Cranium is irre-

gular where it gives attachment to Muscles, &c. and passage to Vessels and Nerves. Tab. VI.

The anterior and under part of the Cranium is hollow.

to make part of the Orbits, Tab. III.

The posterior Surface of the Cranium is marked by the sertion of Muscles arising from the back part of the Trunk, Tab. VI.

The upper and inner Surface of the Cranium is hollow, for lodging the Brain. Tab. VIII. Fig. 2.

The under and inner Surface of the Cranium has many unequal Cavilies, for lodging the Lohes and Appendages of the Brain and Cerebellum, and for allowing passage to the Vessels and Nerves of the Encephalon in general. Tab. VIII.

Upon the anterior part of the base of the Cranium the Anterior Lobes of the Brain rest; in the middle of the base are two deep Fossæ, for lodging the Lateral Lobes, while the posterior Lobes and the Cerebellum occupy a still deeper cavity behind. Tab. VIII.

Along the inner side of the Cranium are many Furrows. formed by and for the reception of the Blood-vessels of the Dura Mater. Tab. VIII. Fig. 2.

Upon the inner Surface of certain Crania, Sinnosities are observed, for lodging luxuriances of the Brain; and here the Cranium is sometimes so thin, as to be rendered transparent;

In some Crania, Pits are seen of different figures and sizes, for lodging Granulous Bodies on the Dura Mater, termed Glands of PACCHIONI; or sometimes they are occupied by the meeting of large Veins of the Dura Mater. Here there also is often a want of Cancelli. Tab. VIII. Fig. 2.

The Bones of the Cranium are composed of two Tables, which at the upper part are nearly parallel to

each other. Tab. VIII.

The two Tables have intermediate Cancelli, termed here Diploe, though nearly of the same nature with the

Cancelli in other flat Bones.

The External Table of the Cranium is somewhat thicker than the Internal, which, from its thinness and consequent brittleness, is called Vitrea. Tab. V. s. s.

The Diploc, or Cancelli, between the Tables, are more regular between the Bones of the upper than of the

under part of the Cranium, where, in several of the hard Bones, they are not observable.

The thickness of the Bones varies much in different parts of the Cranium; in a transverse section about its middle height, the Bones are about 3th of an inch in thickness, except at the Temples, where they are thin-ner; and at the Front and Occiput, where they are thicker. This thickness is understood to be in the prime of life; in youth and old age, the Bones are considerably thinner, in the former case not having attained their full growth, in the latter, part of them having been absorbed.

In the Skulls of old Subjects, the Diploc are often so obliterated, that searcely any vestige of them can be seen.

In certain diseased Bones, on the contrary, the Diploe are of great thickness, while the Tables of the

Skull are thin like paper.

The Cranium is generally composed of eight Bones; str of which are said to be proper to the Cranium, and two common to it and the Face

The six proper to the Cranium are,

The Os Frontis, placed in the fore part of the Cranium. Tab. III. A.

The two Ossa Parietalia, placed in the upper and lateral parts of the Cranium. Tab. IV. B.

The two Ossa Paupora, placed in the under and lateral parts of the Use of

ral parts. Tab. IV. D.

The Os Occipitis, which forms the back, and some of the lower part of the Cranium. Tab. VII.

The two Bones common to the Cranium and Face are, The Os Ethmoides, placed in the fore part of the Base of the Cranium. Tab. V. C. C

The Os Sphenoides, situated in the middle of the Base.

The Bones of the Cranium have Scams or Sutures be noid Sutures.

transparent; the two Tables being then closely compact-ed, without any Cancelli. tween them, which are five in number. Of these three are termed True, from having servated appearances; and two are called False or Squamous Sutures, from the Bones which form them overlapping each other, as the Scales of Fishes do.

#### The three True Sutures are,

The Coronal Suture, placed between the Frontal and Parietal Bones, and getting its name from this being the part where the Ancients wore their Coronæ or Garlands. About an inch of each of its extremitics wants the ser-

rated appearance. Tab. IV. m. The Lambdoid Suture, situated where the Occipital joins the Parietal and Temporal Bones. It begins some way below the Vertex, or Crown of the Head, from which its two Legs extend obliquely downwards and to each side, in form of the Greek A. Tab. II. b. Tab. VII.

The parts of the Lambdoid Suture, placed between the Occipital and Temporal Bones, have little of the serrated appearance, and are called Additamenta Sutura Lambdoidalis.

The Sagittal Soture, situated between the Parietal Bones, and named from being extended between the middle of the Coronal and Lambdoid Sutures, as an Arrow is between the String and Bow. Tab. VIII. Fig. 1.

d, d.

The Sagittal Suture is sometimes continued through the middle of the Frontal Bone to the Nose. This is said to be more frequent in the Female than in the Male. Upon examining a great number of Crania, the Author found it taking place in one of nine or ten.

The screated appearance of the True Sutures is seen distinctly on the outside of the Cranium ouly; on the inside, the Bones appear almost to be joined in straight lines. Tab. VIII. Fig. I. 2.

In some Skulls, the internal Surface is found entire,

while the Sutures are manifest without; the inner Plates meeting and coalescing sooner than the external.

As a person advances in life, the True Sutures begin to be obliterated, first on the inner, then on the outer side, till in very old age not a vestige of one of them is to be seen.

The two False, called also Temporal Sutures, placed a little above the Ear, between the upper edge of the Temporal and under edge of the Parietal Bones. Tab.

Each of the Portions of the False Sutures, situated between the under and back part of the Parictal, and the upper and back part of the Temporal Bones, is called by some Additamentum Sutura Squamosa, and has in that part the true serrated appearance. Tab. IV.

Besides the Squamous Sutures here taken notice of, it is to be observed, that the term Squamous is also applied to all the Sutures on which the Temporal Muscle is placed; it therefore includes part of the Coronal and Sphe-

Sometimes,

Sometimes, though rarely, there is a double Squamous Suture, dividing the scaly part of the Bone into two unequal portious. Tab. V11. Fig. 3.

equal portions. Tab. VII. Fig. 3.

In the Sutures of the Cranium there are often Ad-

In the Suttory of the Cramma there are often Additional Bones, called Ossa Tripuetra, from their being of a triangular form, and Ossa Wormiana, from Wormius, who, though not the discoverer, gave a description of them.

The Ossa Wormiana vary much in figure, size, and number, and are occasionally found in the different Sutures, though most frequently in the middle of the Lambdoid. Tab. VII. Fig. 1. g. Fig. 2. Fig. 3.

Wherever they occur, the Sutures surrounding them are observed to be similar to the neighbouring Sutures; of course they are equally with them distinguished from

Fractures of the Skull.

Between the Bones of the Cranium and those of the Face, five Sutures are also found, and they are said to be common to these two sets of Bones. Parts, however, of these Sutures, are only between the Bones of the Cranium. The Sutures here are,

The Ethmoid Suture, which surrounds the Ethmoid

The Ethmoid Suture, which surrounds the Ethmoid Bone. Tab. V. C, C.

The Sphenoid Suture, which surrounds the Sphenoid

The Ethmoid and Sphenoid Sutures in some parts assist in forming other Sutures, especially the Squamous and Transverse; and in other parts, there is but one Suture common to these two Bones.

Their formation is considered to be owing to an increase in the number of the points of Ossification, or to a deficiency in the Ossification of the ordinary Bones of the Cranium; in which last case, separate Ossifications begin in the mossified interstices.

The Transverse Suture, which rous across the Orbits and root of the Nose, between the Frontal, Malar, Sphenoid, Ethnoid, Superior Maxillary, and Nasal Bones. Tab. 111. 9, e, f.

1 1ab. 111. 49, e. f.
 The Sugomatic Sutures, placed between the Temporal
 and Check Bones, and slanting obliquely downwards and
 backwards. Tab. V. f.
 The advantages derived from the Cranium being form-

The advantages derived from the Granium being forms of different Bones and Stutiers are, that the Poincoidal figure is some completed 3—that the Bones, which are at some distance from each other at hirth, yield, and other to be a superior of the superior





### TABLE

REPRESENTS a Front View of the Male Skeleton, with some of the Cartilages and Liga-MENTS which connect the Bones to each other.

HEAD AND NECK.

A, The frontal bone. B, The parietal bone

C. The temporal process of the sphenoid bone,

D, The squamous part of the temporal bone. E, The mastoid process of that bone.

F. The malar, or cheek bone.

G, The nasal bone; behind which is the nasal process of, H, The superior maxillary bone.

I, The lower jaw.

K, The cervical vertebra, with their intermediate cartilages and transverse processes. TRUNK.

A, The sternum.
B, The seventh, or last true rib.
C, The cartilages of the ribs.
D, The twelfth, or last false rib.

E, The lumbar vertebræ, with their intervertebral car-

tilages and transverse processes. F, The os sacrum.

G. The os innominatum, composed of,

a, The os ilium, b, The os pubis,

c, The os ischium.

UPPER EXTREMITY.

A, The clavicle.
B, The inner surface of the scapula.
a, The acromion of the scapula.
b, The coracoid process of that bonc.

C, The os humeri. the glenoid cavity of the scapula.
d, The internal tubercle of the os humeri, and, farther

out, the groove for lodging the tendon of the long head of the biceps muscle.

e, The inner, and,

f, The outer condyle of the os humeri. Between e and f, The hollow for lodging the coronoid process of the

ulna in the flexion of the fore-arm.

D. The radius.

g. The head of the radius.

E. The ulna.

h. The coronoid process of the ulna.

F, The bones of the carpus

G, The metacarpal bone of the thumb. H, The metacarpal bones of the fingers.

I, The two bones of the thumb.

K, The three phalanges of the fingers.

UNDER EXTREMITY.

A, The os femoris.
d, The ball or head of this bone, lodged in the acetabu-

e, The cervix of the bone, f, The large trochanter. g, The small trochanter.

h, The inner condyle. The outer condyle. B, The patella, placed upon the trochlea of the os femoris.

C, The tibia.

k, The head of the tibia. Between the head of the ti-

bia and condyles of the os femoris, the semilunar cartilages appear /, The tubercle of the tibia.

m, The malleolus internus.

D, The fibula; the upper end of which is connected with the tibia. n. The malleolus externus.

E, The bones of the tarsus.
o, The projection of the os calcis.

F, The metatarsal bones.

G, The phalanges of the toes. .

#### TABLE 11.

REPRESENTS a Back View of the Male Skeleton, with some of the Cartilages and Ligaments which connect the Bones to each other.

#### HEAD AND TRUNK

A, The parietal bone.

a, The sagnital suture, and parietal bole.

B, The occipital bone.
b, b, The lambdoid suture.

The joining of the temporal and parietal bones.

D, The ebeek-bone. E, F, The inner or back part of the jaws, with the teeth. G, The first cervical vertebra.

IL The second cervical vertebra I, The seventh cervical vertebra

7, The spinous processes of the cervical vertebre.
K, The first dorsal vertebra.
L, The twelfith dorsal vertebra.
d, The spinous processes of the dorsal vertebra.
e, Their transverse processes.

M, The first lumbar vertebra. , The fifth lumbar vertebra.

Their transverse processes.

O, The os sacrum.
h, The uppermost spinous process. Farther out are seen the superior oblique processes of this hone, joined to the inferior oblique of the last lumbar vertebra.

i, i, The lateral parts of the os sacrum, joined to the ossa innominata. Between i and O, the posterior foramina

k, Au opening in the under and back part of this bone, covered in the subject by a ligamentous membrane.

P, The os coccygis, joined by its shoulders to the os

sacrum, at the lower part of the opening k.

Q, The os ilium.

R, The os pubis.
S, The os ischium.
T, U, The seven true ribs.
V, V, The five false ribs.

#### SUPERIOR EXTREMITY.

A, The claviele.
B, The dorsum scapulæ.
a, The spine of the scapula.

b, The acromion of the scapula.

L. A fossa for lodging the supra-spinatus muscle.

d, An irregular surface, occupied by the infra-spinatus muscle

C, The os humeri

e, The ball of the os humeri.
f, The external tubercle of the bone.

g, The external condyle h. The internal condyle.

i, The cavity for lodging the electranon of the ulna.

D, The radius.

k, The bead of the radius articulated with the trochlea of the os humeri.

1, The under end of the radius, grooved by the tendons of muscles.

E. The ulua.

m. The olecranon of the ulua.

n. The under end of the ulua, with the styloid process.

F. The bones of the carpus

G. The metacarpal bone of the thumb. H. The metacarpal bones of the fingers. I. The two bones of the thumb.

K, The three phalanges of the fingers.

#### INFERIOR EXTREMITY

A, The os femoris a, Part of the ball of the os femoris.

b, The cervix of the bone. c, The trochanter major

d, The trochanter minor

c, The cavity for lodging the popliteal vessels and nerves.
 f, The external condyle.

The semilunar eartilages. The tibia. i, The head of the tibia.

k, The malleolus internus. C, The fibula

1, The head of the fibula. m, The malleolus externus.
D, The bones of the tarsus.
n, The astragalus.
o, The os calcis.

p, The fore part of the tarsus. E. The bones of the metatarsus.

F, The phalanges of the toes.







T.1B. 3.



#### TABLE HI.

#### A Front View of the Skull.

A, THE frontal bone.

a, The temporal process, or ridge of the frontal bone, b, The temporal fossa of that bone. c, The superciliary ridge, d, The foramen superciliare, c, c, The external and internal orbitar processes.

ξ, ε, ε, The transverse suture.
 g, The orbitar plate.
 h, The lacrymal fossa.
 B, The under and fore part of the parietal bone.

C, The squamous part of the temporal bone.

The eygomatic process of that boat.
 The pars plana of the ethmoid bone.
 It is a pars plana of the ethmoid bone.
 It is a parson process.
 It is a parson process.
 Part of the squamous sature.

m, The orbitar plate of the sphenoid bone.

n, The foramen opticum.

o, The foramen lacerum of the sphenoid bone, and the foramen lacerum inferius of the orbit, the former above,

and the latter below. F, The os nasi; in the middle of which is a hole proper to this bone.

G, The os unguis.

p, The lacrymal groove of the os unguis.

H, The os malæ.

q, q, q, The four angles or processes of this bone.

The internal orbitar process,

r, The internal orbitar process.
 s, The external orbitar hole.
 I, The fossa of the os maxillare superius.

t, The base of the nasal process of the superior maxilla-ry bone, where there is frequently such a hole as is marked in this figure.

u, The tuberosity at the back part of the bone.

v, The connection between the os malæ and os maxillare ar, The connection between the superior maxillary bones.

r, The alveolar processes, with the teeth.
y, The fossa nasalis.

2. The foramen infra-orbitarium.

K, The os spongiosum inferius. L, The vomer.

M, The symphysis or middle of the lower jaw. &, The base of the lower jaw;

1. Its angle;

2. The ascending plate which sends off the coronoid and condyloid processes; 3. The alveolar processes and teetle;

1. The mental hole.

## TABLE

#### A PROFILE of the SKULL

A, THE os frontis.

A, The temporal process of this hone.
 b, The temporal fossa of the bone.
 c, The superciliary ridge.
 d, An elevation formed by the frontal sinus.

e, The external and internal orbitar processes.

Part of the lacrymal fossa. k, l, That part of the transverse suture which unites the

os frontis to the os planum and os unguis.

1, 1, The foramina orbitaria interna, anterius et posterius.

m, Part of the coronal auture.

n, The os parietale.
n, The arched impression upon the surface of that bone.
o, The squamous suture.

C, A small portion of the os occipitis.
D, The pars squamosa of the temporal bone. q, Part of the squamous suture between the temporal and

sphenoid bones

The middle of the temporal fossa, s, The zygomatic process of the temporal bone.

u, The mastoid process of the temporal bone.

the means sunforms externus.
 Part of the base of the pars petrosa.
 The pars plana of the ethmoid bone.
 The temporal plate of the sphenoid bone.
 The foramen masale.

y, The os unguis.

y, The lacrymal fossa of the os unguis.

1. The os male.

z, The superior orbitar process of that bone.

The zygomatic, and,
 2. 2. The maxillary processes of the os mane
 The orbital pales of that bose.
 The cavity for lodging part of the temporal muscle
 The cavity for lodging part of the temporal muscle
 The maxillary lossa.
 The maxillary lossa.

6. 6. The ragged edges of the os nasi and os maxillare

 The angular process of the os maxillare superius.
 The lacrymal fossa of that bone. 9. A depression of the os maxillare at the entrance of

10. A portion of the orbit which belongs to the as max-

The nitch at the opening of the nose
 The foramen infra-orbitarium.

13. 13. Several small holes in the os me

passage of blood-vessels and nerves.

14. The spine or ridge, formed by the u ... of the 15, 15. The malar processes to which th

16. The large tuber, or bulge of the os maxillare

17. 17. Elevations of the alveoli over the roots of the teeth 18. 18. The edge of the alveoli.

19. 19. Its base; 20. Its angles.

21. 21. Muscular prints. 22. The condyloid process 23. The coronoid process.

24. The nitch between these processes 25. 25. The sharp edge of the coronoid process.
26. The mental hole.

27. 27. The edge of the alveoli.

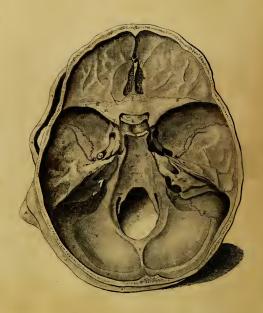


ZiB. 4





# ZAB. 5.



## TABLE

A VIEW of the INNER SURFACE of the BASE of the CRANIUM.

- o, a, The upper edge of the zygoma. Between the anterior a, and the cut edge of the skull, a portion of the external temporal fossa
- b, The mastoid process of the temporal bone. c, c, The external surface of the occipital bone.
- A, The left frontal fossa, marked with ridges and de-
- pressions.

  d, Part of the frontal spine.

  B, The foramen placed at the bottom of the frontal spine.

  C, The cribriform plate of the ethmoid bone.
- c, The crista galli.
- D, The sella turcica.
- E, The left anterior clinoid process.
- F, The posterior clinoid process f, A small process of the sphenoid bone, projecting into
- the back-part of the ethmoid bone.

  g, Part of the sphenoid suture.

  h, The processus semi-olivaris.
- G, The left temporal fossa of the sphenoid bone. H, The left transverse spinons process. I, The foramen opticum.
- K, i. A portion of the foramen lacurum.
- L. The foramen rotundum.
- M. The foramen ovale
- N, The foramen spinale k, An impression made by the internal carotid artery.
- 1, The point of the pars petrosa of the temporal bone ; un-
- der which is the passage of the internal carotid artery.

  At the fore-part of the process, in the shaded place,
- there is an irregular opening, which, in the subject, is

- filled partly with bone, and partly with a cartilaginous
- O, The suture common to the sphenoid and temporal
- P, The squamous part of the temporal bone, which completes the temporal fossa for the lateral lobe of the
- Q, The ridge which divides the pars petrosa of the temporal bone into anterior and posterior surfaces.
- m, The posterior surface of the pars petrosa. n, The foramen innominatum
- 2, A groove which lodges the superior petrosal sinus.
- R, The meatus auditorius internus S, The anterior part of the foramen lacerum common to
- the temporal and occipital boues. T, The posterior part of the same foramen.

- 1. The posterior part of the same toranea.

  1. The posterior part of the determine the lateral sinus.

  1. The cusefform process of the occipital bone.

  1. The atternor condyloid formate of that bone.

  1. The forauen magnum.

  1. The inferior occepital fossa, which lodges the corre-
- sponding lobe of the cerebellum
- Z, Z, p, A fossa of the occipital bone for the left lateral
  - z, z, The inferior limb of the cruciform spine, running backwards from the foramen magnum-
- p, Part of the lambdoid suture q, A continuation of the fossa for the lateral sinus.
- r, A fossa for the inferior petrosal sinus.
- s, s, The cut edge of the skull.

#### TABLE VI.

The Outer and Under Surface of the SKULL, turned a little to the Left Side.

A, The inferior posterior angle of the parietal bone. B, B, The lambdoid suture. C, C, The large transverse arch, ridge, or spine of the

occipital bone; the upper and outer part of which gives rise to the occipito-frontalis, and the middle to the trapezii muscles

C, m, C, m, Depressions made by the insertions of the complexi muscles on that bone.

n, The spinous tuberosity, observed only in some skulls. i, i, The perpendicular spine. Between m, m, and the hack-parts of the temporal bones, are impressions made by the splenii muscles.

1, L. The smaller transverse ridge or spine.

k, k, The cavities where the recti minores muscles are inserted. On the outer side of these cavities, the obliqui superiores and recti majores make impressions.

D, The foramen magnum.

E, The canciform process.

F, F, The condyloid processes.

h, h, The tuberosities at the roots of the condyles, which give attachment to the capular ligament of the first vertebra.—The h placed at the root of the left condyle, points out the superior condyleid hole.

G, G, The posterior condyleid foles.

H, The squamous portion of the temporal bone.

11, I, The squamous portion of t I, I, The squamous suture. K, K, The mastoid processes. t, t, The mastoid fissures. u, The foramen mastoideum.

L, The root of the zygoma;

p, Its articular process.
M. The styloid process; behind the root of which the foramen stylo-mastoideum is concealed.

N. The meatus auditorius externus.

O, The glenoid cavity, for the articulation of the lower jaw. The glenoid fissure.

q, The glenoid basure.
P, The foramen caroticum.
Q, The thimble-like cavity, or jugular fossa. R, R, The pterygoid fosse, at the outer sides of which

are the external pterygoid plates.

V, The internal pterygoid plates.

W, The book-like process, round which the circumflex muscle of the palate moves.

S, The temporal process of the sphenoid bune.

T, The spinous process and spinous hole of that hone.
7. The osseous mouth of the Eustachian tuhe. Y, The foramen ovale. s, s, Passages common to the temporal and sphenoid

X, The foramen pterygoideum. Z, The inferior orbitar fissure.

a, The under part of the tuberosity of it aper a maxillary hone.

b, The palate process of that bone.

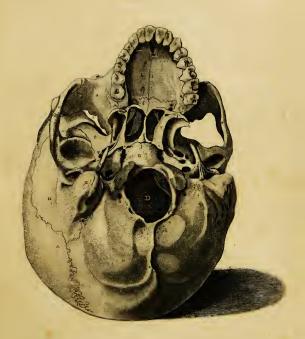
The foramen incisivum d, The internal surface of the os male, which contains a

portion of the temporal muscle.
c, The under edge of the zygomatic process.
o, The zygomatic suture.

a, I he zygomatic suture.
f, The palate process of the palate hone.
5. 6. The superior and inferior spongy bones.
g, The posterior edge of the vomer.
4. The foramen gustativum.
1. 1. 1. 1. The dentes incisores.

2. The dentes canini. 3. &c. The dentes molares.

Z1B. 6.









#### TABLE VII.

A Back View of the SKULL, with the Additional Bones called Ossa TRIQUETRA.

### FIG. I.

The SKULL seen from its Posterior and Left Side.

a, The frontal bone. b, Part of the temporal fossa of that bone.

c, c, The parietal bones.
d, The coroaal suture.

e, The sagittal suture. f, f, The lambdoid suture,

g, g, Ossa triquetra, hetween the lambdoid and sagittal sutures

h, h, The foramina parietalia.

i, i, The arched impression of the left parietal bone.
 k, The occipital bone.
 Part of the large transverse arched ridge of that bone.

m, The squamous suture, n, The squamous part of the temporal bone.

o. The mastoid process.

p, The zygoma.

q, Part of the meatus auditorius externus.

r. Part of the temporal fossa of the sphenoid bone.
s, The temporal fossa of the temporal bone.
t, The outer surface of the orbitar process of the check-

boae.

u, The zygomatic suture.

e, The superior orbital process of the cheek-bone.

ev, Part of the superior maxillary bone.

a, Part of the outer plate of the pterygoid process. y, y, Some of the teeth.

### FIG. 2.

A Portion of the Upper and Back Part of the CRANIUM. with Ossa Triquetra.

a, a, Part of the parietal bones.

b, A portion of the sagittal suture.

d, The upper part of the occipital bone.

The ossa triquetra are seen between the occipital and parietal bones, varying considerably in figure and size.

#### FIG. 3.

An additional piece of Bone in the Side of the Cranium, inclosed by a double Squamous Suture, and forming a kind of Os Triquetrum.

## TABLE VIIA.

In this Table are represented the Outlines of Six Skull-Caps taken from Adult Bodies, to shew how far the Human Chamum differs in its Form. The Figures are drawn about one-fourth of the original Size.

FIG. 1. 2. 3. 4.

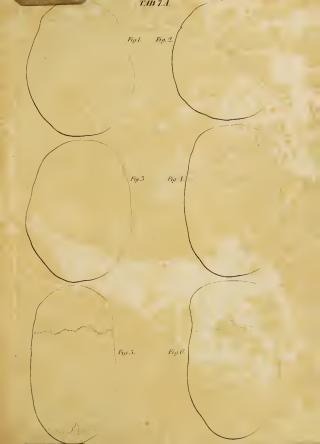
Are from Natives of Britain.

FIG. 5.

Is taken from the Skuli of an Egyptian Mummy, preserved in the Museum of Natural History belonging to the University of this place. The Skull-Cap is remarkable for its length and narrowness.

FIG. 6.

Is from the Skull of a Person of this Country, though the history is unknown. It corresponds with the Subject of the former Figure in its diminished breadth, and great degree of length.









## TABLE VIIB.

This and the two following Tables represent a few of the Characteristic Differences in the Skulls of People of different Nations. The Figures are only about a fourth part of the Size of those from which they are taken.

#### FIG. 1.

Gives a Side View of the Cranium of the Munny represented in Fig. 5, of the former Table. It is remarkable not only for its length and narrowness, but for the strong impression made by the Temporal Muscle, and for the sharpness of the Arches of the Forvhead and Occiput. The Cranium from which this Figure is taken is filled with Pitch.

#### FIG. 2.

Shews the Skull of another Egyption Munmy. The Cranium is narrow and compressed at the sides, especially towards the Vertex. The Forehead is small, and elegantly arched; but the Face, from the root of the Nose to the point of the Chin, is clongated.

#### FIG. 3.

Represents the Skull of a Turk, which is singular for its spheroidal form. The Occiput is small, and the Foramen Mapum Occipitie is placed near the extremity of the base of the Cranium. The Forehead is broad, the Glabella prominent; the Alveoli of the Upper Jaw are short, and the Nostribi narrow.

## FIG. 4.

This Figure exhibits the Skull of a *Hindoo*. The Cranium is smaller, but the Face rather larger in prapertion than in the European. The Os Frontis is elegantly arched, and uncommonly narrow. The Orbits are large, and the Anterior Nares small. The Facial line approaches to the perpendicular.

#### FIG. 5.

Is the Skull of a Loscar. Like that represented by the former Figure, the Cranium is smaller than in the European, but the Bones composing it are uncommonly thek. The Ossa Nasi protrude more, and the Superior Maxilla is deeper from the Nose downwards than that represented in the former Figure.

#### FIG. 6.

Shews the Cassan Turfar. This Cranium is considered BRUMBHBACH as an elegant one. Here the Forehead is large and moderately arched; the Nasal Bones are well formed, descending in a proper direction from the Forehead. The Incisor Teeth of the Upper Jaw project considerably; and the Chin is somewhat prominent. The Occipital Spine is wanting.

## TABLE VIIC.

### FIG. 1.

This Figure represents the Skull of a Tungusan. Here the Face appears flat, and broad towards the Tygomanic Arches. The Forchead is depressed; the Offactory Organs large; the Occiput in the Cranium from which this Figure is taken, is observed to be remarkably prominent behind.

#### FIG. 2.

Exhibits the Skull of a Cossack. The aspect is altogether disagreeable to the eye. The Orbits are deep, depressed, and widely separated. The Superciliary Arches are prominent, and almost conjoined. The opening of the Nostrils is large and patulous. The angles of the Lower Jaw are turned outwards.

### FIG. 3.

Represents the Skull of a New Hallunder. The Or Frontis is large, and a little flattened. The Superiliary Arches are elevated. The Orbits are long, when taken in a transverse direction. The Ossa Nasi are short, and the Anterior Nares large. The under and five part of the Upper Jaw is a little prominent, and the Lower-Jaw longer than in the European. The of the Ethiopian, considerable recombinate to that of the Ethiopian.

#### FIG. 4.

Is the Skull of a North American Indian Chief. The

Vertex is depressed, and the Cranium is uncommonly wide over the Emplies. The Malar Bones are somewhat prominent, and the Couche executed as into a Buila. The Olitactry Organs are extensive, the base perciliary Ridges large and arched. The Facial line that the Couche of the Couche

#### FIG. 5.

Shews the Skull of an Espatimus, which BRUMENBAGE considers as holding a place between the Cranioum of th Mongal and that of the American. The Face is first, at the projection outwards of the Maka Boncs is less that in the Mongal. The Nore is small, but projects more than in the people of that nation. The Basiles Foses is wide, but shallower; the Chin sharp and prominent.

#### FIG. 6.

In the Skull of an Otherleton. The Cranium is rather narrow, but the Bregma is protuberant. The Upper Jaw is somewhat prominent, approaching to that represented in Fig. 3, but the Lower Jaw is shorter than in that Figure. The middle of the Forehead and Cociput are wider than usual. The Superciliary Arches are a little raised, and the whole Skull has the appearance of great strength.









## TABLE VIID.

### FIG. 1.

The Shall of a Culmuck, in which there is great appearance of thickness and strength. The Cranium onne-what resembles that of the Negro in the flattees of the Occiput, the retreating Forchead, and the impression made by the action of the Temporal Muscless; but the Face is very different. The Malla Boase project more, but the Maxillary loss, than in the Negro. The discussion of the Property of th

#### FIG. 2.

Represents the Skall of a Carib. The Forchead is remarkably flattened, which is aid to be from preserr applied to it at an early period of life. The side of the Cranium is strongly maked by the Temporal Muscle. The Bouse occupying the place of the Brygna ree remarkably high. The Frontal Sinnes scarcely that are large, spreading, and somewhat out when taken transversely. The Olicatory Organs are large; the Superior Musilla very prominent; the Basilar the Possa large, honed, and flat. The Cranium is situated so much backwards, that the Skell, being placed upon the Table with the florder law removed, the Makilla table. By this the Negro Skull can generally he distinguished from the European.

#### FIG. 3.

Shews the Skull of the Ethiopian. All the Bones here are found to be thicker, heavier, and stronger, than in the European. The Prominences and Depressions are

more compresses. The Under Jan as manetability proposing and the sides of the Creamin deptyle depressed by the Temporal Manches. This Os Promis is marrow, and distert than in the European. The Zegounite Processes are much arched. The Malvin Bones are large, promisent, and square. The Autra Maxiliaria are larger than in the European, but the Bones are large, promisent, and square. The Autra Maxiliaria are larger than in the European, but the Depty of the None is observed to be broad and large, like that of the Autrain Indian hence is supposed to arise the acutence of small period and large, like that of the Autrain Indian hence is supposed to arise the acutence of small period and large and the Autrain Indian hence is approach to arise the acutence of small period and the Note is one rearchful he as the projection of the force part of the Alveolur Processes of the Maxillary Bones. These are evidently more prominent than in the Skulla Four and tolker and the Note is longer. The Tetch have more of an oblique direction, and are larger and firmer than in the European. The Occiput is norwore and diatter, and Magnum is more elevated, and the Head thrown more backwards, than in the European.

#### FIG. 4. & 5.

Represent the Skulls of an Ourang-Ordana, and the Sizmia Candata, or Long-tailed Monkey, to shew the direction of the Facial line, when compared with that of the Human Skull. In the Ourang, (Fig. 4) the high Forehead gives the Animal a sort of resemblance to the Human Face. In the Monkey, the great size of the Maxillary Bones, compared with the Caraium, gives more the appearance of the Camine range.



## OF THE SEPARATE BONES OF THE HEAD.

#### Os FRONTIS.

The Situation of the Os Frontis in the fore part of the Cranium, Tab. III. A.

Its Shape, which has been compared to that of a Clamshell, or to the Concha Bivalvis, or Cockle. Tab. VIII. Fig. 3, 4,

Its external Surface smooth, and above convex, being fittle impressed by muscular action. Tab. VIII. Fig. 3. The external and internal Angular, or Orbitar Processes, forming part of the Orbits. Tab. VIII. Fig. 3.

The Superciliary Ridges, on which the Eye-brows are placed, extending between the external and interual Angular Processes on each side. Tab. VIII. Fig. 3.

Projections, generally seen above the inner ends of the Superciliary Ridges, indicating the situation of the Cavities called Frontal Sinuses. Tab. IV. d.

The Nasal Process, placed between the internal Angular Processes, and forming part of the Nose. Tab. VIII. Fig. 3. f. Fig. 4. h.

Part of the Temporal Process, or Ridge, on each side, behind the external Angular Process, which forms the boundary between the Temporal and Frontal Muscles.

Tab. IV. a. The Orbitar Processes, or Plates, which, contrary to the rest of the Bone, are bollow below, and extend a considerable way back, to form the upper parts of the Orbits for lodging the Eyes and their Appendages. Tab.

VIII. Fig. 3. k, k. The Orbitar Plates are rendered so thin by the pressure of the Brain and Eye on the opposite sides, that they become transparent, and the Cancelli, especially in

old people, are obliterated. The Sinussity at the upper part of the Orbit, behind

the outer end of the Superciliary Ridge, on each side, for lodging the Lacrymal Gland. Tab. III. h. Behind each internal Angular Process, a small Pit, to which the Cartilaginous Pulley of the Superior Oblique

Muscle of the Fye is fixed. The Temporal Fossa, behind the Temporal Process for lodging part of the Muscle of that name. Tab. VIII.

The Opening between the Orbitar Processes, for receiving the Cribriform Plate of the Ethmoid Bone. Tah. VIII. Fig. 4. p.

The Foramen Supra-orbitarium, a little to the inner which a branch of the Ocular Artery, and part of the

THE principal things to be attended to in this Bone Ophthalmic Branch of the Fifth Pair of Nerves, pass to the soft parts of the Forehead. Tab. III. d.

In some Skulls, the Vessels and Nerves are lodged in Furrows on the Surface of the Bone.

Frequently, instead of a Hole, a Notch only is seen, the Vessels and Nerves then passing over the Superciliary Ridge; or two Holes in one side, and one in the other,

The Foramina Orbitaria Interna, Anterius et Posterius, between the Orbitar Plates of the Frontal and Ethmoid Bones, and about three-fourths of an inch distant from each other; through which small Twigs of Nerves from the first part of the Fifth Pair, and of Arterics from the Ocular Artery, pass into the Nose. Tab. IV. I, I.

Small Perforations are found upon the under and fore part of the Frontal Bone, for the transmission of very minute Arteries or Nerves into the Sinuses, or to the Substance of the Bone.

The concave inner and fore part of the Os Frontis, for lodging the Anterior Lobes of the Brain.

The convex under parts, for supporting these Lohes, and covering the Eyes. Tab. V. between g, g, and the fore-part of the Crantum.

The Ridges and Depressions of the Orbitar Processes, marked by the convolutions of the Brain. Tab. V. A. Small Furrows on the inside of the Bone, for lodging the Blood-vessels of the Dura Mater. Tab. VIII. Fig. 4.

Slight Sinuosities, more evident on the under than on the upper part of the Bone, occasioned by the convolu-tions of the anterior part of the Brain. Tah. V. between

g, g, and the fore part of the Bone.
The Frontal Spine, in the middle of the under part of the Bone, formed by the coalescence of the inner tables, for the attachment of the Falx of the Dura Mater. Tab. VIII. Fig. 4. c.

In such Skulls as have the Sagittal Suture continued to the Nose, the Frontal Spine does not appear; the inner Plates, in such cases, not having grown together to form it.

The Frontal Furrow, extending upwards from the Spine, for lodging the upper part of the superior Longitudinal Sinus of the Dura Mater, and for the attachment of the Falx. Tab. VIII. Fig. 4. d.

The Foramen Cacum at the under part of the Spine, for the reception of a Process of the Falx, and of small Blood-vessels which penetrate into the Nose, or to the substance of the Bone. Here also the superior Longitudinal Sinus takes its origin. This Hole is frequently side of the middle of each Superciliary Ridge, through common to the Frontal and Ethmoid Bones. Tab. VIII. . Fig. 4. o, Tah. V. B.

The Frontal Sinuses, placed behind the inner ends of the Superciliary Ridges, about an inch in height, and somewhat more than that in breadth, and, in some Skulls, forming prominences near the root of the Nose. Tab.

The Walls of the Sinuses, formed by a separation of the Tables of the Bone; there being no Diploe here. The Partition between them placed perpendicularly,

and preventing them from having any communication with

Their capacities vary much in different Subjects, and they are frequently unequal in size in the same Body. In some they are wanting, which is oftener found to happen in persons having a flat Torchead, and where the agittal Suture is continued to the Nose. In others, they are so large as to extend from one side of the Frontal area of the same and the same and the same and the muses has partial partitions, and, in others, one Suns occupies the place of two.

A Communication which they sometimes have with each other. Tab. XIII. Fig. I. C.

At the inner and under part of the interoal angular Process, a small round Passage from each, leading into the Cavity of the anterior Ethmoid Cells, and from thence to the Nose.

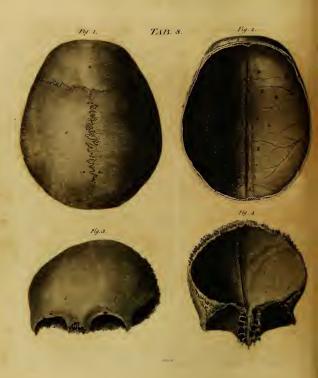
to the Nose.

The Frontal Sinuses add to the strength and melody of the Voice, by serving as a vault to resound the notes. Hence, in a stoppage of the Nose, by disease or otherwise, the Voice is rendered harsh and disagreeable.

The Frontal Bone serves to defend and support the Anterior Lobes of the Brain. It forms a considerable part of the Orbits of the Eyes, assists in forming the Septum Narium, Organ of Smelling, &c.

In a Feetus of nine months, the Os Frontis is divided through its middle into two Pieces, which are incomplete at their upper and back part, where they assist in the formation of the Bregma or opening of the Head.—The Saperciliary Holes and Frontal Sinuses are not yet forms.





## TABLE VIII.

VIEWS of the Upper Part of the CRANIUM and of the FRONTAL BONE.

### FIG. 1.

Represents the Upper and Outer Surface of the CRANIUM.

- a. The frontal bone.
- b, b, The coronal suture.
  c, c, The parietal bone.
  d, d, The sagittal suture.
  c, c, The parietal holes.
- f, Part of the occipital bone.

### FIG. 2.

#### A View of the Upper and Inner Surface of the CRANIUM.

- h, The nuter and fore part of the frontal bone. i, i, Prints made by the blood-vessels of the dura mater.
- k, k, The sinuosity where the upper part of the falk is fixed, and the superior longitudinal sinus is lodged.
- I, I, Pits frequently found; the larger occasioned by fuxuriancies of the brain, and the smaller by the glands of PACCHIONI, or by the meeting of blood-vessels of the dura mater.

## FIG. 3.

- The Outer Surface of the FRONTAL BONE.
- a, The middle and convex part of the frontal bone.
- b, b, The elevations of this bone.
  c, The muscular print of the left side.
  d, Part of the temporal fossa.
- e, e, The external and internal angular processes. f, The nasal process.

- g, g, Eminences and cavities, to which the nasal and maxillary bones are fixed.

- h, h, The superciliary arches.
  i, i, The superciliary holes.
  k, k, The orbitar plates.
  l, l, The lacrymal fossæ.
- $m_1$ ,  $m_2$ , The foramina orbitaria interna.  $m_1$ ,  $m_2$  The inequalities which unite the frontal to the
- sphenoid bone.

## FIG. 4.

## The Inner Surface of the FRONTAL BONE.

- a, The internal concave part of the frontal bone
- b, The cavity which lodges the auterior lobes of the brain. c, The frontal spine.
- d, A furrow where the falx is fixed, and the superior longitudinal sinus is lodged.
- e, The ragged edge of the bone, which assists in forming the coronal suture
- f, f, Other inequalities, which join the frontal to the sphenoid bone.
- g, g, g, g, The inner surface of the four angular processes,
- h, The posterior surface of the nasal process.
  i, i, Other inequalities near the nasal process.
- k, k, The orbitar plates.
- m, m, Cells which correspond with those of the ethmoid bone
- n, n, Passages from the frontal sinuses. o, The foramen cacum.
- p, The opening which receives the cribriform plate of the ethmoid bone.
- q, q, The furrows which lodge the blood-vessels of the dura mater,

### OSSA PARIETALIA.

The parts here to be attended to are,

The parts here to be attended to are,
The situation of the Oesa Parietalia, in the upper and
lateral parts of the Cranium. Tab. IV. B.
The figure of each Parietal Bone a Trapezium, or
approaching that of a Square. Tab. IX. Fig. 1. 2.
The opper edge longest. Tab. IX.
The outer of the proper of the pariety of the pariety

The inferior shortest, and in form of a ragged arch, The superior shortest, and in form of a ragged arch, to be connected to the upper rounded edge of the Squamous part of the Temporal Bone. Tab. 1X.

The three first edges of the Bone ragged, where they assist in forming the true Sutures. Tab. 1X.

The corners of the Bone obluse, excepting the under The external surface of the Bone, smooth and convex.

Tab. IX. Fig. I

The Transverse arched Ridge, or Line, frequently of a whiter colour than the rest of the Bone, placed exter-nally a little below its middle height, for the origin of the

attice below its middle height, for the origin of the Temporal Muscle. Tab. IV. n.

The radiated Flavrows at the under part of the Bone, formed by the Fibres of the Temporal Muscle. Tab. IV. o. Near the semicientlar edge, many inequalities, which pin similar inequalities on the inside of the Temporal

Bone, to form the Squamous Suture.

The Foramen Parietale, near the upper and back part of the Bone, for the transmission of a Vein from the Integuments of the Head to the superior longitudinal Sinus; and sometimes of a small Branch from the Temporal or the Occipital Artery, to the Falx of the Dura Mater. Tab. VIII. Fig. 1. 2

In several Skulls, one of the Parietal Holes is wanting; in some, two are found in one side; in others, none

Here attend to,

The internal concare surface of the Bone. The Furrous made by the Blood-vessels of the Dura Mater; the principal of which begin by a Trunk at the under and fore part of the Boue, Tab. IX. Fig. 2.

where frequently a full Canal is formed, which ought to

Here attenated. The situation of the Occipital Bone in the back and sader part, of the Cranium. Tab. VI. Its rhombodi figure, with the angle above generally a little rounded. Tab. IN. Fig. 4.

The external surface convex, and smooth at the upper part. Tab. IX. Fig. 3.

The large Arched Ridge, running across the Rone, acar the middle of the convex surface, to the centre of which the Trapezii Muscles are fixed, the outer parts

giving origin to the Occipito-frontalis. Tab. IX, Fig. 3.

The smaller Arch, half-way between the former and

he attended to by Surgeons in the operation of the Tre-

pan over this part.

In their progress upwards, the Furrows divide into many Branches, and frequently small passages are seen running from these into the Diploe.

The depression at the upper edge of the Bone, for the attachment of the upper part of the Falx, and lodge-ment of the aspecior longitudinal Sinus. Tab. VIII. Fig. 2. This is most distinctly seen when the Bones are

conjoined.

The depression for the longitudinal Sinus, like the Sinus itself, becomes larger in its course backwards; and frequently it is larger in one Bone than the other.

The Fossa at the under and back part of the Bone, for lodging a small part of the lateral Sinus.

Tab. IX

Numerous depressions found on the inside of the Bone, occasioned by the prominences of the Brain.

The connection of the Parietal Bones to the Os Fron tis by the Coponal, and to each other by the Sagittal S ture. Tab. VIII. Fig. 1. b, b, d, d.

The Parietal Bones have the two Tables and Diplo

the completest, and are the most equal and smooth of any

In the Focus, the sides of the Parietal Bones are in complete, and there is no Parietal Hole. Between the there is a large interstite, termed, in common language, there is a large interstite, termed, in common language, opening of the Head, and by Anatomists, Bregns, the Anatomist, Bregns, the Brein are executed. The N. XI. B.

The Bregns is occupied by a Strong Ligamenton Membrane, which adheres family to the ragged edge of the Anatomist Anatomist and Anatomist Anatomist

the Bones, and is lined-within by the Dura Mater, and

### Os OCCIPITIS.

g, h, h. The depressions between the middle of the large and small Arches, for the connection of the Complexi Muscles. The impressions between the Arches and the Temporal Bones, for the attachment of the Spicili. Tab. N. Fig. 3.

Covities between the smaller Arch and the Ferance. Magnum, for the reception of the Recti Minores, and

Magnom, for the reception of the Kecti Minores, am impressions made, more externally by the Heatt Majores and Obliqui Superiores. Tab. IX. Fig. 3.

The perpendicular Spiria, of inconsiderable size, running through the middle of the two Arches, and separating the Muscles of the opposite sides.

The unregual edges of the Forumen Magnam, for the unregual edges of the Forumen Magnam, for the

to the Vertebræ of the Neck The inferior Angle, contrary to the rest of the Bone, flattened and stretched forwards in form of a wedge; hence called Cunciform, or, from its situation, Basilar Process. Tab. IX. Fig. 3. p

The unequal Surface of the Cunciform Process, for the attachment of the Recti Anteriores Muscl

The Condyles placed at the base of the Cuneiform Process, and at the fore and lateral parts of the Foramen Magnum, for the articulation with the Atlas, or first

Vertebra of the Neck. Tab. IN. Fig. 3. l. l.

The oral form and smooth Cartilaguous surface of the

Condyles, corresponding with the superior articulating Processes of the Atlas.

The Condyles run obliquely forwards and inwards, and are deepest at their inner parts; in consequence of which they are prevented from sliding to either side out of the Cavities of the Atlas.

In some Subjects, each of the Condyles is more or less divided transversely, giving the appearance of two Pro-

Round their roots, the surface is unequal, for the attachment of the Capsular Ligaments connecting this Bone to the first one of the Neck.

The rough Prominences between the Condyles and Mastoid Processes of the Temporal Bones, for the in-sertion of the Recti Capitis Laterales Muscles; and, an-terior to these, the Semilunar Notches which form part of the Holes common to the Temporal and Occipital

Bones. Tab. VI. between F and K. The Flexion and Extension of the Head are performed at the Condyles, hut they are found to be placed behind its centre of gravity, which affords space for the Mouth, Throat, &c.; and the Head is prevented from falling forwards by the constant action of the strong Extensor

Muscles, placed on the back part of the Neck.

The internal Surface of the Bone hollow, for contain-

The internal Surface of the Bone hellow, for containing the back part of the Brain. Tab. IX. Fig. 4.

The Cruciform Spine of the inner side, formed by two Ridges, the one placed perpendicularly in the middle of the Bone, the other crossing the first in a horizontal discretion. Tab. IX. Fig. 4.  $a_1f_1b_1b_2$ . The upper Link of the perpendicular hollow in the middle, or frequently at one side, for the reception

of the superior longitudinal Sinus, and the attachment of the Falx. Tab. IX. Fig. 4. a-b.

the Faix. Tab. 12. Fig. 4. 10-0.

The lateral 'Limbs, placed opposite to the great external arched Spine, and hollow in the middle, for containing the lateral Sinuses, and giving attachment to the Tentorium Durse Matris. Tab. IX. Fig. 4. b, b.

The hollow in one of the lateral Limbs, and more especially the right one, is frequently the continuation of Forumen, and constitute almost the whole of the that made in the perpendicular Spine by the longitudinal dyles; and the fourth forms the Cuneiform Process.

insertion of the Ligaments, by which the Head is fixed Sinus, and therefore is often larger than the other, which, in such cases, is occupied by a continuation of the Vein

termed Torcular HEROPHILI. The lower Limb short, for the attachment of the Fals Minor, and sometimes hollow, for the reception of an

Occipital Sinus.

The Fossæ at the sides of the upper Limb, for con-

taining the posterior Lobes of the Cerebrum. Tab. IX.

The Fosset at the sides of the lower Limb, for containing the Cerebellum. Tab. IX. Fig. 1. e, e.

Anterior to the Fossæ for lodging the Cerebellum, tun Cavities for receiving the lateral Sinuses, previous to

their leaving the Cavity of the Cranium The concave surface of the Cunciform Process, for receiving the Medulla Oblougata and Basilar Artery. Tab. IX. Fig. 4. n.

The depressions at each side of the Cunciform Process,

where the inferior Petrosal Sinuses are placed. Tab. V.

The Foramen Magnum, behind the Basilar Process, and between the Condyles, tor the passage of the Medulla Oblongata, Vertebral Blood-vessels, and Accessory Nerves. Tab. V. X.

The superior or anterior Condyloid Foramina, at the sides of the Foramen Magnum, and in mediately over ... Condyles, for the passage of the ninth pair of Natures. Tab. IX. Fig. 3. n, n.

The posterior Condyloid Foramina, at the back part of the root of the Condyles, for the passage of Veins from the Occiput, or from the Vertebral Veins, into the lateral Sinuses, near their terminations. Tab. IN. m, m.
Frequently one of the posterior Condyloid Forancian is
wanting; sometimes both, when the Veins pass through

the Foramen Masmum. Besides the Holes above taken notice of, others are

often found, near the edges of the Bone, for the transmission of Veins, the number and size of which are uncertain. The connection of the Bone to the Ossa Parietalia, by

the Lambdoid Suture. Tab. VII.

This Bone is among the thickest of the Cranium, though very unequal; being thick and strong above, where it is little impressed by Muscles, and so thin below, where it is pressed by the weight of the Cerebellum internally, and affected by the action of the Muscles externally, hany, and ancesco up the action of the analysis extending as to be in many Skulls readered transparent. But the thick Muscles and strong Spine of the Bone assist greatly in preventing injuries from lappening here. In the Festus, the Occipital Bone is divided into four pieces; the first, which is larger than the other three, forms all the part of the Bone above the Foramen Mag-

num; the second and third are placed at the sides of that Foramen, and constitute almost the whole of the Con-

## TABLE

## VIEWS of the PARIETAL and OCCIPITAL BONES.

The External Surface of the Right PARIETAL BONE.

". The middle convex part of the bone.

b, b, The upper ragged edge of the bone, which, when joined to its fellow, forms the sagittal suture.
c, c, The anterior edge, which assists in forming the co-

d, The posterior edge, which joins the occipital bone, and assists in forming the lambdoid suture.

e, e. The inferior semilunar edge, which is joined to the

pars squamosa of the temporal hone.

f, The parietal hole. g, g, The arched ridge of the parietal bone, which gives

origin to a large share of the temporal muscle.

h, The anterior and superior angle of the hone.

k, k, The posterior angles.

## FIG. 2.

The Internal Surface of the same PARIETAL BONE.

a, The middle internal concave part.

b, b, The inner surface of the upper edge of the bone, where the indeotations are more apparent than those

c, The inner orifice of the parietal hole.

d, d. The auterior servated edge of the bone. e, e, The posterior edge, more strongly marked with in-

dentations than its anterior edge.

than the rest.

cipal artery of the dura mater.

h, h, h, h, The ramifications of that furrow. i, i, Small furrows of the bone, which correspond to its

posterior-inferior an k, A depression which lodges part of the lateral sinus.

I, The inferior edge of the bone, considerably thinner

### FIG. 3.

A View of the External Surface of the Occipital Bonz.

a, The superior angle of the bonc. b, b, The ragged edge of the bone, which assists in form-

ing the lambdoid auture. c, c, The irregularities at the lateral and inferior parts of

the bone, where it is joined to the ossa tempora d, e, e, The large transverse arched ridge, or spine. e, e, Muscular prints upon the transverse ridge

The perpendicular spine.
The smaller arched ridge, running across the spine of the bone.

h, h, Muscular prints above the foramen maguum. i, i, The edge of,

1, 1, The occipital condyles. m, m, The posterior condyloid foramina

n, n. The inner side of the left, and outer side of the

right anterior condyloid foramina.

o o, Nitches which assist in forming the holes commo

to the occipital and temporal bones.

p. The extremity of the cunciform process, upon which are seen.

q, q, Prints which give origin to some of the flexor muscles of the head.

### FIG. 4.

The Internal Surface of the OCCIPITAL BONE.

a, The superior angle of the bone. b, b, The middle, or lateral angles.

c, c, &c. The eminences and eavities which assist in forming the lambdoid suture.

d, d, The superior occipital forsæ, which lodge a share of the posterior lobes of the cerebrum e, e, The inferior occipital fosse, which lodge a part of

the cerebellum. f, f, The extremities of the crucial ridge or spine.

f. f. The superior angles.

85 The inferior-anterior angle, where the beginning of the furrows seen, which lodges the trank of the prin
87. The forsa which lodges the superior longitudinal sinus.

87. The forsa which lodges the superior longitudinal sinus.

and has the falx fixed to its edges. h, The middle of the crucial ridge The fossæ which lodge the lateral sinuses, and have the

tentorium fixed to their edges, are included between

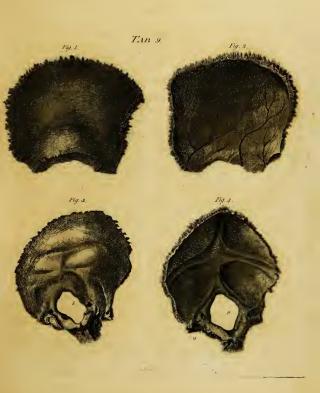
i, i, The openings of the os occipitis, which form part of the foramina lacera, common to the occipital and temporal bones

k, k, The small processes of the os occipitis, which assist in forming part of the foramina lacera

l, l, The internal orifice of the posterior condyloid holes.
m, The anterior condyloid hole of the os occipitis of the right side.

n, The concave surface of the cunciform process.

v, The inequalities of the cunciform process of the os occipitis, by which it is united with the sphenoid bone. p, The foramen magnum.





### OSSA TEMPORUM.

In these we observe,

The situation of each Temporal Booe in the under and lateral part of the Cranium, Tab. IV. D. The Squamous Plate, which forms a part of the

Temple, and gives origin to a portion of the Temporal

Muscle. Tab. IV. D.

The Squamous Plate appearing equal and smooth externally, with a thin semicircular edge above, which, by overlapping the under edge of the Parietal Bone, gives name to this Process. Tab. VII. Fig. 1. N, N.

The Mastoid or Mammillary Process, giving insertion to strong Muscles, particularly the Sterno-mastoid; and cootaining Cells which communicate with each other, and with the Cavity of the Ear, called Tympanum.

Tab. IV. w.

The Petrous Process, remarkably hard, very unequal, and of an obloog form, but becoming smaller in its progress; placed at the base of the Bone, from which it runs obliquely forwards and inwards, and contains the internal Organ of Hearing, to he afterwards described. Tah. X.

Fig. 6. f, q.

The Zygomatic Process, running from the under and point the Os Mala; fore part of the Squamous Plate, to join the Os Malæ; forming an Arch, oo the inner side of which the Temporal Muscle passes to the Lower Jaw, while its edges give attachment to part of the Temporal Muscle, and to the Aponeurosis Temporalis. Tab. X. Fig. 5. c. Tah.

A Tubercle of an oblong form at the root of this Process, covered with a smooth Cartilage, making part of the Articulation of the Lower Jaw. Tab. IV. behind s.

The Styloid Process, placed at the root of the Pars Petrosa, and going obbquely downwards and forwards, to give origin to Muscles which borrow part of their name from it, and helong to the Tongue and Throat. Tah. X. Fig. 5. r. Tab. VI. M.

It is generally about an inch in length, though sometimes a great deal more, and is remarkably sleoder. It is frequeotly, eveo in Adults, not entirely ossified, and is

therefore apt to drop off io macerating the Bones.

The Vaginal Process, of an inconsiderable size, surrounding the root of the Styloid Process, and deepest at

its fore part. Tab. X. Fig. 5. n. The Rough Semicircular Ridge, at the under part of

the external Meatus; sometimes also considered as a Process, and called Auditory, for the connection of the Cartilage of the Ear. Tub. X. Fig. 5. n. A Groove at the incer part of the root of the Mastoid

Process, giving origin to the Digastric Muscle; and a bittle auterior to this another Groove, in which the Occipital Artery runs. Tab. VI. t.

The Glenoid or Articular Cavity, behind the root of VOL. I.

great size, and lined with Cartilage, for the Articulation of the Lower Jaw. Tah. IV. O.

The Glenoid Fissure, at the back part of this Cavity, and between it and the Pars Petrosa, and also between the Pars Petrosa and Sphenoid Bone, for the attachment of part of the Capsular Ligament of the Articulation of the Lower Jaw. Tab. VI. q. Tab. X. Fig. 5. o.

A Depression between the Glenoid Fissure and Styloid Process, for lodging a portion of the Parotid Gland.

Tab. VI. between G and the Styloid Process M. The Thimble-like Cavity, or the Jugular Fossa, at the incer side of the root of the Styloid Process, for lodging the top of the internal Jugular Vein. Tab. V1. Q.

This Cavity is frequently larger in the one side of the Head than the other, corresponding with the size of the

Vein which goes through it.

The Meatus Auditorius Externus,-a large Canal, hetween the Mastoid and Zygomatic Processes, leading inwards and forwards to the Organ of Hearing. Tab.

Around the external Meatus, a rough Surface, for the connection of the Cartilages and Ligaments of

Tab. VI. before N.

The Foramen Stylo-mastoideum, or Aqueduct of I AL-LOPIUS, between the Styloid and Mastoid Processes, for the transmission of the Portio Dura of the Seventh Pair of Nerves.

The Foramen Caroticum, or Canalis Caroticus, at the inner and fore part of the Jugular Fossa, and also before and at the inside of the Styloid Process, leading upwards, theo forwards, through the point of the Pars Petrosa, for the transmission of the internal Carotid Artery to, and of the Great Sympathetic Nerve from, the Leain. Tah. VI. P.

In the upper and back part of the Canal, one, sometimes two, minute Holes are observed, through which the internal Carotid Artery seeds one or two Twigs to the

The Iter a Palato ad Aurem, or Eustachian Tube, between the Fissure for the Capsular Ligament of the Lower Jaw, and the passage of the internal Carotid Artery, extending outwards and backwards in a horizontal direction, till it terminates io the Tympanum. Io the Subject, it is formed, by the addition of Car-

tidage and Ligameot, into a trumpet-like Tube, which is continued forwards and inwards to the back part of the Nostril, and conveys air from the Nose to the Tympanum of the Ear. Tab. with views of the Ear, Vol. II,

On the external side of the Osseous part of the Eus-Tachian Tube, and at the top of the Gleuoid Fissure, is the course of the Nerve termed Chorda Tympani

The Foramen Mustoideum, occasionally found at the the Zygoma, of an ohlong or somewhat oval form, of back part of the Mastoid Process, or in the Lambdoid Suture. When present, it sometimes transmits an Artery to the Dura Mater, but more commonly a Vein from the Integuments of the Head to the Lateral Sinus. Tab. VI. u. Sometimes two or three Foramina Mastoidea are ob-

served, serving the same purpose with that already no-ticed; but these, like all the other passages for Veins leading into the Sinuses, are very uncertain.

The upper and inner Edge of the Squamous Plate formed into Ridges and Furrows, where it is connected with the Parietal Bone. Tab. X. Fig. 6. a, a.

The inner Surface of the Squamous Plate, unequal where it is marked by the Convolutions of the middle part of the Brain, and by the Arteries of the Dura Mater. Tab. X. Fig. 6. b, b.

The Pars Petrosa, of great size, running forwards and inwards, with a sharp angle above, and two flat sides; one facing obliquely forwards and outwards, and the other as much backwards and inwards.

The anterior and outer Surface of the Pars Petrosa opposed to the lateral Lobes of the Brain. Tab. V. n, o.

The posterior and inner Surface of the Pars Petrosa opposed to the Cerebellum. Tab. V. o, m. The Ridge between the two Surfaces of the Pars Petrosa, for the attachment of the Tentorium Duræ Matris. Tah. V. Q.

A Groove frequently found upon the Ridge of the Pars Petrosa, for lodging the superior Petrosal Sinus. Tab. V.o. A Fossa, at the root of the Posterior Surface of the Pars Petrosa, and opposite to the Mastoid Process, for lodging the Lateral Sinus, where it turns downwards to go out of the Cranium. In this Fossa the passage is observed which corresponds with the Forancu Mastoideum.

This Cavity is frequently larger in one Temporal Bone than in the other, which happens in eases when the Lateral Sinuses are of unequal size.

The Meatus Auditorius Internus, or Foramen Auditivum, passing outwards and backwards, in the posterior Surface of the Pars Petrosa, for the passage of the Seventh Pair of Nerves, and the principal Artery belonging

to the Inner Ear. Tab. V. R. In the bottom of this passage, there are many Fora-

mina; one above, more conspicuous than the rest, is the beginning of the passage for the Portio Dura of the Seventh Pair of Nerves. The others are the Passages of the Branches of the Portio Mollis of that Nerve.

LXXIXA, Fig. 1. Someway below the Meatus Internus, is the opening of the passage termed, by COTUNNIUS, Aquaductus Cochlea; and near the same distance behind the Meatus, and on

the same side of the Bonc, is the mouth of the Aquaductus Vestibuli The Foramen Innominatum, near the middle of the

Anterior Surface of the Pars Petrosa, and leading backwards for the passage of the VIDIAN Nerve, which is reflected from the Second Branch of the Fifth, to the Por-tio Dura of the Seventh Pair. Tab. V. a.

The orifice of the Canalis Caroticus appearing under part of the Pars Petrosa. Tah. V The Foramen Lacerum Posterius, or Hole common to

the Pars Petrosa and Cunciform Process of the Occip tal Bone, for the passage of the Lateral Sinus, the Eighth Pair, and Accessory Nerves. Tab. V. S. T. The Nerves pass through the fore part of the Hole,

and are separated from the Sinus by a Process of the Dura Matter, stretched between two small Processes of these Bones. In some Skulls, an Osseous Partition separates the Nerves from the Sinus.

The Connection of the Bone, at its upper curved Edge, to the Parietal Bone by the Squamous Suture Tab. IV. o.

To the under and back part of the Parietal Bone, by the Additamentum Suturæ Squamosæ. Tah. IV To the Occipital Bone, by the Additameutum Sutura

The Squamous part of the Temporal Bene is thin, but equal, while the Pars Petrosa is thick and strong, but irregular, having within it several Cavities, Processes, and

Boncs, which belong to the Organ of Hearing. In a Fortus, the Squamous is separated from the Petrous part by a Fissure; there is no appearance of Mastoid or Styloid Process, and instead of an Osseous Mcatus Externus, there is only a Ring of Bone, in which the Membrana Tympani is fixed. Tah. XI.

## OS ETHMOIDES.

OBSERVE here, The Situation of the Ethmoid, or Cribriform Bone, in the fore part of the Base of the Cranium.

Its Cuboid Figure.

The Cribriform Plate, from which the Bone has its same, placed horizontally, and perforated, excepting at its hack part, with many Holes, disposed irregularly and

of different sizes, for the transmission of the Branches of the First or Olfactory Pair of Nerves. Tab. A

Fig. 4. c. In the recent Subject, these Holes are so much filled

up by the Processes of the Dura Mater which inclose the Nerves, that they are much less evident than in Bones where the Membranes have been removed.

The Crista Galli, arising perpendicularly from the middle of the Cribriform Plate, and highest at the upper and fore part. Tab. X. Fig. 4. b.

To the edge of this Process, and to the unimperforated part of the Cribriform Plate, the Falx of the Dura Ma-

A Notch at the fore part of the root of the Crista Galli, contributing, in a small degree, to the formation of

the Foramen Cacum of the Frontal Bone. The Nasat Plate, extending downwards and forwards from the hase of the Crista Galli, to form the upper and

back part of the Septum Narium, or Partition of the Nostrils. Tab. XIII. Fig. 2. F. The greater part of this Process is very thin, but to-

wards its anterior and under edge it becomes thicker, for its firmer junction with the Bones and middle Cartilage of the Nose.

It is frequently bent a little to one side; in such cases, the two Nostrils become unequal in size.

The Ethmoid Cells, of an indeterminate number and form, placed under the Cribriform Plate, a little to the outside of the Nasal Lamella, separated from each other by thin Partitions, and serving the same purposes as the Frontal Sinuses. Tab. X. Fig. 4. d. Tab. XIII. Fig. I. G, H.

Their Communications with each other, with the Frontal Sinuses, and also with the Cavity of the Nose. Tab.

XIII. Fig. 3. B.

The Os Spongiosum Superius, on each side, projecting inwards and downwards from the Ethmoid Cells at the side of the Nasal Lamella, for enlarging the Organ of Smell. Tab. X. Fig. 3. e.
The Triangular Form and Spongy Texture of each.

Tab. XIII. Fig. 1. k, l, m, n.

In the Quadruped, this Bone is convoluted like a Turban; hence, in the Human Species, it is frequently called Turbinatum.

Its Convexity towards the Septum, and Concavity out-

wards. Tab. X. Fig. 3. e.

The Ossa Plana, or Orbitar Plates, for covering a large share of the Ethmoid Cells, and forming the greater part of the inner sides of the Orbits. Tab. X. Fig. 4. g. Tab. IV. E.

On the upper edge of each Os Planum, two small Notches appear, which, with similar Notches in the Frontal Bone, form the internal Orbitar Holes. Tah.

The Connection of the Cribriform Plate to the Orbitar Plates of the Frontal Bone by the Ethmoid Suture; and to the Sphenoid Bone by a Suture common to the two Bones, but generally considered as belonging to the latter.

Tab. V. f, g, g. The Connection of the Ossa Plana to the Orbitar Plates of the Frontal Bone, by part of the Transverse Suture.

Tab. IV. k, 1. The posterior edge of the Nasal Plate, joined to the Processus Azygos of the Sphenoid Bone. Tab. XIII.

Fig. 2. Its upper edge, joined to the Nasal Processes of the Frontal and Nasal Bones. Tab. XIII. Fig. 2.

Its anterior edge, joined to the middle Cartilage of the Nose. Tab. XIII. Fig. 2. I.

In the Fatus, the Ethmoid Bone is divided into two by a Cartilaginous Partition, which afterwards forms the Nasal Plate and Crista Galli. The other parts of the Bone are completely ossified. Tab. XI.

#### OS SPHENOIDES.

HERE attend to. The Situation of the Sphenoid or Cunciform Bone, in the middle of the Cranium. Tab. V. g, f, O, F. Its irregular Figure, which has been compared to that

of a But with extended wings. Tab. X. Fig. 2.

The Temporal Plates, or Wings, placed at the sides of the Bone, and each hollow at the upper and outer part, for lodging a share of the Temporal Muscle. Tab. IV. f The Orbitar Plates, at the fore part of the Temporal Wings, forming a portion of the outside of the Orbits. Tab. III. m.

The Spinous Process, at the under and back part of each Temporal Plate. Tab. X. Fig. 2. s. A Styloid Process, frequently observed at the point of

the Spinous, from both of which the Circumflexus Palati arises. Tab. X. Fig. 2. Between the Temporal and Spinous Processes, an

Arch for receiving the fore part of the Temporal Bone. Tab. IV. q. Tab. X. Fig. 2. q.

The two Pterygoid, or Aliform Processes, placed almost perpendicularly to the Base of the Cranium. The Pterygoid Processes are compared to the wings, though more properly resembling the leet, of the Bat. Each is composed of two Plates.

The External Plate, broad and hollow without, where

the External Pterygoid Muscle has its origin. Between the root of this Plate and that of the Temporal one, a large Depression, where the principal part of the External Pterygoid Muscle has its origin. At the fore part of this is another Depression, forming part of the opening common to the Sphenoid, and to the Malar and superior Maxillary Bones

The Internal Plate, narrower and longer than the External, and, with its fellow on the opposite side, forming the back part of the Nose.

A hook-like Process upon the Internal Plate, over which the Circumflexue Palati moves as on a Pulley. The Fossa Pterogoidea, facing backwards between the

Pterygoid

Pterygoid Plates, giving rise to the internal Pterygoid the Dura Mater, to be dispersed upon the Brain. Tah. Muscle. Tab. VI. R.

A small Depression at the back part of the root of the internal Pterygoid Plate, which gives origin to part of the Circumflex Muscle of the Palate

A Groove on each side, which extends at the inner part of the Bone, between the root of the Styloid Process and that of the internal Pterygoid Plate, assisting in the for-mation of the Eustachian Tube.

The two Triangular Processes, which adhere to the under part of the Sphenoid, and to the Ethmoid Bone, and which are considered as two of the Bones of the Face. Tab. X. Fig. 1. b. Fig. 3. k.

The Processus Azygos, standing single, and forming a sharp ridge, which projects from under the middle and fore part of the Bone. Tab. X. Fig. 1. a. This Process is often hent to one side, dividing the two Nostrils une-

The Clinoid Processes, seen on the inside of the Bone, compared to the supporters of a hed, of which there are,

Two Anterior, projecting from the forc part of the Body of the Bone, and extending horizontally outwards; each terminating in a point which obtains the name of Transverse Spinous Process; Tab. V. E. Tab. X. Fig. 2. c. and.

the anterior Processes, and frequently ending in two Knohs, which incline obliquely forwards. Tah. X. Fig.

Sometimes one or both of the anterior Clinoid Processes are united with the posterior, forming an Arch

The Processus Olivaris, considered by some as a fourth Clinoid Process, lying between, and a little behind, the roots of the anterior Chnoid Processes. Tah, V. A.

Between the anterior Clinoid Processes, a small-pointed Process frequently juts forwards, to join the Cribriform Plate of the Ethmoid Bone, from which it is sometimes

The Temporal Fossæ of this Bone, which lodge a share of the lateral Lobes of the Brain. Tah. V. P.

A Fossa between the anterior Clinoid Processes, where part of the anterior Lobes of the Brain rests,

A Depression before the Processus Olivaris, where the conjoined Optic Nerves lie; and a Fossa on each side of it, where these Nerves are situated, previous to their entering the Orbits. Tab. X. D.

The Fossa Pituitaria, Sella Turcica, Ephippium, or Turkish Saddle, between the Processus Olivaris and posterior Cliuoid Process, for lodging the Glandula Pitui-Tab. V. D. Tab. X. Fig. 2. 1.

A Depression, running first upwards, then forwards, upon each side of the posterior Clinoid Process and Sella Turcica, and terminating in a Pit at the root of the au-terior Clinoid Process. These Depressions point out the course of the internal Carotid Arteries, when they have entered the Cranium, and previous to their perforating

Besides these Impressions, several others may be ob-served, made by Nerves and Vessels leading to or from their respective Holes in the base of the Cranjum

The Forumina Optica at the roots of the anterior Ch. noid Processes, for the transmission of the Optic Nerves

and Ocular Arteries. Tab. X. Fig. 2. f. The Foramina Lacera Superiora, or Superior Orbitar Fissures, under the anterior Clinoid Processes and their transverse Spinous Parts, for the passage of the third,

fourth, first part of the fifth, and the sixth pair of Nerves, with the Ocular Veins. Tab. X. Fig. 2. 7. The Foramina Lacera are largest at their inner ends At their puter extramities they are considerably smaller,

and are formed there by the Os Frontis; hence they may be ranked among the common Holes of the Cranium The Foramina Rotunda, a little behind the Foramina

Lacera, for the passage of the second part of the fifth pair of Nerves, which are termed also Superior Maxillary. Tab. X. Fig. 2. n.

The Foramina Ovalia, considerably larger than the Foramina Rotunda, and placed farther back, and me the terminating in a point which obtains the name of externally, for the passage of the third part of the fall reasserse bytoms Process 2 lab. V. E. Tab. X. Fig. pair of Nerves, and commonly, for the passage of the Cons. Which suited transversely, some way behald, Dura Matter. Tab. X. Fig. 2. 6.

The Foramina Spinalia, a little to the outer and back part of the Foramina Ovalia, and in the points of the Spinous Processes, for die transmission of the principal Arteries of the Dura Mater, the impressions of which are so conspicuous on the inner side of the Temporal Bones. Tab. X. Fig. 2. p.
The Foramina Pherygoidea, termed also, after the dis-

coverer, Foramina VIDIANA, at the roots of the inner Plates of the Pterygoid Processes, for the passage of two reflected branches of the second part of the lifth pair of Nerves. Tab. X. Fig. 1. n. Tab. VI. X.

The Foramina Pterygoidea are the smallest of the Sphenoid Holes, and cannot be distinctly seen in the entire Skull, being partly concealed by the Palate-Bones.

Sometimes one or more small passages are observed in or near the Sella Turcica, for the transmission of Bloodvessels into the Sphenoid Sinuses, or to the substance of the Bone. These passages were, in former times, considered by some Authors as conducting Pitnita by the Sphenoidal Sinuses into the Nose

The Foramina Lacera Anteriora, common to the points of the Partes Petrosæ and the Sphenoid Bone. Tab. V. before L.

In a recent Skull, each of these Holes is filled behind hy a thin plate of Bone, which covers the internal Carotid Artery, and farther forwards, by a Cartilaginous Ligament, which lies over the EUSTACHIAN Tube, both of which drop out by maceration. Through this opening, also, Mucus was formerly supposed to be convened from the Glandula Pituitaria to the Nose.

The Sphenoid Sinuses, occupying the whole of the Body Body of the Booc, at the under and fore part of the into one of the Nostrils. In some Subjects, instead of Sella Turcica, accepting the same purposes with the Sinuses, the Body of the Bone is composed of large Cells. Sella Turcica, asswering the same purposes with the Ethmoid and Frontal Cells. Tab. X. Fig. 1. c.

Ethmoid and Frontal Cells. Tab. N. Fig. 1.c.

The Substance of this Bone is the most unequal of any and A complete Pertiling between the right and left Sphenoid Stances. Tab. N. Schewence, Co. Others are blicker than most parts of the Cranisms. Of Sphenoid Stances, deceoding, in a sharing direction, the Cranisms, of Sphenoid Stances, deceoding, in a sharing direction, the Cranism, but the Sphenoid Stance, should be substanced to the Sphenoid Stance, though others, as with the Nervestoth the Note. Tab. CLXXXIV. Fig. 1. On.

The two Sinuses are frequently of unequal size, and should be substanced the Note Tab. State Ta

The Substance of this Bone is the most unequal of any

# TABLE

Represents the Sphenoid, Ethmoid, and Temporal Bones.

A View of the Outer and Under Surface of the SPHE-NOID BONE.

- a, THE processus azygos of the sphenoid bone. b, b, The small triangular bones, which, in old people, grow to the body of this bone.
- c, c, The orifices of the sphenoid sinuses. d, d, The foramina lacera
- e, The anterior and superior part of the body of the bone.
- f, f, The external surface of the transverse processes
- \$5, \$5. The orbitar plates.
  \$\hat{h}, \hat{h}, \text{ The superior extremities of the temporal processes.} i, i, \text{ The middle of the temporal processes, which form
- part of the temporal fossa
- k, k, The asperities by which this hone is joined to the ossa malarum
- 1, 1, Gutters in the os sphenoides, which lodge branches of the fifth pair of nerves.
- m, m, The foramina rotunda.
  n, n, 'The foramina pterygoidea.
  o, o, The anterior openings, which assist in forming the

  - p, p, The foramina ovalia.
    q, q, The spinous processes.
  - r, r, The roots of the pterygoid processes.
    s, s, The internal plates of the pterygoid processes.
    t, t, The hook-like processes, at the extremities of the

  - v, v. Small sinuosities in the hook-like processes, over which the tendons of the circumflex muscles of the palate play,
  - x, x, The external plates of the pterygoid processes. y, y, The parts of the bone adapted to the ossa palati.
  - The posterior openings, common to the sphenoid and temporal bones, over which the internal carotid

# F1G. 2

A View of the Inner and Upper Surface of the SPHE-NOID BONE.

a, a, The superior and anterior part of the sphenoid bone, which is joined to the under and back part of the frontal bone.

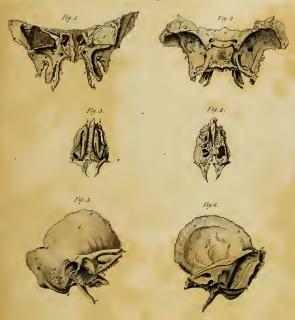
- b, b, The temporal plates, or processes of the bone.
  c, c, The transverse processes.
  d, The small anterior process, which unites with the ethic moid bone.
- e, A protuberance situated before the union of the ontic nerves.
- f, f, The foramina optica.
  g, g, The anterior clinoid processes.
  h, h, The posterior clinoid processes.
  i, i, Part of the foramina lacera.
- k, k, Impressions made by the internal carotid arteries. l, The Sella Turcica.
- m, m, The cavities of the temporal processes, which re-
- ceive the lateral lobes of the brain. n, n, The foramina rotunda
- o, o, The foramina ovalia.
  p, p, The foramina spinalia.
  q, q, The ragged edge of the bone, which assists in form-
- ing the sphenoid suture.

  r, Part of the sphenoid bone, which joins the cuneiform process of the occipital bone.
- s, s, Part of the spinous processes.
- t, t, Part of the pterygoid processes.

The Outer and Under Surface of the ETHMOID BONE

- a, The anterior extremity of the nasal plate, which forms the upper part of the septum narium
- b, The posterior extremity of the nasal plate, which it very thin.
- nasul plate from the ossa spongiosa superiora. d, d, 'The passages for the hranches of the olfactory
- e, c, The ossa spongiosa superiora.
  f, f, The cavities of the ossa spongiosa superiora.
- g, g, Part of the ethmoid cells
- h, h, Inequalities of the ethmoid bone, by which it is joined to the frontal bone
- k, k, The small cornua, or triangular bones, which, is adults, are joined to the body of the sphenoid bo

# Z1B. 10.





# FIG. 4.

The inner and upper Surface of the Ethmoid Bone.

- a. The anterior extremity of the bone, terminating in a
- b, The upper part of the crista galli. c, c, The cribriform plate, with the different passages of the olfactory nerves.
- d, d, Some of the cells of the ethmoid bone.
- e, The posterior extremity of the nasal plate, which forms part of the septum narmun,
- f, f, The posterior margins of the ethmoid bone.
- g, A great part of the os planum of the left side.
  h, h, The upper part of the triangular bones which are joined to the body of the sphenoid boue.
- The joining of the triangular bones with the ethmoid
- k, Holes formed by the union of the triangular hones with the ethmoid boue.

# FIG. 5.

- A View of the Outer Surface of the TEMPORAL BONE.
- a, The upper and squamous part of the temporal boue.
- b. The middle of the squamous part.
- c, The under part, which lodges a portion of the temporal muscle,
- d, That part of the temporal boue, which, when joined to the under and back part of the os parietale, forms
- the additamentum suture squamose.
- e, The zygomatic process.
  f, The base of the zygomatic process.
- The transverse, or articular process.
- h, h, The mastoid process.
  i, i, Several small holes which transmit vessels to the sub-
- stance of the houe, or to the dura mater. k, k, Two holes at the root of the zygomatic process, for the transmission of vessels to the substance of the bone.
- or to the dura mater.
- 1, The meatus auditorius externus.
- m. Inequalities at the beginning of the meatus.

- n, The glenoid cavity for the articulation of the lower
- o, The glenoid fissure, to which part of the articular li-
- The vaginal process.
- q, Part of the mastoid groove. r, The styloid process.
- 8, The foramen mastoideun.
- t, The base, or upper part of the mastoid process
- v, The inferior and anterior part of the temporal bone, which is joined to the os sphenoides.
- x, A portion of the Eustachian tube.
- y, A portion of the pars petrosa.

# FIG. 6.

A View of the Inner Surface of the TEMPORAL BONE.

- a, a, The upper edge of the squamous process. b, b, Depressions which correspond with the circumvolu-
- tions of the brain. c, Part of the temporal bone, which is joined to the os
- splienoides. The nitch which receives the posterior and inferior
- angle of the parietal boue. The upper part of the pars petrosa.
- f, The groove which lodges the superior petrosal sinus. g, The fossa which lodges a part of the lateral sinus.
- The meatus auditorius internus. i, The nitch which assists in forming the foramen lace-
- k, Part of the fossa of the temporal bone, which lodges the beginning of the internal jugular vein.
- 1, The posterior part of the boue, which is joined to the occipital one.
- m, The inner surface of the foramen mastoideum.
- n, A portion of the mastoid process o, A considerable part of the masteid groove.
- p, The styloid process.
- q, The inner extremity of the pars petrosa, divided into two portions.

# TABLE XI.

VIEWS of the FŒTAL BONES of the HEAD.

# FIG. 1.

# A Lateral View of the SKULL.

A, The frontal bone, not yet complete in its middle and upper part. B, Part of the fontanella.

C, The coronal suture, which is here in part membra-

D, The parietal bone, formed of radiated fibres.

D. The parietal bone, formed of radiated fibres.
E. A portion of the left parietal bone.
E. The property of the left parietal bone.
E. The property of the left parietal bone.
H. The lambfold source.
I, The footaaclla posteriore, seen only in some bones.
K, The symmotop part of the temporal bone.
La The zygomatic process of that bone.
M. The massion process of that bone.
M. The massion process.

N, The squamous suture, partly membranous. O, The membrana tymp

O, the memorana tympani.
P, The temporal plate of the sphenoid bone.
Q, The naval process of the superior maxillary bone.
R, The body of that bone.
S, The orbit.
T, The os malæ.
U, The lower jaw.

# FIG. 2.

The Outer Surface of the Two Pieces which form the FRONTAL BONE.

A, The right, and, B, The left portion of the frontal bone. C, C, The orbitar plates.

# FIG. 3.

The Outer Surface of the Left PARIETAL BONE, in which the radiated Appearance of the Osseous Fibres is seen; the under and middle purt appears prominent, and more compact than the rest of the Bone

# FIG. 4.

The Outer Surface of the same Bone.

The Outer Surface of the four Pieces which form the OCCIPITAL BONE.

A, The upper and largest portion.

B, B, The two lateral portions, with the condyles and condyloid foramina C, The portion which forms the cunciform process,

The Outer Surface of the TEMPORAL BONE of the Kight Side.

A, The squamous plate

B, The zygomatic process

is incased.

D. The osseous circle, in which the membrana tympani

# FIG. 7.

# The Inner Surface of the same Bone.

A, Inequalities which facilitate the union between the

B, The fissure of the osseous circle, in which the membrana tympuni is incased.

# FIG. 8.

The Outer Surface of the Petrous part of the TEMPO-A, The cellular texture of the bone.

B, The part which forms the future mastoid process. C, The bottom of the tympanum, with passages belong-ing to the internal organ of hearing.

# The Lateral Portions of the ETHMOID BONE.

The three Pieces which form the SPHENOID BONE.

A, A, The temporal wings, &c.
B, The middle portion, forming the body of the bone, with the clinoid processes and sella Turcica.





# OF THE BONES OF THE FACE.

THE Bones of the Face, and the relative proportions between the Face and Cranium, vary considerably among cople of different nations, but they likewise vary among the individuals of the same country. It is difficult, therefore, to ascertain the proportions with accuracy. An Angle termed Facial, however, is considered by some late Authors as being the simplest method of determining this eircumstance.

The Facial Angle is formed by drawing a line through the external Auditory Passage and bottom of the Nostril, and another, termed Facial, from the convexity of the Forehead to the under and fore part of the Upper Jaw,

so as to intersect the former.

In the Grecian, as measured from the Antique Statue, the Facial Angle is found to be about 90°, or between 90° and 100°; in the European, about 80°, or between 80° and 90°; and in the African, on account of the greater promineuce of the Jaws, about 70°. According to Dr Camper, the Boundaries of the Fa-

cial Angle, in the Human Subject, are 70° and 80°. By a vertical longitudinal section of the Head, the area of the Face in the European is observed to be only half of that of the Cranium, but is somewhat more in the

Negro; or, the Face is larger in the one, while the Cranium is bigger in the other.

In the Boues of the Face we observe.

Their Division into Upper and Under Jaws.

The Upper Jaw, or Maxilla Superior, besides the Teeth, composed of seven Pair of Bones, and one without a fellow; viz.

Two Ossa Nasi i. Two Ossa Unguis; Two Ossa Malarum; Two Ossa Maxillaria Superiora; Two Ossa Palati; Two Ossa Spongiosa Inferiora; Two Ossa Triangularia; and the Vomer.

The Lower Jaw, or Maxilla Inferior, consists of a

single Bone, with the Teeth.

The Bones of the Upper Jaw are joined together by Sutures which have no distinct Indentations, like those of the Cranium; but, like them, they are frequently found obliterated in the Skulls of uld people. The Bones here, in consequence of the nature of the Sutures, have no motion but what they possess in common with the Cra-nium. The Sutures shall be taken notice of in the description of the Braces between which they are placed.

# OSSA NASI.

Their Situation in the upper and fore part of the Nose. Tab. III. F

The oblong Form of each, though irregularly so. Tab. XII. Fig. 3.

VOL. I.

The thick, ragged, upper end, where it forms a strong connection with the Frontal Bonc. Tab. XII. Fig. 3. Each narrowest a little below the upper end, and bent backwards.

The inferior Extremity, thinner and broader than the rest of the Bone, and unequal where it gives attachment to the Cartilaginous part of the Nose. Tab. XII. Fig. 3. The under half convex externally, by which, when the Bone is joined to its fellow, a strong Arch is formed, that

is fitted for resisting injury. Tab. III. F

Its internal Concavity, where it forms part of the Ca-vity of the Nose. Tab. XII. Fig. 4. The Spinous Process, which joins the Nasal Lamella of the Ethmoid Bone, and thereby forms part of the partition of the Nose. Tab. XII. Fig. 4. C.

One or more Holes externally, for transmitting Vessels into the Substance of the Bone, or to the Membrane of the Nose. Tab. IV. x.

Its Connection to the Frontal Bone by the Transverse

Suture. Tab. III. f, and,
To its fellow by the anterior Nasal Suture. Tab. III. before F.

In the Fœtus, the Ossa Nasi are proportionally short, but are otherwise complete.

# OSSA UNGUIS, DY LACRYMALIA.

Their Situation at the inner and fore part of the Orbit. Tab. IV. H. The Division of each externally, into two depressed

Surfaces, with a Ridge between them, which forms the boundary of the Orbit at the inner Augle, Tab. XII. Fig. 5. C..
The posterior Depression, the larger of the two, form-

The anterior Depression, lodging part of the Lacrymal Sae and Duct, and perforated by small Holes, through which Fibres pass, to make a firm connection between the Bone and its investing Membrane. Tab. XII. Fig.

In the Anterior Depression, the perforation is made in performing the operation for Fistula Lacrymalis. The inner Surface, composed of a Furrow and two

irregular convex Surfaces, corresponding with the ante-rior Ethmoid Cells. Tab. X.H. Fig. 6. The Substance of the Bone is the thinnest and most

brittle of any in the Body, in consequence of which it is frequently inct with in an imperfect state.

Its Connection to the Frontal Bone by the Transverse Suture, and to the Os Planum by the Ethmoid Suture. Internally, it is connected with the Ethmoid Cells.

In the Focus, it is fully formed.

# OSSA MALARUM.

The Situation of each in the outer part of the Cheek. Tab. IV. I.

The external convex, smooth Surface. Tab. III. H. The posterior hollow Surface, for lodging part of the

Temporal Muscle. Tab. XII. Fig. b. F. The superior Orbitar Process, forming part of the

outside of the Orbit. Tab. IV. z.

outside of the Orbit. 1ab. IV. 2.

The inferior Orbita Process, forming part of the lower Edge of the Orbit. Tab. IV. uppermost 2:

The Maxillary Process, forming the under part of the Prominence of the Check. Tab. III. undermost q.

The Arch between the Orbitar Processes, which forms near a third part of the anterior Circumference of the

Orbit. Tab. IV. 3 The Zygomatic Process, the most conspicuous, slant-

ing downwards and backwards to join the Zygoma of the Temporal Bone, and with it to form an Arch over the Temporal Muscle. Tab. IV. I.

The Internal Orbitar Plate, extending back between the Orbitar Processes, and forming a share of the outer, under, and fore part of the Orbit. Tab. III. r.

A Passage through the Bone, for the transmission of small Vessels or Nerves from the Orbit to the Face, and sometimes from the Face to the Orbit. 'Tab. III. s. A Notch in the outer part of the internal Orbitar Pro-

cess, assisting in the formation of the large slit at the bottom of the Orbit. The Connection of the superior Orbitar Process and

internal Orbitar Plate to the Frontal and Sphenoid Bones, by the Transverse Suture. Tab. III. q, r. The Connection of the Zygomatic Process to the Temporal Bone, by the Zygomatic Suture. Tab. IV. 1. The Substance of the Bone is thick and hard, with

some Cancelli. In the Feetus, the Bone is fully ossified.

# OSSA MAXILLARIA SUPERIORA.

Their Situation in the fore part of the Upper Jaw, and sides of the Nose. Tab. III. I.

Their Size, the largest of the Bones of the Upper Jaw,

on which account the Bones have got their name. Tab.

XII. Fig. 1. The Nasal, or Angular Process of each, forming part of the side of the Nose, and of the inner part of the Orhit, and overlapping the outer Edge of the Os Nasi above, while that Bone covers the Edge of the Nasal Process

below: Tab. III. t. A Ridge at the under and inner side of the Nasal Process, for supporting part of the Os Spangiosum Inferius. Tab. XII. Fig. 2. b.

The Orbitar Plate, forming a large share of the under side of the Orbit. Tab. IV. 10.

The Malar Process, unequal and ragged, where it contributes, with the Os Malæ, to form the Prominence of the Cheek. Tab. XII. Fig. 1. e, c, f, f.

The Tuberosity, or Bulge at the back part of the Lone,

which forms the posterior houndary of the Cavity called Antrum Maxillare, and gives origin to a portion of the External Pterygoid Muscle. Tab. IV. 16.

The Alvedar Arch, of a Spongy nature, where the Alveoli or Sockets of the Teeth are placed. Tab. III. r. The Palate Pale, or Process, placed horizontally, forming part of the Roof of the Mouth, and of the Bottom of the Nose. Tab. VI. b.

The Palate Plate, thin in its middle, and thick at its edges; smooth towards the Nose, but rough and unequal Palate, Tab. XII. Fig. 2

The Nasal Spine, contributing, in a small degree, to the formation of the Septum of the Nove. Tab. XII.

Fig. 2. A.

A Depression behind the Malar Process, where the ander end of the Temporal Muscle plays. Tab. III. a.

A Depression at the under and fore part of the Malar
Process, where the Muscles which raise the Upper Lip and corner of the Mouth originate, and where a Brane of the Fifth Pair of Nerves is lodged, and commonly a large portion of Fat. Tab. III. I

An Arch formed by the Palate Plate, both above and below, for enlarging the Cavities of the Nose and Mouth,

In advanced life, where the Teeth have fallen out, the Roof of the Mouth, which was formerly arched, become flat, in consequence of an absorption of the Alveoli, and

the Cavity of the Mouth is diminished in size, A Notch forming the under and lore part of the Nostril, to the edge of which, and to the corresponding o

of the Nasal Process, the Cartilages of the side of the Nose are connected. Tab. III. y.

The Alveoli, or Sockets for the Teeth, porous for the firmer adhesion of the reflected Membrane of the Gums and for the transmission of Blood-vessels into the Substance of the Bones; the number of Sockets corres ing to the Fangs of the Teeth. Tab. XIV. Fig. 1. A. B, C, D.

The Lacrymal Fossa, which, with that of the Os Unguia, forms a passage for the Lacrymal Duct into the

Nose. Tab. IV. b A Canal in the Orbitar Plate, terminated anteriorly by the Foramen Infra-orbitarium, through which the

Infra-orbitar Branch of the second part of the Fifth Pair of Nerves, with a Branch of the internal Maxillary Artery, pass to the Face. Tab. XII. Fig. 1. d. Tab. III. s... The Foramen Incisivum, vel Palatinum Anterius, behind the Fore-Teeth, common to both Bones below, by proper to each above, and filled with a Process of the

Soft Palate, and with small Vessels and Nerves, which run between the Membranes of the Mouth and Nose Tab. VI. C. In some Subjects, there is a distinct Ductus Incistrut, leading from one or from each Nostril into the Cavity of

the Mouth, similar to that which is always found in the large Quadrupeds.

A small Hole commonly found in the Nasal Process, and some minute Passages at the back part of the Tub

rosity, for the transmission of Blood-Vessels and Nerves into the Substance of the Bone and Teeth, and into the Antrum Maxillare. Tab. 111. t.

The Sinus Maxillaris, Antrum Maxillare, or, from its describer, called Highmorianum, of great size, occupying the whole inner part of the Body of the Bone, situated under the Orbitar Plate, and above the large Dentes Molarcs, destined for the same purposes as the other Sinuses of the Bones of the Head. Tab. XII. Fig. 2. c, c. Tab. XIII. Fig. 3. L, M, N, O.

The Partition between the Sinus and Sockets of the Teeth is commonly of considerable thickness; but not unfrequently there is only a thin Plate interposed, and small Prominences, containing the points of the roots of the Teeth, may often be observed in the middle of this

The Opening of the Sinus, large in the separated Maxillary Bone, but, in the connected state, so covered by the inferior Spongy Bone, and by the Palate-Bone and Membranes, as to leave only one, or sometimes two Apertures, little larger than to admit the point of a Surgeon's Probe. The Aperture is situated at the upper part of the Sinus, and descends obliquely backwards to terminate between the Ossa Spongiosa superius et inferius, in the Cavity of the Nose. Tab. XIII. Fig. 1. q.

The Connection of the Os Maxillare Superius to the Frontal Bone, by the Transverse Suture, Tab. III. between e and p ; to the Os Unguis, by the Lacrymal Suture, Tab. III. between p and G; -to the Os Nasi, by the Lateral Nasal Suture, Tab. IV. behind x ;-to the Check-Bone, by the internal and external Orbitar Sutures, Tab. IV. 2. ;-to the Os Planum, by the Ethmoid Suture, Tab. IV. between E and IO.; -to its fellow, by the Longitudinal Palate Suture, Tab. VI. 4.; -to its fellow also, between the fore part of the Nose and Mouth, by the Mystachial Suture, Tab. III. w. The Substance of this Bone is bard and dense, except

at the Alveoli, where it is remarkably spongy. The Ossa Maxillaria form the greater part of the Nose and Roof of the Mouth, a considerable part of the Or-

bits, and contain all the Teeth which belong to the Upper In the Feetus, there are Six Sockets for the Teeth,-

no Tuberosity, and the Maxillary Sinus is only beginning

# OSSA PALATI-

Their Situation in the back part of the Palate. Tab.

VI. f. The Oblong Form of the Palate-Plate of each, which

forms the back part of the Osscous Palate. 'Tab. VI. f. Its posterior curved Edge, where it is connected with the Velum Palati; also the point at the inner extremity of the Curve, for the origin of the Muscle of the Uvula.

Tab. VI. f.
Its thick, strong Substance, where it joins its fellow.

Tab. XII. Fig. 2. n.

Its Spinous Process at the inner edge of the Palate-Plate, joining the under edge of the Vomer, and contri-

buting to the formation of the Septum Narium. Tab. XII. Fig. 2. between I and n. The Pterygoid Process, of a Triangular form, with

Fosser corresponding to the Pterygoid Plates of the Sphe-

noid Bone. Tah. XII. Fig. 11. B.

The Nasal Plate, forming a portion of the side of the Nose, and Antrum Maxillare. Tab. XII. Fig. 2, 1.

A Ridge on the inside of this Plate, upon which the back part of the inferior Spongy Bone rests. Tab. XII. Fig. 2. m.

The Two Orbitar Processes, at the upper and back part of the Nasal Plate, contributing a little in the formation of the Orbit, and of the Ethnoid and Spheuoid Sinuses, being hollow within. Tab. XII. Fig. 2. k.

The Anterior Orbitar Process, the larger of the two, with its upper Surface appearing in the bottom of the Orbit, behind the back part of the Os Planun and Os Maxillare.

A Notch between the Orbitar Processes, forming part of the Foramen Spheno-Palatinum, for the passage of the lateral Nasal Vessels and Nerves. Tab. XII. Fig.

F. Fig. 2: under k.

The Foramen Palatinum Posterius, vel Palato-Maxillare, at the outer end of the Palate-Plate of this Bone, but common to it and the Maxillary Boue, for the transmission of the Palatine Vessels and Nerve. Tah. VI. 4.

A small Hole frequently observed behind the former.; and communicating with it, for the passage of a Branch of the Palatine Nerve. Tab. XII. Fig. 2. o.

The Foramen Spheno-Muxillare, Lacerum Inferius, or Inferior Orbitar Fissure, at the under and outer part of the Orbit, and common to the Cunciform, Maxillary, Malar, and Palate Bones, for lodging Fat belonging to the Eye, and transmitting small Twigs of Vessels and

Nerves into the Orbit. The Palate-Plate of this Bone and its Ptcrygoid Process are firm and strong; but the Nasal Plate and Orbi-

tar Process are thin and brittle.

The Connection of the Os Palati to the Palate-Plate of the Maxillary Bone, by the Transverse Palate Suture, Tab. VI. before f ,-to the Maxillary Bone, at the side of the Nose and bottom of the Orbit, by the Palato-Maxillary Suture, Tab. XII. Fig. 2. f ;-to the Pterygoid Process of the Sphenoid Bone, by the Sphenoid Suture ;-to the Os Planum and Ethmoid Cells, by the Ethmoid Suture :- and to its fellow, by the Lougitudinal Palate Suture. Tab. VI. at the inside of f.

In the Fœtus, the Palate-Boue is complete, but there are no Cells in the Orbitar Processes,

# OSSA SPONGIOSA, VEI TURBINATA INFERIORA.

The situation of each in the under part of the side of the Nose. Tab. XIII. Fig. 1. between q and r.

Its triangular form and spongy appearance, resembling the Os Spongiosum Superius. Tab. XII. Fig. 9.

Its Convexity towards the Septum Nasi, and Concavity

outwards. Tab. XIII. Fig. S. Q. The under edge placed horizontally near the under part

of the Nose, and ending in a sharp point behind. The two Processes at the upper part of the Bone, the

anterior ascending and forming part of the Larguage Groove, and the posterior descending in form of a Hook, to make part of the side of the Maxillary Sinus. Tab. XII. Fig. 9. B.

The Connection of this Bone to the Os Maxillare, Os Palati, and Os Unguis, by a distinct Suture in the young Subject; hut in the Adult, by a concretion of

The Ossa Spongiosa afford a large surface for extending the Organ of Smell, by allowing the Membrane of the Nose to be expanded, upon which the Olfactory Nerves are dispersed.

In the Focus, these Bones are almost complete.

# OSSA TRIANGULARIA, VEI CORNUA SPHENOIDALIA.

The Situation of each triangular Bone between the Body of the Sphenoid Bone and root of its internal Pterygoid Process, covering the under part of the Sphenoid Sinus. Tab. X. Fig. 1. b.

Its Connection to the hack part of the Ethmoid Bone. Tab. X. Fig. 3. k. In an old person, it grows so firmly to the Sphenoid Bone, as to he considered by some Au- so as to render the Bone transparent. thors as one of its Processes.

# VOMPR.

Its Situation in the under part of the Septum Nasi, where it separates the Nostrils from each other. Tah III. L.

It is frequently bent to one side, in which case the one Nostril is rendered larger than the other.

Its Form compared to that of the Plough-share, from which it has its name. Tab. XIII. Fig. 2. H.

The superior and posterior part, thick and strong, with a Furrow above to receive the Processus Azygos of the Sphenoid Bone. Tab. XII. Fig. 13. A. Tab. XIII.

Fig. 2. hehind G.

The superior part, with a Groove to receive the Nasal Plate of the Ethmoid Bone, and Cartilage of the Nose. Tah. XIII. Fig. 2. before G

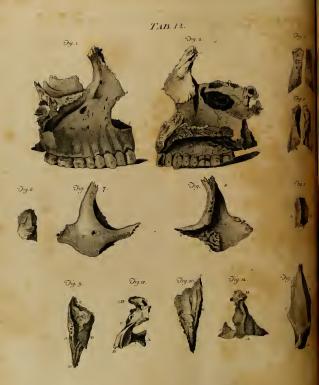
The inferior edge connected with the Spinous Processes of the Palate and Maxillary Bones, by a small Rich corresponding with a Groove of these Bones. Tab. XIII. Fig. 2. under H.

The posterior edge unconnected with any other Bone,

and turned to the Cavity of the Fauces. Tab. XIII. Fig. 2. M. Tab. VI. g.

The Vomer has a smooth Surface, and a dense Substance, and consists of two Plates in a young person but in an old Subject, the Plates are compressed together,





# TABLE XII.

VIEWS of the different Bones of the FACE.

FIG. 1. The Outer Side of the Right Os MAXILLARE SUPERIUS, g, The part of this hone which forms the largest share of with a small Portion of the Os PALATI.

A, The maxillary fossa. B, The nasal process of the maxillary hone.

a, Inequalities by which it is joined to the os frontis.
b, The angle which is joined to the under end of the os nasi, and to the cartilage of the nose.

C, The orbitar plate.

d, A groove which belongs to the infra-orhitar canal. e, e, f, f, The malar process.
D, D, The alveolar process.
E, The maxillary tuberosity of the hone.

F, A small portion of the os palati.

g, g, Two of many small holes which penetrate into the substance of the bone.

G, The fore part of the nostril. ?
h, The nasal spine, forming part of the partition of the

The letter is placed upon the palate plate, and points to the upper end of the palate fissure.

H, The fore part of the malar process. I, The foramen infra-orbitarium.

1. 1. The dentes incisores.

2. The dens caninus. 3. &c. The dentes molares.

FIG. 2.

Represents the Inner Surface of the same Os Maxil-Lare Superios, with the Os Palati.

A, The nasal process, or upper angle.

a, The middle angle, at the base of the nasal process.

b, Inequalities, where the fore part of the os spongiosum inferius is fixed.

B, i., The palate-process, C, C, The alveolar process. D, D, The irregular surface of the palate-process.

c, c, c, the edges of the maxillary sinus. E, The eavity of the maxillary sinus.

, d, Small cells in the upper part of this bone.

F, The lacrymal lossa.

e, The palate-fissure which assists in forming the foramen incisiyum.

f. The suture which unites this hone to the os palati. the nasal fossa.

h, The spine, which, by the union of its fellow, forms a

amall portion of the partition of the next of the fellow, forms a small portion of the partition of the part of this bone joins its fellow on the opposite side. H, H, H, The os palati.

A portion of the palate-bone, forming part of the fossa

nasalis, and partition of the maxillary sinus. m, An eminence by which this hone is connected to the os spongiosum inferius.

n, The rough surface where the two palate-hones unite.

o, The hole proper to this bone.

p, The foramen gustativum. q, The pterygoid process.

1. 1. The dentes incisores.

The dens caninus.
 The dentes molares.

FIG. 3.

The Outer Surface of the Ossa Nasi.

A, A, The upper part, which is joined to the frontal bone. B, B, The lower ragged end, to which the cartilage of the nose is fixed. A, B, A, B, Holes penetrating the hone.

FIG. 4.

The Inner Surface of the OSSA NASL A, A, The upper ragged end.

B, B, The lower end, broader and thinner than the rest. C, C, The inner edge, thick and strong, where it joins its fellow, and sends a spine backwards, to be fixed to

the partition of the nose.

D, D, The cavity which forms part of the arch of the

FIG. 5.

The Outer Surface of the Left Os Unguis.

A, The lacrymal process, perforated by numerous holes. The orbitar process.

C, The ridge which separates the processes. FIG.

# FIG. 6.

The Inner Surface of the Os Unguis, with Eminences and Cavities which belong to the Ethmoid Cells.

# FIG. 7.

The Outer Surface of the Right Os MALE.

- A. The superior orbitar process. B, The interior orbitar process.
- C, The internal orbitar plate.

- D. The maxillary process.
  E. The zygomatic process.
  F. The external orbitar hole.
  G. G. The under and outer edge of the orbit.
- H, Part of the inner rough surface of the maxillary pro-

I, The zygomatic nitch of the os malæ.

# FIG. 8.

The Inner Surface of the same Os MALE.

- A, B, C, D, E, As in Fig. 7.
- F, The internal fossa, and situation of the external orbitar hole
- G, G, The rough edge which joins the os make to the superior maxillary bone at the external orbitar suture.

# FIG. 9.

The External Surface of the Os Sponglosum Inferios of the Right Side.

- A, The under edge of the hone turning outwards.
- B, The upper edge, sending down a hook-like plate to cover a portion of the maxillary sinus.
- is chiefly made with the superior maxillary bone D, The posterior extremity, narrow and irregular in its
- E, The external surface, with numerous small holes
- which mark its porosity.
- F, G, The superior edge, which joins the os unguis to form a share of the lacrymal groove.

# FIG. 10.

The Internal Convex Surface of the same Os Storigio. SUM INFERIUS, which, like the External Surface, to also of a spongy texture.

# FIG. 11

The Posterior, and almost the whole of the External Surface of the Left On PALATI.

- A, The palate-plate.
- B, The pterygoid process. C, The assal plate.
- D. The orbitar process.
- E. A small sinus, corresponding with those of the ethmoid bone
- F, The notch which, with the body of the sphenoid bone,
- forms the foramen spheno-palatinum.

  G, A small hole which penetrates the thickness of the
- II, Part of the groove which helps to form the forames gustativum.

The Anterior, and almost all the External Surface of the same Os PALATI.

- A, The notch which assists in forming the foramen gustativum

- B, The orbitar process.
  C, The palate-plate.
  D, The nasal plate.
  E, The groove which helps to form the foramen gustativum
- F, The pterygoid process.

- C, The broad anterior extremity, where the connection A, The hollow surface which receives the processus 227gos of the sphenoid bone.
  - The anterior and upper edge, which is connected to the nasal plate of the ethmoid bone, and middle carti-
  - lage of the nose C, The inferior edge, which is connected to the palate.
  - plates of the superior maxillary and palate bones. D. A ridge on the side of the vomer.

# MAXILLA INFERIOR.

The Figure of the Maxilla Inferior, or Lower Jaw, compared to that of the letter U; or it forms half of a long oval, with the convex middle part forwards.
The Division, into Chin, Sides, and Processes.

The Chin, extending between the holes termed Men-tal Foramina at the forc part of the Jaw. Tab. IV. The under part of the Chin more prominent than the Alveolar Process, with a triangular emioence in the middle of its outer Surface, which, with the projecting under edge, renders this part peculiar to Man. This projection of the Chin is less apparent in the Negro, where the Alveolar Border is so expanded as to increase the promineuce of the Mouth.

The Sides, reaching from the Mental Foramina to the

back part of the Bone.

A Transverse Ridge on the fore part of the Chin, with depressions on each side, for the Origin of Muscles of

the Under Lip. Tab. III. M. Small Prominences and Depressions on the under and back part of the Chin, for the attachment of the Free-

num Lingua, and of several Muscles which belong to the Throat. Tab. XXX. Fig. 13.

The Base, or lowest part, forming the under boundary of the Face. Tab. IV. XIX. The Angle of the Jaw at the back part of the Base.

Tab. IV. XX. Impressions made by the Masseter Muscle, upon the

outside of the Angle, and also on the Plate which arises from it. Tab. IV. XXI. The Plate, which rises from the Angle of the Jaw, on each side, running upwards and a bittle backwards, and

terminating in two Processes, termed Condyloid and Coronoid. Tab. XIV. Fig. 2. F. The Condyloid or Articular Process, with an oblong rounded head, covered with Cartilage, and placed almost

transversely upon a Cervix at the upper and back part of the Bone; though, with respect to each other, the Condyles are somewhat oblique, the external extremity being directed a little forward.

At the under and fore part of the Condyle, a Cavity for the inscrtion of the Pterygoideus Externus.

The Coronoid Process, into which the Temporal Muscle is inserted, situated a little before the Coodyloid Process, and in the natural situation of the Jaw, placed on the inner side of the Zygoma. Tab. IV. XXIII.

The Anterior Edge of this Process, forming a Ridge which goes downwards and forwards, terminating at the

outside of the Posterior Alveoli. From the inner side of the Coronoid Process, another Ridge seen terminating nearly opposite to the former. To these Ridges, the Membranes of the Gums and certain

Muscles belonging to the Mouth are fixed.

The Revolar Process, and Ilventi, nearly similar to those of the Upper Jaw. Tab. XIV. II.

The Alveolar Process, extending along the Upper Process.

Edge of the Booe, from the Coronoid Process of one side to that of the other; and thickest behind, corresponding there with the increased thickness of the Teeth.

The Alveolar Process, composed of two Plates, and divided by cross Partitions, which, as in the Upper Jaw, mark the different Alveon for the Fangs of the Teeth. The Posterior Part of the Internal Plate, slanting in-

wards, and thinner than the external, giving the Jaw a twisted appearance. Opposite the Alveoli, the External Plate swelling, and

giving a fluted form, which is observed in the whole extent of the Alveolar Process of the Upper Jaw, and in the fore part of the Lower Jaw.

At the fore part of the Jaw, the Alveoli are perpeodicular, but turn inwards bebind, where they are placed nearer the inner than the outer part of the Jaw.

The Sockets worn down by absorption in old age, in consequence of which the teeth drop out, the Jaw be-comes narrower, the face shorter, and, when the Mouth is shut, the Jaw appears more prominent. Tab. XIV. Fig. 7. A.

The posterior Maxillary Foramen at the roots of the Condyloid and Coroooid Processes, upon the inner side of the Jaw, for the passage of the Third, or inferior Maxillary Branch of the Fifth Pair of Nerves, with the corresponding Blood-Vessels. . ab. XXX. Fig. 13. 7.

A small-pointed Process at the inner edge of this Hole, where a Ligament goes off to be fixed to the Temporal Bone. Tab. XIV. Fig. 2. at the inner side of the Bone, opposite E.

Above the Hole, the Bone marked by the passage of the Nerve and Vessels; and below at, commonly a small Furrow, pointing out the course of a Nerve which goes to a Muscle and Gland under the Tongue.

Between the Posterior Maxillary Foramen and the angle, the Bone marked by the inscrtion of the Internal Pterygoid Muscle, Tab. XXX, Fig. 13. 6.

The Anterior Maxillary Foramen, or Mental Hole, at the side of the Chin, where the remains of the Inferior Maxillary Nerve and Vessels come out. Tab. IV.

The Inferior Maxillary Canal, running in the substance of the Bone, between the Posterior and Anterior Foramina, a little below the roots of the Teeth, and baving many perforations, for the passage of small branches of Vessels and Nerves which supply the Jaw and Teeth.

The Tables of the Jaw, remarkably thick, compact, and hard, and within, furnished with numerous Cells,

which surround the Maxillary Canals. The Articulation of the Jaw by its. Coudyloid Pro-

cess with the Glenoid Cavity of the Temporal Bone, and also with the Tubercle at the root of its Zygomatic

An intermediate moveable Cartilage, thin in the centre and thicker at the edges, placed in the Articulation of the Lower Jaw, in its gentler motion allowing the Condyle to remain in the Glenoid Cavity, but admitting it to advance upon the Tubercle or Root of the Zygoma, when the Mouth is widely opened. Tab. XXX. Fig. 17. r.

In the Fœtus, the Lower Jaw is somewhat of a semicircular figure, and is composed of two pieces, joined to, gether in the middle of the Chin by the intervention of a Cartilage. Tab. XXVII. This union, termed Symphysis, gradually ossifies, and leaves no mark of any former division.

# TEETH.

THE Situation of the Teeth in the Alveoli of the Jaws. Tab. III. and IV.

Their Number, sixteen in each Jaw. Tab. III.
The Base, or Body of each Tooth, appearing without
the Sockets. Tab. XIV.

the Sockets. Tab. XIV.

The Roots, or Fangs, placed in the Sockets, and of a conical form. Tab. XIV.

conical form. Tab. XIV.

The Cervix, or Collar, between the Base and Roots of the Teeth. Tab. XIV.

of the Teeth. Tab. XIV.

The Roots of the Teeth covered by a Vascular Membrane, reflected from the Gums, and serving as a Peri-

osteum to the Teeth, and a lining to the Alveoli.

The Cortex, or Enamel, covering the Base of each Tooth, and hecoming gradually thinner towards the Cer-

vix.
The Fibres of the Osseous part forming Lamellae, which
run according to the length of the Teeth.

A Foremen at the point of the Root of each Tooth, and a Passage leading from it into a common Cavity in the Base of the Tooth, for lodging the Vascular and Nervous Substance called Pulp of the Teeth.

Division of the Teeth into four Classes, viz.

—On each side of each Jaw.→

Two Incisores; One Cuspidatus, or Caninus; Two Bicuspidati, or Small Molares; and Three Large Mo-

Ares. Tab. XIV.

The Incisores, having their Bases formed into Wedges sloped out behind.

The Cuspidatus, having its Base in form of a Wedge, like the Incisores, but pointed in the middle.

The Bicuspidati, each with double points, one external, the other internal, which, in the Upper Jaw, are nearly upon a level, but, in the Under Jaw, highest on

the outside of the Teeth.

The Incisores, Cuspidus, and small Molares, with single Roats, excepting the small Molares of the Upper Jave, which have frequently two Roots.

Jaw, which have frequently two Roots.

The first of the three posterior, or large Molares of the Under Jaw, with five, and each of the other two

with four points.

Each of these three Teeth having two, three, or some-

times four roots.

In the Upper Jaw, the first large Molaris having four s.

and each of the other two only three points.

In each of these three Teeth, generally one root more in those of the Upper, than in the corresponding Teeth

of the Under Jaw.

The last, or backmost Molaris, called Sapiens, smaller,

and having generally fewer roots.

The Teeth connected to the Sockets by Gomphosis, and by a firm adhesion to the Gums.

At Birth, the outer Shell only of the five temporary Teeth, and of the anterior permanent Molaris, in each side of each Jaw, is found.

These Teeth are situated in Capsules, within the Jaw, and under its Surface. At this period there are no roots

formed.

For a fuller description of the Teeth, see Vol. II.



# Z1B. 13. Fig 1

## TABLE XIII.

Gives different Views of the Cavity of the Nose,

# FIG. 1.

- The Left Portion of the Base of the HEAD divided from the Septum Narium by a perpendicular Section, proceeding in a straight line from before backwards.
- A, Part of the os frontis.
- B, The posterior lamina, called Vitrea. C, The frontal sinus.

- from the superior maxillary bone.

  E. Part of the frontal bone, contiguous to the os eth-
- F, The upper part of the ethmoid bone ..
- , The fore part of the ethmoid cells entire. From a little hehind G to H, the anterior, middle, and poste-
- rior ethmoid cells laid open.
- I, Openings of the ethmoid cells into the nose.
- K, The last and uppermost passage of the nostrils.

  L, The left anterior clinoid process of the sphenoid bone.
- M, The posterior clinoid process.
- N, The Sella Turcica. O, The left sphenoid sinus.
- P, The part where the sinus opens into the posterior and upper passage of the nostril
- Q, R, A section of the back part of the sphenoid, and

- Q, M, A section of the deck part of the spinenoid, and cunciform process of the occipital bone.

  S, The spinous process of the occipital hone.

  T, The internal pretygoid plate.

  U, The ancus of the sphenoid bone.

  V, The fore part of the measus auditorius.

  W, The superior condyloid foramen, for the passage of the
- nioth pair of nerves.
- X, The masturd process of the temporal bone.
- Y, Part of the os occipitis.
  Z, The inner side of the occipital bone.
  a, The cut edge of the occipital bone.
- b, The under and outer part of this bone.
   c, The masal process of the superior maxillary bone.
   d, The inner side of this bone, which forms the middle

- the lower passage of the nostril.

  f, A section of the alveolar process.
- g, A section of the osseous palate.
- The apper part of the osseous palate. VOL. I.

- i, The descending, or alveolar part of the palate, k, l, m, n, The os spongiosum superius. Between I and
  - n, the part resembling a concha.
    o, p, The middle passage of the nontril.
    q, The opening of the antrum maxillare. Between q
- and r, the os spongiosum inferius.

  r, A part of the inferior spongy bone, opposite the opening of the lacrymal duct.
- D, Part of the transverse suture, dividing the frontal s, t, The lowest passage of the nostril.

# FÍG. 2.

# The Left Surface of the SEPTUM NARIUM.

- A, The os frontis, with its plates and diploe.
- B, The frontal sinus. C, The crista Galli.
- D, Part of the os planum of the left side, having no ethmoid cells.
- E, The foramina crihrosa of the ethmoid hone.
- F. The nasal plate of the ethmoid bonc, which forms
- part of the septum narium G, That part of the nasal plate of the ethmoid hone where it is joined to the vomer.
- H, The cartilagmous part of the septum narium.
- K, Part of the upper jaw. L, L, The dentes incisivi of the upper jaw.
- M, The posterior edge of the vomer, covered with a
- membrane. N, Part of the cameiform process of the occipital hone.
- O, The right sphenoid sinus
- P, The posterior clinoid process of the sphenoid bone. Q. The anterior clinoid process of the sphenoid bone,
- R, The Sella Turcica. S, A portion of the septum, between the two sphenoid
- T, A partition between the sphenoid sinus and the nostrils.

# FIG. 3.

The more Security of the use of the same box, which forms the legiuming of The Anterior and Right Portion of the Base of the Part of the same box, which forms the legiuming of the Anterior and Right Portion of the Base of the same box, which forms the Language of the same box. it from the Septum, and by a Transverse Section separating it from the Posterior Part. The two cut Surfaces of this Preparation are represented.

A, The frontal sinus.
B, The opening of the frontal sinus into the first ethmoid cell, which is seen on each side of C.

D. The nasal process of the superior maxillary bone.
E. A section of the os spongiosum superius.
F. The wall, or boundary of the middle passage of the

nose, by which it is separated from the superior appendix of the maxillary process.

on of the instancy process.

(6, Cells in the superior maxillary bone and its orbitar part, first described by Halles. The uppermost of these opens into the auterior ethmoid cell.

H. The orbitar plate of the superior maxillary bone, forming part of the bottom of the orbit, and upper

part of the antrum maxillare.

I, The orbitar plate of the frontal bone.

K, The os malæ,

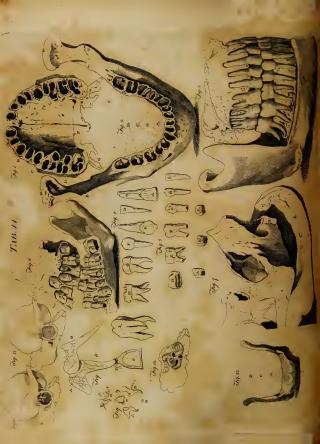
L, M, N, O, P, The sinus, or antrum maxillare — 0,

The partition by which the antrum maxillare is separated from the cavity of the nostril.—P, The fora. men by which the antrum communicates with its ap-

pendix.

Q. A section of the os spongiosum inferius.
R, The orifice of the herrymal groove.
S, Part of the palate.
T, The lateral dens incisivus.
U, The dens cannus.
V, W, The two small molares.





# TABLE XIV.

Gives different Views of the Bones of the Ear; -of the Jaws and Teeth; -and likewise a View of the Os Hyomes.

# FIG. 1.

Represents the Sockets of the Upper Jaw, and Osseous Part of the Palate.

A, B, C, The sockets of the dentes incisores, dens caninus, and two small molares of the right side, single,

D. The sockets of the three large molares, each with three cavities.

E. The palate-plate of the superior maxillary bone. F. The palate-plate of the os palati. G. The pterygoid plates of the sphenoid bone.

A View of the Sockers of the Lower Jaw.

A, B, C, The sockets of the incisores, canini, and small molares, single. D. The sockets of the large molares, each with two ca-

E, E, The coronoid processes. F, F, The condyloid processes.

# FIG. 3.

A View of the FANGS of the Teeth in both Jaws, the number of Fangs corresponding to that of the Sockets seen in Fig. 1. and 2.—The External Plate of the Alveolar Process is removed-

# FIG. 4.

Views of the different Classes of TEETH of both Jaws.

A, B, C, The posterior surface of an incisor of the upper jaw ;-A, Its body ;-B, Its cervix, where the cnamel ends ;- C, Its straight fang.

D, An incisor of the lower jaw, smaller than that of the npper one, A, B, C.
E, The posterior surface of a canine tooth, with its

pointed body and large fang. F, A small molaris, with its straight single fang.

G, A large molaris of the under jaw, with its fangs crooked at the points. H, A large molaris of the upper jaw, with three diverg-

ing fangs. I, A molaris of uncommon size, with an appearance of

# FIG. 5.

A View of the Deciduous, or MILK TEETH, in various degrees of Growth.

A, The body of an incisor, the fang not yet evolved.

B, The body of a small molaris. C, The body of a canine tooth.

D, The body of a large molaris.

E, The body and part of the fangs of a large molaris. F, The body and part of the fangs of a large molaris, more advanced than E.

G, A canine tooth nearly complete. H, I, I we incisores nearly complete.

# FIG. 6.

A View of the Disposition of the two Sets of TEETH, in both Jaws, at the time of shedding the Milk Teeth.

 1. 1. &c. The deciduous, first set, or milk-teeth.
 2. 2. &c. The permanent, adult, or second set of teeth, proceeding to the edge of the alveoli.

# FIG. 7.

A View of the Upper and Under Jaws of an Old Person. without the Teeth, and the Alveoli obliterated, whence the Jaws are narrower, the Chin much more prominent, and the Lavity of the Mouth diminished.

# FIG. 8.

A magnified View of the SMALL BONES of the EAR, articulated with each other, and covered with their Periosteum, in which the Blood-vessels appear.

A, The incus. B, The malleus

C, The stapes.

D. The os orbiculare in situ.

# FIG. 9.

Views of the SMALL BONES of the EAR.

The upper set gives a view of the small bones of the ear, of their natural size, and as they are connected with each other.

The

The under set shews these bones separated from each other, and somewhat magnified.

A, The incus, with its body, articular cavity, short posterior, and long inferior branch.

B. The malleus, with its head, neck, cavity of articula-B. The matters, with its inea, every, early of attreba-tion with the incus, great process or handle, middle process, and long slender one. C. The stapes, with its head, crura, and base. D. The os orbiculare.

# FIG. 10.

The Temporal Bone of a Young Subject, with the Small Bones of the Ear in situ,-the Membrana Tympani being removed.

# FIG. 11.

The Temporal Bone, with the Membrana Tympani in situ, the Small Bones shining through it.

FIG. 12.

An External View of the RIGHT LABERINTH, and Out. lines of the PARS PETROSA of a Young Subject.

In the labyrinth are seen,

Anteriorly,-the cochlea. Posteriorly,-the semicircular canals. Superiorly, the foramen ovale, Interiorly, the foramen rotundum.

FIG. 13.

A View of the Upper and Fore Part of the Os HYOIDES.

A, The body of the os hyoides, B, Its cornus.

C, Its appendices.

# Os HYOIDES.

The circumstances to be attended to here are. The Situation of that Bone, at the root of the Tongue

and top of the Larynx. The Shape, compared to that of the Greek letter v. Tab. XIV. Fig. 13.

The Body of the Bone, the middle broad part convex before, and concare behind.

The concavity behind oblique, to receive the Thyroid Cartilage, when the Os Hyoides and Larynx are pulled towards each other.

Several Impressions seen oo its Body, occasioned by

the numerous Muscles fixed to it.

The Cornua, extending backwards and upwards from each side of the Body, with their two plain Surfaces attachment to Muscles and Ligaments of the Tongue and

Each of the Corona becoming gradually smaller in its course backwards, and ending in a round Tubercle, which is connected to the upper Cornu of the Thyroid

Cartilage.

Between the Body and Cornua, frequently a Farrow. pointing out the former separation in young Subjects. The Appendices, baving the size and form of a grain

of decorticated Barley, placed at the upper part of the Articulation between the Body and Corona, for the at-

tachment of Muscles.

From each Appendix, a Ligament is sent up to the Styloid Process of the Temporal Bone, to assist in connecting the Os Hyoides to the Cranium. Tab. XXXI.

The Os Hyoides is not immediately connected to any other Bone, but is kept in its place by numerous Muscles and Ligaments, to be afterwards mentioned.

The Substance of this Bone is Cellular, but covered with a firm external Plate, which adds considerably to its strength.

At Birth, the greater part of the Bone is in a Cartilaginous state, and the Appendices continue so for many years after the other parts are completely ossibed.

The Os Hyoides serves as a Lever for numerous Muscles acting upon the Tongue, Larynx, and Fances.

# TRUNK.

We observe here,

The Trunk, composed of the Spine, Pelvis, and Tho-

The Spine, reaching from the Condyles of the Occipital Bone, to the lower end of the Os Coccygis. Tab.

H. G. F

The Spine appearing straight, when viewed anteriorly or posteriorly. Tab. H. G. P.

The several Curvatures of the Spine, when viewed in

a lateral direction; the Curvatures accommodating them-

selves to the soft parts of the Neck, Thorax, Abdomez, and Pelvis. Tab. XV, XVI.

The Spine, composed of a long upper, and a sbort under Pyramid, joined together by their Bases. Tab. II. h.

The Upper Pyramid, composed of true Vertebræ, or Bones, which turn upon each other. Tab. II. G.—N. The Under Pyramid, formed of false Vertebræ, or Bones, which, at an early period of life, resemble the true Vertebræ, but which afterwards grow together, so as not to contribute to the motions of the Trunk of the

TRUE VERTEBRÆ:

Body. Tab. II. h .- P.

# Twenty-four in Number.

EACH of the true Vertebrae composed of a Body and Processes. The Body of a spongy nature, with upper and under Surfaces placed horizontally. Tab. XXXI, Fig. 11. a.

The anterior convexity of the Body, and posterior concavity. Tab. XVIII. Fig. 9, 10,

Numerous small Holes on the anterior and lateral parts

of the Body, for the passage of Blood-vessels into the Substance of the Bone, or for the attachment of Ligamentous Fibres, Tab. XVI. Fig. 8. a.

A Ring of Bone, at the upper and under edges of the Body, of a firmer texture than the rest of its substance, and thereby adding to the general strength of the Bone. Tab. XVIII. Fig. 9. b, b. Tab. XXXI. Fig. 12. r.

The Ring of Bonc forming a superficial Cavity, which receives the Intervertebral Substance. Tab. XVIII. Fig. 9. a.

The Bodies of the Vertebre in general smaller and more solid above; as they descend, they become larger and more spongy.

The

The Intercertebral Substances, of a Cartilago-ligamentous nature, placed between the Bodies of the Vertebre, for fixing them together, and allowing the Spine to be moved in all directions. Tab. I. E. Tab. XXXI. Fig.

The Intervertebral Substances, composed of Concentric Lamella, with their edges firmly fixed to the Bodies of the Vertebra.

The Lamellæ of these Substances, formed of Oblique Fibres, which decussate each other, and are very com-

The Centre of these Substances changes from Lomellee, and puts on the appearance of a Musus or Pulp, which has little compressibility, and serves as a prior upon which the other parts of the Ligament can move, with such gradual yielding as to lessen shocks in the Spine in violent motions of the Body.

The Intervertebral Substances, like the Vertebræ themselves, larger and thicker as they descend, to give more

security to the parts they support. Tab. I.

An Jirch sent out from the back part of the Body of
each Vertebra, which, together with the Body, forms a
large Hole, which is part of the Canal for the passage of
the Spinal Marrow. Tab. XVIII. Fig. 3. h.
A Notch at the upper and under edges of each side of

A Notch at the upper and under edges of each side of the Arch, forming, in the contiguous Vertebra, the passage of the Spinul Nerves. Tab. XVIII. Fig. 10. d, d. Fig. 8. c, c.

The Processes of each Vertebra, seven in number, viz. two Superior Oblique, two Inferior Oblique, two Transverse, and one Spinous.

The two Superior Oblique, or Articulating Processes, covered with Cartilage, placed upon the upper part of the sides of the Arch. Tab. XVIII. Fig. 3. b, b.

The two Inferior Oblique, or Articulating Processes, also covered with Cartilage, and placed upon the under part of the sides of the Arch. Tab. XVIII. Fig. 4, b, t.

The two Superior Oblique Processes of one Vertebra, articulated with the two Inferior Oblique of the Vertebra immediately above it. Tab. XVIII. Fig. 5, c, m.

Round the edges of the Oblique Processes, rough Lines for the attachment of their articulating Ligaments.

The two Transverse Processes projecting from the sides of the Arch, and between the Oblique Processes. Tub. XVIII. Fig. 10, e. c.

The Spinous Process, sent out from the back part of the Arch, which, being sharp and pointed, gives name to the whole chain of Boucs. Tab. XVIII. Fig. 7. d, i. The Edges of this Process, as well as of the Arch,

rough, where Ligaments come off which fix the corresponding parts of the contiguous Vertebra together. The Substance of the Processes stronger, with a thicker

external Plate than the Bodies of the Vertebra.

The Vertebra are joined to cach other by a double Articulation; their Bodies being connected by the Intervertebral Substances already described; and their Oblique Processes are so connected by their Ligaments as to allow a small degree of motion to all sides.

The uses of the true Vertching are, to give an erect posture to the Trunk of the Body; to allow a sufficient and secure motion to the Head, Neck, and Trunk, and to support and protect the Bowels and other soft parts.

In the Fortus, each Vertebra consists of three pieces connected by Cartilages, viz. the body not tully ossified, a curved Boor on each side, forming a small share of the Rony Arch, the Oblique Processes complete, the beginning Trausverse Processes, but no Spinal Process.

ning I rausverse Processes, but no ripinal Process.

The Vertebra, on account of certain peculiarities, divided into seven Cervical, tuelve Dorsal, and five Lumbar.

The Cervical Lectebra, or Vertebra of the Nick, hav.

ing their Bodies smaller, more flatiened before and behind, and more hollowed above and below, than those of the other Vertebrae. Tab. XV. A. &cc.

The deticulating Processes, more oblique than the

The Articulating Processes, more oblique than the rest. Tab. XVIII. Fig. 5. c, m.

The Transverse Processes, perforated for the passage of the Vertebral Blood-vessels, and hollowed above for the transmission of the Spinal Nerves. Tab. XVIII. Fig. 2. c, c.

The Spinal Processes, placed horizontally, shorter than the rest, and forked for the attachment of Muscles, Tab. AVIII. Fig. 6. r, r.

The Cervical Vertebra admit of free motion, in consequence of the thickness of their Cartilages, and the nature of their Processes, but give less praiection behind to the Spinal Marrow than is given in other parts of the Spine.

The first Vertehra, called Atlas, from its supporting the Globe of the Head, having only a small Arch instead of a Body. Tab. XVIII. Fig. I. a.

The upper and under Surfaces of the Arcb, marked by the Ligaments which fix it to the Head and second Vertebra. Tab. XVIII. Fig. 1. 2.

The back part of the Arch, hollow, and covered by a smooth Certifinge, where it turns upon the Processus Dentatus of the second Vertebra. Tab. NYIH. Fig. 2. o.

The inner parts of the sides of the Vertebra, between the upper and inferior Oblique Processes, marked by the Lateral Ligaments which go to the Processus Denta-

tus, and by the Transverse Ligament which passes behind that Process. Tab. XVIII. Fig. 2. c, c. Tab. XXII. Fig. 1. d, d.

An Arch upon the back part of the Atlas, instead of Spinous Descent and the Muscles and Ligament.

a Spinous Process, narked by Muscles and Ligaments. Tab. XVIII. Fig. 2. g. The Superior Oblique Processes, oral, slanting, and hollow, for receiving the Condyles of the Occipital Bone.

Tab. XXI. Fig. 1. D. D.

A curved Fossa under the outer and back part of each
Oblique Process, for the passage of the Vertebral Arteries into the Head, and Tenth Pair of Nerves out

of it. Tab. XXI. Fig. 1. f.

The Transverse Process, longer than in any other Cervical Vertebra, for the origin of several Muscles.

Tab. XVIII. Fig. 5. d, d.

The Connection of the Atlas to the Occipital Bone.

where the Head has its flexion and extension, but little un other motion.

The second Vertebra, called Dentata, from the Tooth-like Process on the upper part of its Body.

like Process on the upper part of its Body.

The Body of this Vertebra larger than the rest, and of a Conical figure. Tab. XVIII. Fig. 5. k.

Tubercles of the Ribs. Tab. XVIII. Fig. 7. Fig. 8. k, k.

of a Conical figure. Tab. XVIII. Fig. 5. k—l.

The fore part of the Processus Dentatus, convex and covered with Cartilage where it turns upon the Atlas.

It has the same appearance behind, where it moves upon the Transverse Ligament. Tah. XVIII. Fig. 5. 6. The Sides of this Process, marked by the insertion of

The Sides of this Process, marked by the insertion of the lateral Ligaments, and its point by the insertion of the perpendicular Ligament, which is fixed to the edge of the Forumen Maganum of the Occipital Bone. Tab. XVIII. Fig. 4. a.

The Superior Oblique Processes placed horizontally, and a little elevated in the middle, to be received into the hollow Inferior Oblique Processes of the Atlas, where the Head has its principal rotatory motion. Tab. XVIII.

Fig. 3. b, b. Fig. 5. m, m.

The Spinons Process, thick and strong, to give origin to the Museles which assist in the extension and rotation of the Head, and turned down to allow these motions to be readily performed. Tab. XVIII. Fig. 3. g, g.
Tab. XXVII. Fig. 5. d, c.

In the Fortus, the Vertebra Dentata consists of four pieces, three of which are common to all the Vertebra, the fourth is the Processus Dentatus, which is joined by. Cartilage to the Body of the Bone.

The seventh Cervical Vertebra, approaching in form to the Dorsal Vertebra.—The Spinal and Transverse Processes have no Bifurcation. Tab. XXXI.

Fig. 17.

The Dorsal Vertebrae, or Vertebrae of the Back, horizontal above and below, having their Bodies larger, sharper before, flatter at the sides, and more hollow behind, than those of the Cervical Vertebrae. 1 ab. XVIII.

Fig. 7. F. Tab. XXXI. Fig. 10.

A Pit, lined with Cartilage at each side of their upper and under Edges, near the Transverse Processes, for the articulation of the Heads of the Ribs. Tab.

XXXI. Fig. 15. t, t, W.

The Intervertebral Substances, thin to admit only of little motion; and thinnest anteriorly, to enlarge the Curvature of the Spine, and increase the Cavity of the

Thorax. Tab. XV.

The Spinal Canal is here more Circular, but corresponding with the size of the Spinal Marrow,—is smaller than in any of the other Vertebre.

The Oblique Processes, having nearly a perpendicular direction, the upper ones slanting forwards, and the

ittle under ones backwards. Tab. XXXI. Fig. C. b. Fig.

The Transverse Processes, long, turned, obliquely backwards, and enlarged at their outer extremity, where they are faced with Cartilage, to be acticulated with the

The Spinous Processes, long that A at he roots, but sleader near the extremities, and pointing obliquely downwards over each other, by which the Spinou Marrow in this part is well protected. Tah. XVIII. Fig. 7. Tab. XXXII. Fig. 17.

The upper Edge of the Spinous Processes of these vertebra, formed into a Ridge, which, in certain motions of the Spine, is received by a Groove in the under part of the Spinous Process of the Vertebra immediately, above it. Tab. XVIII. Fig. 7, 8:

The last peculiarity of Structure, with the others already mentioned, prevent the Dorsal Vertebra from having much motion.

The first Dorsal Vertebra, having the whole of the Pit for the Head of the Pirst Rib formed in it.

The twelfth Dorsal Vertebra receiving the whole Head of the last Rib, and having no Cartilaginous Surface on its Transverse Process.

The Lumbar Vertebra, or those of the Loins, having their bodies larger and broader than those of the other

two classes. Tab. XVIII. Fig. 9, 10.

The Intervertebral Substances, the thickest of any, and most so at their fore part, by which the Spine is

rendered convex there, for the support of the Abdonimal Bowels. Tab. NJ.

The Oblique Processes, remarkably deep, and placed upright, the Superior Oblique Processes of one Vertebra facing inwards, and receiving the Inferior Oblique

Processes of the Vertebra above it, which are turoed in the opposite direction. Tab. N.XX. Fig. 12, b. Fig. 13, k. The Transverse Processes, long, slender, and spread out to admit of free motion. Tab. N.VIII. Fig. 9, 10.

The Spinous Precesses, short, large, and strong, and placed horizontally, with narrow edges above and below, and broad flat sides, giving origin to Muscles of great strength. Tab. XVIII. Fig. 9: 10. Tab. XXXI. Fig.

The Spinal Canal, larger than in the back, for the passage of the Cords of the Spinal Marrow, which form the Canda Equina. Tab. XVIII. Fig. 9.

the Cauda Equina. Tab. XVIII. Fig. 9.

In consequence of the thickness of the Intervertebral
Substances, and the situation of the Processes of the
Lumbar Vertebra, the motion of this part of the Spine
is extensive, though not so much so as in the Neck.

# XV. TABLE

An Anterior and Lateral View of the Upper Part of the TRUNK of the SKELETON.

A, &c. The bodies of the cervical vertebra, with their intermediate cartilages:

B, C. The transverse processes of the cervical vertebra, with a bole in each of the processes, forming a canal

for the vertebral blood-vessels. D, The processus dentatus of the second vertebra of the

E, &c. The bodies of the dorsal vertebræ, with their in-

E. Xc. The boars on the causal vertexing with the ma-termediate cartilages, forming a curve backwards. F. Xc. The transverse processes of the dorsal vertebra. G. Xc. The outer couves surface of the ribs. H. Xc. The cartilages of the seven upper or true ribs,

by which they are joined to the sternum.

I, &c. The cartilages of the false ribs, the three upper-

most of which are joined together. K, Head of the first rib, joined to the first dorsal vertebra. L, The tubercle of the first rib, joined to the transverse

process of the first dorsal vertebra.

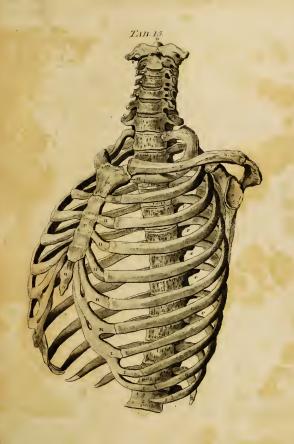
M, Head of the second rib, joined to the first and second dorsal vertebræ, and its tubercle fixed to the transverse

process of the latter of these two bones The upper triangular piece of the sternum.—P, The middle or long piece.—Q, The lower piece, or ensiform

R, S, T, U, V, The scapula.—R, The glenoid cavity of that bone.—S, The acromion of the scapula.—T, The coracoid process of the scapula,-U, The inferior costs

of the scapula.

W, The clavicle joined to the sternum, and at X, to the scapula.
Y, The anterior convexity of the clavicle.







# TAB. 10.



# TABLE XVI.

An Anterior and Lateral View of the Under Part of the TRUNK of the SKILLTON.

A. The body of the last dorsal vertebra.

B. &c. The anterior extremities of the four lowest rihs

of the left, and two lowest of the right side. C, &c. The cartilages of the four lowest ribs of the left,

and two lowest of the right side. D, &c. The bodies of the lumbar vertebrae, forming an

d, &c. The intervertebral cartilages.

E, &c. F, &c. Four lowest transverse processes on the

left, and points of the three lowest on the right side. G, &c. The points of the three spinous processes.

H, The upper piece of the os sacrum, joined to the last lumbar vertebra.

I, &c. The five original pieces which compose the os sacrum, grown together, but leaving traces of their former divisions, near the parts where the letters are placed, and forming an arch backwards, whereby the

cavity of the pelvis is considerably enlarged. K, &c. Slanting holes opposite the original interstices of the pieces of which the os sacrum is composed.

a, The brim of the pelvis.

L, The inner hollow side, or venter of the os ilium.

b. The connection between the os sacrum and os ilium. -A little below b, on the right side, the passage for

the principal blood-vessels of the bone.

M. N. The spine of the os ilium.

O. The anterior-inferior spinous process of the os ilium.

P. The point of union hetween the os ilium and os

The ischiatic notch.

R, Part of the outer surface, or dorsum of the os ischium.

T, The crus of the os ischium, joining the crus of the os puhis.
U, The tuherosity, forming the lowest part of the trank

of the skeleton.

V, The upper part of the os pubis, where the flexor muscles and great blood-vessels of the thigh, with the anterior crural nerve, pass out of the abdomen.

W, The crest of the os pubis. X, The crus of that hone.

c, The symphysis of the pubis.
d, The arch of the ossa pubis.
e, The foramen thyroideum.

### XVII. TABLE

A View of the Posterior Part of the TRUNK of the Skeleton.

A, The upper part of the first cervical vertehra-B, One of the oblique, and,

C, One of the transverse processes of this hone.

D, Muscular prints on the back part of this bone. E, E, The spinous processes of the six other cervical vertebræ, of which the four first are forked.

F, F, The oblique processes, of these vertebræ.
G, G, The transverse processes.
H, H, The spinous processes of the three first vertebræ

of the back I, I, The spinous processes of the six middle vertebre, which are long, and sloping downwards over each

K, K, The spinous processes of the three last dorsal ver-

tebra, which are short and straight L, L, The transverse processes of all the dorsal vertehra.

M. M. The oblique processes of all these vertebres.
N. N. The spinous processes of the lumbar vertebres.
O. O. The transverse processes of these vertebres.
P. P. The oblique processes of these vertebres.
Q. Q. Part of the bodies of the same vertebres.

R. R. The arches of these bones, which form the back

part of the spinal canal.

S, S, The spinous processes of the os sacrum.

T, Oue of the lateral and superior tuberosities of this

U, The superior orifice of that part of the spinal canal r, The foramen ovale, which helongs to this hone.

V, One of the superior oblique processes of the os sa-

W, W, The holes in the back part of the os sacrum which transmit small vessels and nerves to the parts

X, X, The eminences and cavities at the lateral parts of this bone.

The botte.

Y, One of the cornua of the os sacrum,

Z, The inferior orifice of the spinal canal.

a, The first or uppermost piece of the os coccygis.

b, b, The posterior extremities of the ribs.

c, c, The necks of the ribs.

d, d, The angles of the same bones.

f, The outer surface of the os ilium.

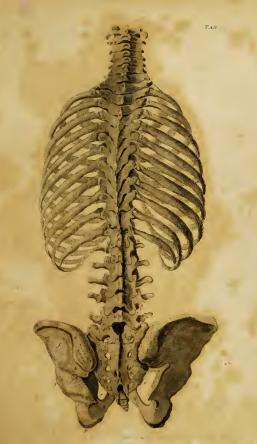
g, g, The posterior spinous processes of this had, h, h, The great posterior tuberosity e this bone, f, The spine of this hone.

k, A portion of the anterior tuberosity of this bone.
 l, The posterior edge of the acetabulum.
 m, The ischiatic notch.

m, The resultate notes.
n, The spinous process of the os isobium.
o, A portion of the internal surface of the superior branch of the os publis.

p, The tuberosity of the os ischium.

q, The internal surface of the hranch of this bone









### TABLE XVIIA.

This TABLE gives a View of the Right Side of the SPINE. Here the Curvatures belonging to the NECK, BACK, LOINS, and PELVIS, are very conspicuous.

- A, The body of the first cervical vertebra.
- B, The posterior part of the same vertebra.
  C, The body of the second cervical vertebra.
- D. The spinous process of the same bone.
  E. The last cervical vertebra.
  F. The spinous process of that bone.

- G, G, The oblique processes of the cervical vertebra. H, H, The bodies of the dorsal vertebra.
- I, I, The impressions on the sides of these vertebræ,
- which receive the heads of the ribs. K. K. The notches between the same vertebræ, for the

- h, h, he notestee between the same vertebre, for the passage of the spinal acrees.

  L, L, The oblique processes of these vertebre.

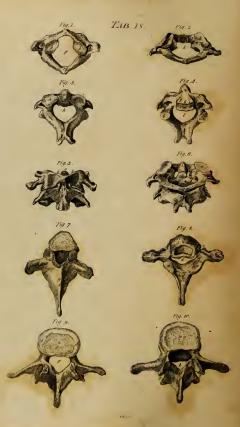
  M, M, The transverse processes of the same bones.

  N, N, The impressions on the fore part of these pro-
- cesses, for the articulation of the ribs.

- O, O, The spinous processes of the dorsal vertebrae, varying in length and obliquity in the different parts of
- the back.
- P, P, The bodies of the lumbar vertebrae. Q, Q, The oblique processes of these vertebrae.
- Qq. Q. The oblique processes of these bones.
  R, R, The transverse processes of these bones.
  S, S. The lateral noteless and holes of these bones.
  Y, T, The prions processes of these vertebre.
  U, The upper and fore part of the so sacrum.
  Y, The sinder part of this bone.
  W, W, The sinder part of this bone.
  N, The oblique surface by which the os sacrum is united:
- with the os ilium. I', The irregular surface by which it is joined to a corresponding one of the os ilium.
- Z, Z, The pieces which compose the os coccygis.







### TABLE XVIII.

Gives different Views of the TRUE VERTEBRE.

## FIG. 1.

4 View of the Inferior Surface of the ATLAS, or FIRST VERTEBRA of the NECK.

a, The anterior part of the atlas.

b, b, The inferior oblique processes. c, A muscular impression on the posterior part of the

d. d. The transverse processes, which terminate in tube-

e, e, The inferior orifices of the oblique holes

f, f, Inferior notches for the passage of the spinal nerves. g, The large vertebral hole, which forms part of the spinal canal.

a, The small articular cavity, which receives the odonb, b, The superior oblique processes, which receive the

occipital condyles. c, c, Protuberances below the superior oblique processes,

to which the transverse ligaments are fixed d, d, The posterior fossa, where the vertebral arteries

are reflected in their ascent to the cranium. e, e, The oblique holes at the roots of the transverse processes, for the passage of the vertehral arteries.

f, f, Extremities of the transverse processes, each in form g, A muscular print on the posterior part of the hone.

FIG. 3.

h. The large vertebral hole.

G 2

The VERTEBRA DENTATA, viewed superiorly, and a little posteriorly.

a, The odontoid process of the second vertebra. b, b, The superior oblique processes. c, c, The transverse processes.

d, d. The superior notches of this vertebra, for the pas-

sage of the spinal nerves e, e, A portion of the inferior ohlique processes. f, f, The extremities of the spinous process, of a fork-

ed shape g, g, Muscular prints on the two sides of the spinous process.

h, The large vertebral hole.

## FIG. 4.

The Anterior and Inferior Part of the VERTEBRA

a, The upper part of the processus dentatus.

b, The anterior and middle surface of the second vertebra. c. The inferior surface, somewhat convex d, d, The anterior margin of the superior oblique pro-

cesses.

FIG. 2.

c, c, The extremities of the transverse processes.

Represents the ATLAS, seen from its Upper and Back f.f., The oblique holes at the roots of the transverse processes, for the passage uf the vertebral arteries.

g, g, The inferior notches of the vertebra for the passage of the spinal nerves.

h, h, The inferior oblique processes.
i, i, The bifurcation of the spinous process.

k. A furrow on the inner surface of the spinous process.

1, The large vertebral hole

## FIG. 5.

The Connection of the two First VERTEBRE of the NECK with each other, seen anteriorly.

a, The eminence, or anterior print of the atlas.

b, b, The two superior fossæ of the atlas.
 c, c, The anterior edge of the superior oblique processes.

d, d, The extremities of the transverse processes.
e, e, The anterior edge of the inferior oblique processes.
f, f, The inferior fossæ, or hollows of the atlas.

f, f, The inferior fossæ, or hollows of the atlas.
g, The extremity of the tooth-like process of the second

vertehra h, 'The root of the tooth-like process. i, A small emineuce on the middle of the hody of the se-

cond vertebra k, k, Prints upon the lateral parts of the body of the bone.

1, The convexity of the inferior part of the body. m, m, The auterior margin of the superior oblique processes.

n. n. The

n, n, The inferior oblique processes. o, o, The transverse processes

p, p, The inferior hollows of the vertebra

a, a, Cavities of the superior oblique processes of the

b, b, The ligamentous protuberances at the under and inner part of the superior oblique processes

c, c, The posterior edge of the inferior oblique processes of the atlas.

d, d, The posterior fosse of the atlas, through which the vertebral arteries and tenth pair of nerves pass. c, c, The holes of the transverse processes of the atlas. f, f, The extremitics of the transverse processes of the atlas.

f. f. The extremitics of the transverse processes of the atlas.
g. The eminence of the atlas, in form of a spinous process.
h. The superior extremity of the tooth-like process of the second vertebra.

i, i, Ligamentous impressious upon the superior extremity

k, The neck of the tooth-like process. /, l, The posterior edge of the superior oblique processes

of the second vertebra-

vertehra, on which are muscular prints.

on, The middle of the large vertebral hole n, n, The posterior orifices of the passages at the roots of

the transverse processes of the second vertebra. o, o, The extremities of the transverse processes of that

p, p, The posterior edge of the inferior oblique processes of the second vertebra,

q, A crest projecting from the upper part of the spinous process of the second vertebra. r, r, The extremities of the spinous process of the second

A View of the Upper and Back Part of one of the First

a, The superior surface of the body of the first dorsal

vertebra, which is somewhat triangular b, b, The superior oblique processes.
c, Part of the body of the bone, which assists in form-

ing the vertebral hole.

d, The thin sharp edge of the vertebral hole.

e, c, The posterior part of the transverse processes.
f, f, The under edge of the inferior oblique processes. The posterior fossæ of this bone.

h. The ridge of the spinous process.

i, The small extremity of the spinous process.

FIG. 8.

A View of the Under and Fore Part of the VERTEBRA represented in the preceding Figure

a, 'The anterior part of the body of the bone.

The inferior surface of the body, c, c, The superior notches for the passage of the spinal

d, d, The inferior notches for the passage of the spinal

e, e, The transverse processes.
f, f, The small articular cavities, which receive the tubercles of the ribs

g, g, The inferior oblique processes.
h, The large vertebral hole.
i, The interior fossa, or gruove of the spinous process of the first dorsal vertebra

k, The inferior extremity of the spinous process.

# FIG. 9.

The Inferior Surface of the Third VERTEBRAOf the LOINS a, The middle of the inferior surface of the third lum-

bar vertebra b, b, The osseous lamina, which borders the whole circumference of the inferior surface

c, c, The inferior notches of this vertebra d, d, The transverse processes. c, c, The inferior oblique processes. f, f, The superior notches, g, The large vertebral bole.

h, A small groove on the inner side of the spinous pro-The rounded extremity of the spinous process.

The VERTEBRA represented in the preceding Figure, seen from its Upper and Back Part.

a, The centre of the body of the vertebra, which is very

b, b, The small osseous lamina, which surrounds the spongy surface c, A portion of the body of this vertebra, which forms

part of the vertebral ho

d, d, The superior fossæ of this vertebra.
c, c, The extremities of the transverse processes.
f, f, The superior oblique processes.

5,1,7 the superior confige processes.
g, g, The inferior fosse of this vertebra.
h, h, The posterior fosse.
i, i, The inferior oblique processes.
k, The large vertebral hole.
l, The exterior ridge of the spinous process.

m, The rounded extremity of the spinous process.

# FALSE VERTEBRÆ

THE FALSE VERTEBRE, composed of the Os Sacrum and Os Coccygis.

# OS SACRUM.

The triangular Form of the Bonc, with its pointed under extremity. Tab. XIX The flat concave anterior Surface, for enlarging the

Cavity of the Pelvis. Tab. XIX The under and fore part torning a turn, called, by some, the Lesser Angle of this Bone. Tab. with Nerves

of Pelvis.

The convex irregular Surface behind, where strong Muscles arise, which assist in extending the Spine and Thigh. Tab. XXXI. Four transverse prominent Lines seen anteriorly, indi-

cating the situation of the Cartilages which originally divided the Bone into live pieces. Tab. XIX.

The upper part of the Body of the first portion of the

Os Sacrum, similar to that of the Vertebra of the Loins, while the fifth portion corresponds with the first piece of the Os Cocey

The Spinal Canal, of a triangular form, of great size above, but becoming gradually smaller in its descent; corresponding to the size of the under end of the Spinal Marrow, termed Cauda Equina, which goes through it. Tab. XIX. Fig. 2. Tab. XXXI. Fig. 18.

The under part of the Spinal passage, commonly open behind; the Canal being completed, in the Subject, by the addition of a strong Ligamentous Membrane. Tab.

XVII. Tab. XIX.

The Arch at the sides and back part of the Spinal Canal, much thicker and stronger than in the true Vertebras. Tab. XXXI. Fig. 18.

The Oblique Processes, excepting the two uppermost, ly, an impression made where the last Lumbar Nerve all united together, and confounded with the Transverse

The two superior Oblique Processes belonging to this Bone, facing backwards, to correspond with the two is ferior Processes of the last Lumbar Vertebra. Tab. XIX. A large Oblong Process on each side of the Bone, form-

ed by the concretion of the outer cuds of all the original Transverse Processes. Tab. X1X. The upper lateral parts of the Bone, which corre-

spond with the three superior Transverse Processes, divided into two irregular Carities on each side, by a perpendicular Ridge. Tab. XIX. Fig. 5. G, H. The anterior of the two Cavities lined with Cartilage,

which glues this Bone to the Os Ilium, and in such a

manner as not to allow any motion. The Cartilage which unites these Bones to each other is remarkably thin, but adheres so intimately to the Os Sacrum, that in separating that Bone from the Ilinm, the Cartilage commonly comes with it, leaving the Bium quite

The posterior Cavity, rough and irregular, divided into two by a Transverse Ridge formed by the union of their Oblique Processes; and in the recent Subject, full of Ligamentous Fibres and Cellular Substance, which are included in the general Capsular Ligament, and which also assist in fixing the two Bunes to each other. The portion of this Process formed by the three upper-

most Transverse Processes, remarkably thick and strong, while that belouging to the two last is much smaller, but irregular behind, where it gives attachment to the Liga-

ment termed Sacra-sciatic.

The Spinous Processes: The three uppermost commonly distinct, but remarkably short: There is a great variety, however, in the number and appearance of the Spinous Processes in different Bones, and consequently of the length of the complete part of the Spinous Canal. Tab. XIX.

The two inferior Spinous Processes commonly forked, without meeting into a Spine, but leaving between them the opening already mentioned, for the under end of the

Cauda Equina.

Four Pair of large Holes on the anterior Surface of the Booe, at the end of the Lines already described, and Grooves running out from the Holes, for the passage of the Sacral Nerves. Tab. XIX.

The Holes become smaller as the Bone descends, corresponding with the Nerves which pass through them-

Four Pair of Holes on the posterior Surface, not much smaller than those seeo anteriorly; but so filled with Cellular Substance, and covered with Membranes in the recent Body, as only to aibnit small Nerves to pass out to the Muscles on the back part of the Pelvis, and minute

Arteries to enter to the Cauda Equina, Tab. XIX.

At the root of each superior Oblique Process anterior.

passes out. Tab. XIX. Fig. 2. 1.

A Notch at the under end of each side of the Bone, or a Hole common to it and the Os Coccygis, for the passage of the last Spinal Nerve. Tab. XIX.

The Substance of the Os Sacrum, like that of the other Vertebrae, is very spongy, and covered only by a thin external Plate; this, however, is rendered considerably stronger by a Ligamentons Membrane which adheres to it.

Tab. with Nerves of Pelvis. The Connection of this Bone above to the last Lumhar

Vertebra, in the same manner as the other Vertebrae are connected to each other, and the same motion allowed as to these Vertebræ .- The projection formed between these two Bones anteriorly, obtains the name of Promontary or Greater Angle of the Os Sacrum. Tab. XVI. XVII.

The Os Sacrum serves as the common Base and support of the Trunk of the Body, guards the Nerves issu-ing from the under end of the Spinal Marrow, defends the back part of the Pelvis, and gives origin to Muscles moving the Trunk and Thigh,

In the Fœtus, the Os Sacrum is composed of five distinct Vertebræ, which have Intervertebral Substances similar to those of the True Vertebrae. Tab. XXVII. At this time, each of the Vertebræ of the Os Sa-

crnm, as well as of the True Vertebrae, consists of a Body and two lateral parts, which are joined together

## Os Coccygis.

The Os Coccygis, or Rump-bone, forming an Appendage to the under end of the Os Sacrum.

The Situation of this Bone at the under end of the Os Sacrum. Tab. XIX. XX

Its Figure, broad and flat above, and tapering below, convex behind, and forming a Curve forwards, to defend it from injury when a person is in a sitting posture. Tab. XIX. Tab. CCHI. CCIV.

The four pieces of which it is composed in young Sub-cts. Tab. XIX.

The Bone is considered by some Authors as being formed of three pieces; and then the Os Sacrum is said to have six pieces The first or uppermost piece the largest, with Shoulders

reaching farther than the end of the Os Sacrum. This is regarded by some as a proper distinction between the Os Coccygis and Os Sacrum. Tab. XIX.

From the back part of the Shoulders, two Cornua frequently ascend to join the forked Spinous Processes at the end of the Os Sacrum, and form a passage for the transmission of the last Pair of Spinal Nerves. Tab. XIX.

The three lower Bones of the Os Coccygis becoming gradually smaller, the fourth terminating in a rough

Cartilage is interposed between the different pieces of this Bone in young Subjects, Tab. XX II. join ing them together, after the mauner of the Vertebraallowing motion upon each other forwards and backwards

but chiefly between the first and second pieces; and a greater degree of motion there in the Female than in the Male. In advanced life, but earlier in Men than in Women,

the pieces grow together so as to admit of no motion; but this takes place much later between the first and se

cond, than between the other pieces.

The Substance, like that of the Os Sacrum, is spongy, but this Bone differs from the Sacram in baving uo passage for the Spinal Marrow, nor Holes for Spinal Nerves.

The Connection of this Bone, in young Subjects, to the Os Sacrum, by Cartilage, -in old People, by an union of Substance.

The Surface of the Bone is covered by a strong Ligament, which adds to its strength; and its sides give rise to numerous Muscular Fibres, which, while the derive their origin from it, serve at the same time to protect it.

The Os Coccygis sustains the Intestinum Rectum, contracts the Inferior Opening of the Pelvis, and assists in supporting the Rectum, Bladder, and Uterus. In the Foctus, the Os Coccygis is almost entirely com-

# PELVIS.

posed of Cartilage.

HERE observe, The PELVIS, situated at the lower part of the Trunk,

and formed by the Os Sacrum, Os Coccygis, and two Ossa Innominata. OS INNOMINATUM

The Situation of the Os Innominatum, in the fore part and side of the Pelvis, and in the under and lateral part of the Abdomeu. Tab. XVI The Division of the Bone, in Children, into Os Ilium,

Os Ischium, and Os Pubis. Tab. XXXII. Fig. 15. f, g. Tab. XXVII.

but retain their original names

# Os LEIUM.

The Os Ilium, forming the upper part of the Os In- Tab. XVI. O.

nominatum, and spreading out, to assist in supporting the contents of the Abdomen. Tab. XVI. L.

The Dorsum, or outer convex Surface of the Bone.

depressed at the fore part, raised farther back, and concave behind, Tab. XVII. the whole giving origin to the Glutei Muscles, or Extensors of the Thigh

The Spine, or upper semicircular edge of the Bone, for the attachment of the Oblique and Transverse Abdominal Muscles. Tab. XVI. M, N. In the recent Subject, the Spine is covered with a

Tendinous and Cartilaginous crust, that separates in macerating the Bone.

The anterior-superior Spinous Process, or anterior ex-In the Adult, the three Bones are ossified together, tremity of the Spine, for the attachment of the Sartorius, the Tensor Vaginæ Femoris, and of POUPART'S Liga-

ment, or Crural Arch. Tab. VI. N The anterior-inferior Spinous Process, a little below

the former, for the attachment of the Rectus Femoris.

Between the two anterior Spinous Processes, a Notch the Bone, for the attachment of Muscles,-and of the for lodging the beginning of the Sartorius Muscle.

The two posterior Spinous Processes, at the back part of the Spine, less considerable than the two anterior; partly for the origin of Muscles of the Back, but chiefly for the attachment of Ligaments which belong to the Joint between this Bone and the Os Sacrum. Tab.

XXXI. Fig. 17. 7, 3. The outside of the posterior Spinous Processes flat and rough, where part of the Glu-

teus Maximus and Pyriformis take their origin. The Notch of the Os Ilium under the posterior-inferior Spinous Process, for the passage of the Pyriform

Muscle, Sciatic Nerve, and Blood-vessels. Tab. XIX. The Venter, or inner concave Surface of the Bone, for the attachment of one of the Flexors of the Thigh, termed Riacus Internus, and the support of a portion of the Intestinum Ilium and Colon. Tab. XX. F.

A Passage in the Venter, near the Linea Innominata, and another in the Dorsum towards its anterior part, for the principal Medullary Vessels of the Bone. these, different Foramina are seen, of less consideration, for admitting Vessels into the Substance of the Cancelli.

Tab. XVI. under b, right side. A Depression at the inside of the anterior-inferior Spi-

nous Process, where the Flexor Muscles of the Thigh and the anterior Crural Vessels and Nerves pass. Tab. XVI. O. P.

The Linea Innominata at the under part of the Venter of the Bone, forming the lateral portion of what is termed Brim of the Pelvis, and the line of division between the Pelvis and Abdomen. Tab. XVI. a.

Into the Iliac Portion of the Liuca Innominata, the Tendinous Expansion continued from the Psoas Parvus is

The inner and back part of the Bone, rough and very irregular, the posterior portion of this irregular surface giving origin to some of the large Muscles of the Back; the middle being for the attachment of Ligaments which go to the Os Sacrum, and the anterior for the firm connection which subsists between this Bone and the Cartilage which glucs it to the Os Sacrum

The circumference of this rough and irregular surface gives attachment to the Capsular Ligament of the

The under, fore, and outer puri of the Bone, forming the upper and back part of the Acetabulum, or Cavity for the articulation of the Thigh-bone. Tab. XVI. under R.

## Os Ischium.

The Situation of the Os Ischium in the lowest part of the Pelvis. Tab. XVI. g, U, T. Its Figure irregular; its size next to that of the Os

The upper thick part of the Bone, forming the under part of the Acetabulum. Tab. XVI. g.

superior Sacro-sciatic Ligament, which completes the Notch of the Os Ilium into an Iliac Foramen. Tab. XVI. U, right side.

The Cervix placed under the Spinous Process, and covered with Cartilage where the Tendon of the Obturator Internus plays, in its way from the inner side of the Pelvis to the Thigh-bone. Tab. XIX. Fig. 6. Q.

The Tuberosity, or Tuber Ischii, below the Cervix of the Bone, which is covered with Cartilage that is separated by macerating the Bone. Tab. XVI. U, left

side. Tab. XVII. p The outer Surface of the Bone, at the Root of the Spinous Process, hollow for the passage of the Pyriformis.

The upper part of the Tuber placed obliquely, and giving attachment to the Geminus Inferior, to the under Sacro-sciatic Ligament, and to the great Flexor Muscles of the Thigh. The thinner and more scabrous part of the Tuber, which has a curved direction, is what we rest upon in sitting. It gives attachment to the Crus Penis in the Male, to the Crus Clitoridis in the Female, and to

# part of the Adductor Muscles of the Thigh. Tab. XVI. 1.. Os Pubis.

The Situation of this Bone at the upper and fore part of the Pelvis. Tab. XVI. V, W, X. Its Size, the least of the three portions of the Os Innominatum.

The thickest and strongest part of the Bone, forming the upper and fore side of the Acetabulum.. Tab. XVI. The upper part of this portion of the Bone formed into

a kind of ridge by its junction with the Os Ilium. The upper part of the Bone becoming smaller where it is flattened above, and rendered smooth by the passage of

the Flexor Muscles of the Thigh, and of the anterior Crural Vessels and Nerves. Tab. XX. N. The upper and inner part of the Bone increasing in size, and forming the rough Crest or Angle, where the Rectus and Pyramidalis, and the inner end of Pou-

PART's Ligament, are attached. Tab. XVI. W. A Ridge, or Spine, extended from the outer and fore part of the Crest, along the upper and inner edge of the Bone, to form, with a similar Ridge of the Os Ilium, the Linea Ilio-pectinea, Brim, or upper covering of tho

Tab. XVI. a. This Ridge is described by some Authors as being sometimes so sharp, as to injure the parts which lie im-

mediately contiguous to it.

Another Ridge, from the Crest, or Angle, extending downwards and outwards towards the breach in the fore part of the Acetabulum. Tab. XVI. under V A Cavity between these Ridges, for the origin of the Pectineus. Tab. XVI. outside of c.

Immediately below the undermost of the two Ridges, .

rt of the Acetabulum. Tab. XVI. g. the Bone having a twisted appearance, and a Notch-The Spinous Process sent back from the upper part of which is formed into a Hole in the Subject, by the addition : addition of the Obturator Ligament, for the passage of the

Otherator Vessels and Nerves. Tab. XVI. under V.
The inner end of the Eoue rough and unequal, but cosered with a Ligameutous Cartilage, which, in fresh
Bones, joins the two Ossa Pubis so firmly together, as to
prevent them from moving upon each other. Tab. XVI. c.

prevent them from moving upon each other. Tab. XVI. c.
The inner part of the Bone is broad, and depressed before, where it gives origin to part of the Adductor Muscles of the Thigh. Tab. XVI. between W and X.

Muscles of the Thigh. Tab. XVI. between W and X. The inner part of the Bone becoming narrower, and ending in the Crus, which goes downwards to join the Crus of the Os Ischium, and form, along with that Crus.

one side of the Arch of the Pubis. Tab. XVI. X, d.
The Forumen Thyroideum, formed by the On Pubis and Os Ischium, and in the Subject, filled by a Membranous Liyament, excepting at the Notch above mentiously, which gives rise to a large share of the Obturator Mus-

cke. Tab. XVI. c.

The Acelabulum, or Cavity, (compared to a Vinegarmeasure used by the Ancients), placed farther out than
the Foramen Thyroideum, and formed by the three pueces
which compose the Os Innominatum, in such a manner,
that the Os Ilium constitutes near two-filths, the Os Iechium more than two-filths, and the Os Pubis one-filth

of that Cavity. Tab. XVI. g.

The Cavity of the Acetabulum very deep, especially behind, and made still deeper in the Subject, by its Brim

being tipped with a Cartilaginous Ligament.

Round the outer edge of the Brim, the Bone rough, where the Capsular Ligament of the Joint is fixed. Tab.

A Breach in the inner and fore part of the Acetabulum, which, in the Subject, has a strong Ligament stretched from one end of that Notch to the other, but leaving a Hole behind for containing part of the Sub-

stance called Gland of the Joint. Tab. XIX.

The Con'ty of the Acetabalum lined with Cartilage, excepting at its under, inner, and fore part, where there is a rough depression for containing the greater part of the Substance mentioned above. Tab. XIX. Fig. 6.

The Brim, Introitus, or upper Opening of the Cavity of the Pelvis, approaching in the Male to a circular, and

in the Female to an oral form. Tab. XVI. XX.

The Inferior Opening is large in the Skeleton, but in
the Subject in a great measure is filled up by Ligaments
and Sluseles, which support and protect the contained
aparts, and leave only the passages from the Badder of
Unive and Rectum in the Male, and, together with these,
the passage from the Uterus in the Female.

In what is considered as a standard Fession, the distance between the Os Sacronn and Os Publis, at the Introlline, is found to be somewhat more than four inches and quarter. In the Estime, or inferior opening, the protions are vereined, the distance between the Symphypotions are vereined, the distance between the Symphypotion are vereined, the distance between the Symphystic the Ossa Hia. The depth of the forer part of the Pacific and the Symphysis of the Publis, measures about an in all a half, behind it is aix inches, and at the sides three inches and a half. The Pelvis may vary from the above dimensions according to the size and proportions of the Body, which may differ somewhat in the different missions, yet which may differ somewhat in the different mission, it is considered as distorted.

The Ossa Innominata, joined behind to the Os Sacrum by a thin Cartilage and by strong Ligaments, so as to have no motion; the Joint obtaining the name of Posterior, or Sacro-iliae Symphysis. Tab. XX. A.

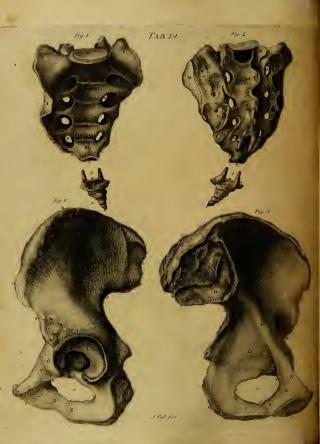
The Connection of these Bones to each other anteriorly, by a Ligamentous Cartilage and Ligaments, which also pervent motion here. This connection is termed Symphysis, or Interior Symphysis Pubis. Tab. XX.B. The Substance of the Uliac part of the Os Innominatum is cellular, with a thin external Table, which, in

tum is cellular, with a thin external Table, which, in some old people, is so much affected by Muscalar action about its middle, as to become transparent. The other two portions of the Os Innominatum are cellular, as in other flat Bones, but some parts of the external Table are of considerable thickness and strength.

Let of THE PLEASE—It constitutes the Basis of the IT THINK, and forms Sockets for the 'lihigh-bones to most in. It contains the Bladder of Trine and the Returnis the Male, and, together with thees, the Utens in the Female. It gives origin to the Blanches which earth the Trunts, and insertions to those which bend the Bodyte the Thigh, and gives passage and protection to Blood use the Thigh, and gives passage and protection to Blood vessels, and to some of the largest Nerves of the Body-

y In the Festus, the Spine of the Os Illians, and that put of the Bone which belongs to the Acetabulan, actual thinginess. The Spineos Process, the Tuberosity, and Oras of the Os Inchium, the Crus of the Os Publis, and interpretion of it which forms the Acetabulan, are also the Ostrophysical Computer of the Chicago and the period, is alinguished for the Chicago and the period, is alinguished for ferent from that in the Adult, the moder heing wifer that the upper part.





### XIX. TABLE

VIEWS of the SEPARATE BONES of the PELVIS.

## FIG. 1.

The Internal or Anterior Surface of the Os SACRUM, turned a little towards the Left Side.

A, The upper part of the os sacrum, which receives the body of the last lumbar vertebra. B, The osseous lamina which surrounds this surface.

C, C, A portion of the oblique processes. D, D, The superior notches, for the passage of the

twenty-fourth pair of spinal nerves.

E, F, The large lateral eminences.
F, F, The pieces of which the bone is originally com-

G, G, The transverse lines which indicate the union of

H, H, The oblique passages on each side, for the transmission of the sacral nerves.

I, A portion of the surface of the os sacrum, by which it is articulated with the os ilium.

K, K, The inferior notches, where the last pair of spinal nerves pass out. L, The point of the bone which is joined to the os coc-

## FIG. 2.

The Posterior Surface of the Os SACRUM, turned a little towards the Left Side.

A, The upper surface of the os sacrum.

B, B, Its superior oblique processes. C, C, Its superior notches.

D, The haginning of the spinal canal of this bone.

L, L, Ligamentous and muscular impressions, rendering the back part of the bone very une

M. A portion of the articular surface, by which this hone

is united with the os ilium. VOL. I.

FIG. 3. The Internal Surface; and, FIG. 4. The External Surface, of the Os Coccyois. A, A, A, The three pieces of which the bone shewn in

this figure is composed.

B, The great notch of this bone. C, The cornua.

D, D, The lateral notches. E, E, The lateral processes.

F, The point, or inferior extremity,

# FIG. 5.

The Internal Surface of the Left Os Innominatum.

A, The cavity or venter of the os ilium. B. The orifice of the internal iliac canal.

C, C, The spine or crest of this boue

by The space of effect of time bode.

Dy The superior-anterior spinous process.

E. The inferior-anterior spinous process.

F. F. The posterior spinous processes.

G. The surface by which the os illum is articulated with

H. H. An irregular surface which also belongs to this

joint. The anterior iliac notch. K, The posterior iliac notch.

L. The ischiatic, or, more properly, the great iliac notch. M. The great sinuosity, where the internal iliac muscle passes out of the abdomen.

N. The ridge of the os ilium, which forms a share of

the brim of the pelvis.

O, The body of the os ischium.

P, The spinous process of this boue. Q, Part of the tuberosity of this bone.

E. 2. The position of the position of the position of the following the

hranch of the os pubis with the os illum.

V. The spine of the os pubis.

W. The inner surface of the crest of the os pubis.

X. The inner surface of the superior hranch of the os

Y, The

- Y, The inferior noteb of this branch.
- Z, The inner surface of the body of the os pubis.
  a, The crus of this bone.
- b, The cartilaginous surface which unites itself with the os pubis of the opposite side.
- d, The inferior notch of the os pubis, which assists in forming the foramcu ovale.

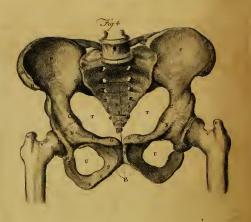
# The External Surface of the Left Os Innominatum.

- 1, The dorsum of the os ilium, raised in some parts, and
- depressed in others.
- B, B, The crest of this bone. C, The superior-anterior, and,
- D. The inferior-anterior spinous process.
- F., The posterior spinous process.
  F. The anterior notch.
- G, The posterior notch, and,
- II, The great notch of this bone. I, Eminences and cavities at the upper part of the ace-
- tabulum. B, The brim of the acetabulum, tipped with cartilage.

- L, The bottom of this cavity encrusted with cartilage.
- b) The bottom of this savily confidence in the acetabulum, where the substance termed gland of the joint is lodged. Surrounding the acetabulum, and upon the dorsum of the os ilium, foramina appear, which are the passages of
  - blood-vessels.
- N, The spinous process of the os ischium.
  O, The tuberosity of this bone.
- P, The notch between the spinous process and tuberosity. Q. The cervix of the bone.
- R, The breach in the acetabulum, which, in the subject. has a strong ligament connected to it.
- The crus of the os ischium, T, The notch which forms the under part of the foramen
- ovale.
  U. The outer end of the superior branch of the os pubis.
  V. The middle of this bone.
- W, The crest of this bone. X, The notch at the under part of the branch of this bone.
- Y, The body of the bone. Z, The crus of this bone.
- a, The notch which assists in forming the fore part of the foramen ovale.
- b, The part where the one os pubis joins the other.
  c, The foramen ovale,



TAB. 20.



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## TABLE XX.

# A VIEW of the FEMALE PELVIS, from the Upper and Fore Part.

- A, The connection of the os ilium with the os sacrum.
- B, The symphysis pubis.
- C, &c. The brim of the pelvis.
  D, The articulation of the head of the os femoris with
- the acetabulum of the os innominatum.

- The arch formed by the crura of the ossa pubis.

  F, The arch formed by the crura of the ossa pubis.

  F, The arch formed by the crura of the ossa pubis.

  G, The spine or arch of the os ilium.

  H, The superior-anterior spinous process.

  I, Ligaments passing between the spine of the os ilium,
- to the transverse process of the last lumbar vertebra.

  K, The tuberosity of the os ischium.

  L4, The crus of that bone.

- M, The posterior part, forming a share of the acetabulum.

- N, The back part of the os pubis, forming a portion of the acetabulum.
  - O, The angle, or crest.
  - P, The crus of the os pubis.
  - Q, The last lumbar vertebra. R, R, The os sacrum; the transverse lines marking its original pieces, with the four pairs of holes for the
  - transmission of nerves. transmission of nerves.

    S., S., The four pieces composing the os coccygis, with a pair of holes between it and the os sacrum.

    T., T., The cavity of the pelvis.
    U., The foramen thytoideum.

    V., The crevix of the os femoris.

  - W, The trochanter major.

# THORAX.

THE circumstances to be attended to in this part of the Skeleton are.

The Thorax, formed of the Sternum before, of the Ribs on each side, and of the Dorsal Vertehræ behind.

Tab. XV. The general Figure of the Thorax approaching that of

a Cone, but left open above for the passages to the Lungs and Stomach, and for the great Blood-vessels. The Lower Part of the Thorax slanting; the fore

part being considerably shorter than it is behind. The Under Margin on each side, forming a curved line, the convex side of which is turned downwards.

The under end of the Thorax, occupied, in the Sub-ject, by the *Diaphragm*, which forms a partition between it and the Abdomen. Tab. XLVIII. Fig. 2.

# COSTÆ.

The Situation of the Costa, or Ribs, slauting downwards with respect to the Spine. Tab. XV. Their Number, in the Male as well as in the Female, commonly twelve on each side, though sometimes thirteen,

and at other times only eleven; their number always corresponding with that of the Dorsal Vertebræ. Their Figure, convex externally, by which their strength is increased; and concave and smooth internally,

with their flat sides turned towards the Lungs, which they protect. ' The Head of each Rib formed into a Ridge and two hollow Surfaces covered with Cartilage, to be articulated with the Bodies of two Vertebree and their intermediate

Cartilage. Tab. XXXI. Fig. 14. a. Round the Head, the Bone spongy, for the attachment of the Capsular Ligament of the Joint.

The Tabercle of the Rib, at a little distance from its Head, with a flat Cartilaginous Surface and irregular Edge, to be articulated to the Transverse Process of the undermost of the two Vertebræ, to which the Head of the Rib is joined. 'Tab. XXXI. Fig. 14. b.

The Cervix of the Rib, between its Head and Tubercle, of a roundish form. Tab. XXI. Fig. 3. a. Another small Tubercle in most of the Ribs, at the outer side of the former, for the attachment of Ligaments which fix the Ribs to each other, and to the Transverse Processes, Tab. XXXI. Fig. 14. d; and also for the insertion of the outer Slips of the Longissimus Dorsi. Beyond the Tubercle, the Rib rendered flat by the

Sacro-lumbalis. The Angle of the Ribs to which the Sacro-lumbalis is fixed, where the Bones are about to bend, to form the lateral part of the Thorax. Tab. XXXI, Fig. 14, e.

The Rib becoming broader and flatter at the lateral part of the Thorax, and the flat Surface opposed to the Lungs.

The upper Edge of the Rib, round where the Intercostales are fixed.

The under Edge, sharp where the Intercostalis Exter.

nus is fixed. A Fossa at the inside of the under Edge, for lodging

the Intercostal Vessels and Nerves. The upper Edge of the Fossa gives origin to the Intercostalis Inter-

The Fossa wanting towards the extremities of the Ribs: the Vessels not being in contact with them behind, and

too small to unpress them anteriorly.

An Oval Pit in the auterior extremity of each Rib. for receiving the Cartilage which runs from it to the Sternum. Tab. XXXI. Fig. 14. h.

The Cartilages of the Ribs, placed between them and

the Sternum, or connected to each other, or lying loose ong the Muscles. Tab. XV. H.

The Cartilages, like the Ribs, flat on their outer and inner Surfaces, and smooth where they are opposed to the

The Cartilage of each Rib, forming, with the Rib it-

self, a Curve, the concave part upwards. And with the Sternum, an obtuse Angle above, and an

acute one below. The Cartilages yield to the motions of the Ribs, and enable them to return to their former position, when the Muscles cease to act. The Cartilages of the Ribs, in

old people, are frequently ossified. The Ribs are connected behind to the Vertebre by a double articulation, and before to the Sternum by the Cartilages, or by the Cartilages to each other, in such a manner as to allow motion upwards and downwards, though only a small degree in any single Rib, and that towards its middle; but no motion in any other direction.

Tab. XXXI. Fig. 17 The first Rib the most crooked; from this downwards the Ribs becoming gradually straighter. Tab. XV.

The uppermost Ribs approaching nearer to the horizontal situation; their obliquity, with respect to the Spine, increasing as they descend, and their anterior extremities becoming more distant from each other. Tab.

The Cartilages of the Ribs, like the Ribs themselves, becoming gradually longer from the first to the seventh but, contrary to what happens in the Ribs, approaching nearer to each other in their descent. Tab. XV. H, H,

The length of the Ribs, increasing from the first to the seventh, and then decreasing to the twelfth. Tab. XV. The distance between the Heads of the Ribs and their Angles, increasing to the ninth Rib, corresponding with the hreadth of the Sacro-lumbalis which covers them. Tab. XLII.

The Ribs divided into True and False.

The True Ribs,-the seven uppermost having their Cartilages joined to the Sternum, and opposed to the Heart and Lungs, from which they are termed the True Custodes, or Guards of Life. Tab. XV.

The False Ribs,-the five inferior not reaching the

Stermum. Tab. XV. The Cartilages of the False Ribs, shorter as they deseend, and more flexible than those of the True Ribs.

Tab. XV. I, I, &c. The posterior Extremity of the first Rih, articulated

only with the first Vertebra of the Back. Tab. XV. K.

A flat Surface upon the upper part of the first Rib,
where the Subclavian Vessels pass over it to the Arm.

The Fossa for the Intercostal Vessels and Nerves wanting at the edge of this Rib, on account of their running

at a distance from this part of the Bone. The Cartilages of the two under True Ribs, and three upper False Ribs, commonly joined to each other by cross Cartilages, or by an union of Substance, though sometimes this union takes place among a smaller number than that mentioned above. Tab. XV.

The Head of the eleventh Rib, having no Tubercle for articulation, being only loosely joined to the Trans-

verse Process. The twelfth Rib much shorter than the rest. Its Head is only joined to the twelfth Vertehra of the Back. It

has no Tubercle, nor articulation with the Transverse Process; neither has it any Fossa at its under edge, the Vessels and Nerves running some way below it. Tab.XV.

The Anterior Extremities of the eleventh and twelfth Ribs, not joined to each other, nor to any other Rib,

but lying loose among the Museles; hence these Ribs sometimes named Floating Ribs. Tab. XV. The Substance of the Ribs, like that of the Vertebra, is Cellular, and only covered with a thin external Plate, which becomes somewhat thicker towards the Verte-

In the Feetus, the Heads and Tubercles of the Ribs bave Cartilages, part of which become thin Epiphyses. After Birth, the Bodies of the Ribs encroach gradually on the Cartilages; hence the Cartilages of the Ribs are proportionally shorter in Adults than in Children.

The Ribs give form to the Thorax, cover and defend the Heart and Lungs, and assist the latter in performing respiration.

## STERNUM.

The Situation of the Sternum in the fore part of the Thorax. Tab. XXIX. Fig. 10. V.

Three Pieces composing the Sternum, in a person of middle age, and these joined together by Cartilage. Tab. XV. O, P, Q.

The different Pieces of this Bone are frequently found

assified together in old people. The Sternum, thick and broad above, and thin and narrow below. Tah. XV.

The outer Surface flat. Tab. XV.

The inner Surface slightly hollowed, to enlarge the Cavity of the Thorax.

Pits upon each edge of the Sterman, to receive the Cartilaginous ends of the seven True Ribs. Tab. XXI.

Fig. 2. D-L. Tab. XV

The Pits at a considerable distance from each other above, hut becoming gradually nearer as they descend. Tab. XXI.

The Cancelli of the Sternnm, covered only by a thin external plate, but this rendered strouger by a Tendinous Membrane investing it in the recent state. Tab. LII. Fig. 10.

The upper piece of the Sternum, of a somewhat trian-

gular figure, compared to that of a heart as painted on playing-cards, but appearing as if cut across below. Tab. XXI. Fig. 2.

The upper and back part hollowed, to make way for the Trachea. Tab. XXI. Fig. 2. C.

The upper Corners, thicker and stronger than the rest

of the Bone, with a Cavity in each, lined with Cartilage, for receiving the ends of the Collar Boues. Tab. XXI. Fig. 2. B, B. Under these Cavities, the Bone becoming thinner, and

having a Pit upon each side, for receiving the Cartilage of the first Rib. Tab. XXI. Fig. 2. D, D. Part of the Pit in each of the under Corners of the

first Piece, for the Cartilage of the second Rib. Tab. XXI. Fig. 2. F, F. The second piece of the Sternum, of an oblong form,

but a little broader below than above, and considerably longer than the former. Tab. XXI. Fig. 2. E, E. The second piece varies considerably in shape in different Subjects, being frequently as broad above as below, and sometimes considerably broader. It is nearly of the

same thickness throughout. Complete Pits upon the edges of this piece, for the Cartilages of the third, fourth, bith, and sixth pair of Ribs, and part of the Pits for those of the second and seventh.

Tab. XXI. Fig. 2. F-L. Tab. XV. Lines extending across the Bone, between the Pits, denoting the original marks of division of this piece.

Tab. XXI. Fig. 2. The Connection of the second piece of the Stermun to the first by Cartilage, which, in the earlier period

of life, allows some yielding, but this becoming dually less as the person advances in life. 'Tab. XXI.' Fig. 2. F, F.
The third piece of the Sternum, cartilaginous in a

young Subject, and pointed like a broad-sword, hence termed Cartilago Ensiformis. Tab. XV. XXX.

The Adult has this piece commonly ossified in the

middle, and cartilaginous at the edges. Tab. XXIX. or True Ribs, on each side, and by an inter-articular Fig. 10. No. 3. 4.

The Size of this piece much less than that of the other two. Tab. XV.

Only one half of the Pit, for the Cartilage of the se-

wenth Rib, formed in each side of this piece. Tab. I. The Variations of the Cartilago Ensiformis are considerable in different Subjects;—for, instead of the common form, it is sometimes narrow like the point of a small sword, or turned obliquely to one side, or forwards, or backwards, or forked at the point, or perforated in

the middle. The Stermum is joined by Cartilage to the seven upper Cartilage to the anterior ends of the Clavicles. Tab.

In the Fœtus, this Bone is composed of seven or eight pieces, but the number of these varies in different Sub. ects. By degrees the pieces unite, till at length they form the three Bones already described.

The Sternum gives origin to several Muscles, defends the Heart and Lungs, assists in the formation of the Thorax, sustains the Mediastinum, is a medium of attach. ment to the Ribs, and serves as a Fulcrum or point on which the Clavicles roll.





### TABLE XXI.

Represents the ATLAS, STERNUM, FIRST RIB, CLAVICLE, and SCAPULA.

## FIG. I.

The Superior Surface of the ATLAS, or FIRST VERTEBRA.

A, The spinal hole.

B, The articular notch which receives the processus dentatus of the second vertebra of the neck. b, The direction of the ligament which confines this pro-

cess in its place.

C. The anterior part of the atlas.

D. D. The superior oblique processes.

d, d, Placed behind prominences, to which the lateral ligaments of the head are fixed.

E, E, The transverse processes.
ε, ε, The holes in the transverse processes for the vertebral blood-vessels.

F, The spinous process. f. f. The posterior depressions, where the vertebral arteries are reflected in their way to the cranium.

## FIG. 2.

The External Surface of the Stevnum.

A, The upper triangular piece of the sternum. a, a, Impressions made by the pectoralis major. B, B, Notches which receive the inner ends of the cla-

C. An excavation where the trachea passes into the tho-

D, D, The lateral parts which receive the cartilages of

the first pair of ribs.

E. E. The middle and longest part of the sternum.

c. c. Transverse lines pointing out the union of the
different pieces of which this bone is originally com-

F, F, The impressions of the cartilages of the second pair of ribs, and the connection between the first and econd pieces of the sternum.

G, H, I, K, The lateral cavities, or impressions of the cartilages of the third, fourth, fifth, and sixth ribs. L, L, Impressions of the cartileges of the seventh pair of

M. The cartilago ensiformis-

FIG. 3.

The Outer Surface of the Second TRUE RIB of the RIGHT SIDE.

A, The head.

a, The cervix.

B, The tubercle. C, The angle.

D, The upper and inner edge.

FIG. 4.

A View of the Back Part, or DORSUM of the SCAPULA of the RIGHT SIDE.

A, The spine. B, The acromion

C, C, The superior spinous fossa.
c, The superior angle.
D, D, The inferior spinous fossa.
F, F, The base or posterior costa.
F, The base or posterior costa.
C, G, The inferior costa.
U, The advantable spinous fossa.

b, G, The mieror costa.
h, the glenoid cavity.
h, h, h, The brim of the glenoid cavity.
l, 1, The cervix of the scapula.
K, The coracoid process.
L, The inferior angle.

# FIG. 5.

Under Side of the CLAVICLE.

A, The middle or body of the clavicle, with a depression running along it, for lodging part of the subclavian muscle.

B, The inner or sternal extremity. C, The inferior angle of this extremity.

D, The superior angle.

E, The part where the upper edge of the pectoralis major F, The spine of the clavicle.

G, The ligamentous and muscular impressions of the external extremity.

II, The orifices of several passages for vessels.

J, The humeral extremity.

# SUPERIOR EXTREMITIES.

We find here, Each Superior Extremity, composed of the Bones of

the Shoulder, Arm, Fore-arm, and Hand. The Shoulder, consisting of the Clavicle and Scapula.

## CLAVICLE.

The Situation of the Clavicle, between the upper part of the Sternum and top of the Scapula, and placed almost horizontally. Tab. XV. Y.

The Sternal, or internal Extremity, triangular, and larger than the Body, with one of the angles elongated backwards, where it gives origin to a Ligament extended between the two Clavicles. Tab. XXI. B, C, D.

Tab. XV. W. The Surface next the Sternum, covered with Cartilage, and irregularly hollowed, to correspond with the inter-articular Cartilage, which, with the Capsular Ligament of this Joint, allows a small degree of motion

in all directions. Tab. II. Fig. 5. B. The Body of the Bone next the Sternum bent forwards, and that next the Scapula turned back, the whole resembling an Italic f, or a key used by the Ancients; from which, or from the support, like a beam, it gives the Shoulder, its name is derived. Tab. XV.

The upper part of the Clavicle next the Sternum, rounded, and that next the Scapula, thin and flat where it lies over the Joint of the Humerus. Tab. XV.

Over the Bone in general rough marks are observed, for the attachment of Muscles and Ligaments.

The under Surface hollow, for lodging a portion of

the Subclavius. Tab. XXI. Fig. 5. A. In the under Surface, one or more small Canals, leading obliquely outwards, for the passage of the Me-

dullary Vessels. The External, or Scapulary Extremity, tipped with Cartilage, to be articulated with the Acromion of the Scapula. Tab. XV. Fig. 10.

Near the back part of the Scapulary Extremity, a Tubercle, for the attachment of a strong Ligament, which connects this Bone to the Coracoid Process of the Scapula.

The Substance of this Bone is like that of other long round Bones, but the external Table is of considerable thickness and strength. The Clavicle supports the Shoulder at a proper distance

from the Thorax, and thereby readers the motions of the Arm more extensive. It gives origin to several Muscles, and defence to large Vessels and Nerves. In a Fatus, the Clavicle is completely formed.

## SCAPULA.

The Situation of the Scapula, upon the upper and back part of the Thorax, at some distance from the

Ribs, the interval being filled up by a cushion of Flesh. Tab. XVI.

The shape of the Scapula triangular, with one of the angles placed downwards. Tab. XVI.

The Venter, or inner Surface, concare, corresponding with the convexity of the Ribs, and marked with Ride and Depressions by the Subscapularis. Tab. XXIII

Fig. 1. A The Dorsum, or outer Surface of the Scapula, ren-

dered convex in some parts, and concave in others, by the action of the Muscles which cover it. Tab. XVI. Tab. XIX.

The body of the Scapula is remarkably thin, and, in an old person, transparent. The three Edges of the Bone thick and strong, and

termed Costa. The superior or Cervical Costa the shortest of the three.

and placed nearly opposite to the second Rib. Tab. XXI. Fig. 4. F. Tab. XVI. A Semilunar Notch, which is sometimes converted into

a Foramen, near the fore part of the superior Costa, for the passage of the superior Scapulary Vessels and Nerve.

The inferior or anterior Costa, extending oblique downwards and backwards, between the third and eighth Ribs. Tab. II.

The inferior Costa impressed where it gives origin to the Teres Minor, the long Head of the Triceps Extensor Cubiti, and Subscapularis.

The posterior Costa, or Base of the Bone, placed obliquely with respect to the Vertebra, the upper end being considerably nearer them than the under. Tab. II.

The upper part of the Base, above the large Ridge termed Spine, running obliquely forwards to the upp angle, and giving attachment to the Levator Scapali Tab. XXI. Fig. 4. The portion of the Base under the Spine rough, for the

insertion of the Rhomboides and Serratus Major Anticus, The inferior Angle very acute, and marked behind by the passage of the Latissimus Dorsi, and the origin of the Teres Major. Tab. XXI. Fig. 4.

The superior Angle approaching to a right Angle. Tab. XXI. Fig. 4. c.

The anterior Angle, forming the Cervix, which de scends from the Semilunar Notch, and supports the Head of the Bone, which is considered as one of its Processes. Tab. XXI. Fig. 4. I, I.

The Glenord Cavity, placed on the fore part of the Head of the Bone, and lined with Cartilage for the articulation of the Os Humeri. Tab. XXI. Fig. 4. H.

The Cartilage lining this Cavity thick at the edges, but thin toward the centre, by which it is rendered deeper, for receiving the Ball of the Os Humeri.

The shape of that Cavity, resembling an Egg cut longitudinally, with the large end undermost, but so shallow as to receive only a small portion of the Ball of the Os Humeri, the rest of the Ball being contained in the Capsular Ligament. Tab. XV. R.

The Spine, or great Ridge, running across the Dorsum of the Boue, dividing it into a small upper and large under Surface, and giving origin to part of the Spinati. Tab. XXI. Fig. 4. A, A.

The Spine, small at its beginning, hollowed and curved laterally by the action of Muscles, and becoming higher and broader in its course forwards. Tab. XXI. Fig. 4. A triangular Space, between the root of the Spine and

base of the Bone, where part of the Trapezius is fixed. Tab. XXXI. Fig. 17. between W and the base of the

Scapula. At the side of the Spine near its base, a passage for the principal Vessels which supply the Substance of the

The Fossa Supra-spinata, or Cavity above the Spine, for the origin of the Supra-spinatus. Tab. XX1. Fig. 4.

The Fossa Infra-spinata, or space under the Spine,

for the origin of the Infra-spinatus. Tab. XXI. Fig. 4. D. The under part only of this space is a real Fossa, the rest of the Bone here being somewhat convex.

The Spine becoming broad and flat, and terminating in a point at its anterior extremity, where it is termed A-cromion, or top of the Shoulder. Tab. XXI. Fig. 4. B.

The under Surface of the Acromion, hollow for the passage of the Spinati, which run to the upper end of the Os Humeri. Tab. XV. S.

The Situation of the Acromion over the upper end of the Humerus, which, together with the Ligaments. tributes to the protection of the Joint. Tab. XXXI. Fig. 7. v.

The anterior edge of the Aeromion, tipped with Cartilage for its articulation with the outer end of the Clavicle. Tab. XXIV. Fig. 10. A.

The Coracoid Process, arising from the Neck of the Bone, and making a curvature forwards, so as to leave a

Sone, and making a curvature torwards, so as to leads, tab. XXI. Fig. 4. h. Tab. XX. 1. The Point of this Process, giving origin to the Pectoralis Minor, short Head of the Biceps, the Coraco-chilaits, and to a strong Ligament which passes transversely from its side, to be fixed to the Acromion, for the protection of the Joint. Tab. XX.

At the upper part of the root of this Process, a small Tubercle, which gives attachment to a Ligament of the

The Substance of the Bone is very unequal in thickness; for the Inferior Costa and Processes are thick and strong, while the Body is so pressed by its own Muscles, especially in old people, as to become in many parts trans-

The Scapula is joined to the Claviele by Ligaments of such strength, as only to allow between these two Bones a small degree of motion, and that chiefly of a twisting nature; but the Scapula is so connected by Muscles to the Head, Os Hyoides, Trunk, and Arm, as to have motion upwards, downwards, and to either side, and, through the medium of the Clavicle, to be rolled upon the top of the Sternum

In the Fortus, the Base, Acromion, Coracoid Process, and Head of the Scapula, are Cartilaginous. The three first are afterwards joined as Epiphyses; while the Head, with the Glenoid Cavity, is gradually produced from the Body of the Bone.

## ARM.

The ARM consisting of a single Boue, the Os HUMERI.

The Situation of the Os Humeri at the side of the Thorax, and under the Scapula. Tab. I.

The Ball or Head of the Os Humeri, forming a small

segment of a large Sphere, and this covered with Cartilage, and placed at the upper, inner, and back part of the Body of the Bone, to correspond with the Glenoid Cavity of the Scapula. Tab. XXII. Fig. 1. a.

The Cervix or Neck, surrounding the edge of the Ball, and forming a superficial Fossa, where the Capsular Ligament is fixed. Tab. XXII. Fig. 2. b, b. Tab. I. c. Numerous Holes round the upper end of the Bone, for

for the passage of Blood-vessels into the Bone. Tab. A Fossa or long Groove, lined with a Cartilaginous and

Tendinous Crust, in the upper and fore part of the Bone, for lodging the Tendon of the long Head of the Biceps, which descends from the upper edge of the Glenoid Cavity of the Scapula. Tab. XXII. Fig. 1. c.

The smaller Tubercle, placed at the upper and inner side of the above-mentioned Groove, for the attachment of the Subscapularis. Tab. XXII. Fig. 1. d.

The larger Tubercle, opposite to the former, and on the outer side of the Groove, for the attachment of the Muscles which cover the Dorsum of the Scapula. Tab. XXII. Fig. 1. c.

A Ridge continued down from each Tubercle along the sides of the long Fossa, for the insertion of Muscles coming from the Trunk of the Body, or from the Scapula. Tab. XXII. Fig. 1. g, h.

A Passage slanting downwards in the fore and inner

part of the Bone, near its middle height, for the Medullary Vessels. Tab. XXII. Fig. 2. f. The Bone, marked at the under end of the Groove for

lodging the long Head of the Biceps, by the attachment of the Deltoides and other Muscles. Tab. XXII. Fig. 1. of the Deltoides and other Muscles. under i. Fig. 2. at the outer side of g.

The Body of the Bone, round near its upper end; but, as it descends, appearing twisted, then flat, and increasing in breadth at the lower extremity. Tab. XXII.

From the Muscular Prints on the fore part of the Body of the Homerus, a blunt Ridge continued to the upper part of the Cartilaginous Surface covering the lower end of the Bone. Tab. XXII. Fig. 1. k, k, k.

The under and back part of the Bone, rendered flat and smooth, by the motion of the Triceps Extensor Cabiti. Tab. XXII. Fig. 2.

A large Ridge at the under and outer, and a small Ridge at the under and inner edge of the Bone, for the attachment of strong Tendinous Fascier, which give origin to part of the Muscles of the Fore-arm. Tab. XXII.

Fig. 1. The Ridges ending below in two Condyles, the situation of which, in order to avoid confusion in the terms external, internal, &c. is here to be considered with a reference to the Palm of the Hand tumped forwards.

The external Condyle, placed at the under and outer part of the Bone, for the origin of the Extensor Muscles of the Hand and Fingers. Tab. XXII. Fig. 1. n.

of the Hand and Rugers. Jab. XXII. Fig. 1. n. The internal Condigle, at the under and inner part of the Bone, more pointed and prominent than the former, for the origin of the strong Flexor Muscles of the Hand and Fingers. Tab. XXII. Fig. 1. m.

The Surface at the under end of the Bone, between the Condyles, covered with Cartilage for the articulation with the Bones of the Fore-arm. Tab. XXII.

Fig. 2. o, p, q.

The oblique Situation of the articulating Surface, the inner cad being lower than the outer, by which the Hand turns more readily to the Face, or the upper parts of the

torus more readily to the Face, or the upper parts of the Body. Tab. XXII. Fig. 1. Tab. I.

The inner Part of the articulating Surface, consisting of a large internal and small external Eminence, with a

middle Cavity, or a Troeblea, upon which the Ulna moves. Tab. XXII. Fig. I. p, p, q. Fig. 2. o, o, p.
The outer Part of the Articular Surface, upon which the Head of the Radius plays, of a round form, and con-

sidered by some Authors as the smooth part of the outer Condyle. Tab. XXII. Fig. 1. c. Round the Edge of the Articular Cavity, the Bone

marked by the insertion of the Capsular Ligament of the Joint. Tab. XXII. Fig. I. 2. A small Cavity at the under and fore part of the Bone.

above the Trochles, for receiving the Coronoid Process of the Ulna in the flexion of the Fore-arm. Tab. XXII. Fig. 1. 3.

A large Cavily at the under and back part of the Bone, also above the Trochlea, the under part of it for receiving the Oleramon of the Ulua in the extension of the Fore-arm, and the upper part for containing the Fat of the Joint. Tab. XXII. Fig. 2. r.

Between these Cavities the Bone is pressed so thin as

often to become transparent, especially in an old person.

The Substance and inner Structure of the Os Humeri
is the same as in other long round Bones. The sides are

is the same as in other long round Bones. The sides are compact, but the Cancelli are so large in the middle of the Bone, as to give the appearance of a hollow Cylinder,

The Ball of the Os Humeri is articulated with the Glenoid Cavity of the Scapula, which, from its upperficial nature, and the long Ligaments inclosing the Joint, allows the Arm to move in all directions; the Bone even performing a small degree of motion round its own axis. The extent of motion of the Arm, however, is considera-

ably increased by the rolling of the Scapula.

In the Fetus, the Extremities of the Bone are Cartilaginous; and the Ball with the Tubercles, and the Trochlea with the Condyles, form afterwards Epiphyses, previous to their union with the Body of the Bone.

## FORE ARM

Consisting of two Bones, the Ulna and Radius, both of which are observed to be longer in the African than in the European.

## ULNA.

The Situation of the Ulna at the inner part of the Fore-arm; the Arm being supposed to bang by the side of the Body, with the Palm of the Hand turned forwards. Tab. I. E.

The Oleranom, Processus Anconeus, or Top of the Cubit, placed at the upper end of the Bone, and forming the posterior prominent part of the Elbow. Tab.

The upper end of this Process, rough, where the Tri-

ceps Extensor Cubit in fixed.

The Coronoid or sharp Process, at the upper and fore part of the Bone, but considerably lower than the Oiscranon, for forming a part of the Hinge of the Joint of the Elbow. Tab. XXII. Fig. 4. b, c, c.

The Great Sigmoid, or Semilman Cavity, between the Olecmuon and Coronoid Process, lined with Cartilage, and divided into two skating Surfaces by a middle Ridge, the Cavity being adapted to the Trochlea of the Os Hameri. Tab. XXII. Fig. 4. d., c, c.

Across the middle of the great Sigmoid Cavity, a little

Pit, for lodging part of the Fat of the Joint.

Round the edge of the Sigmoid Cavity, the Bone

rough, for the attachment of the Capsular Ligament of the Joint.

The Small Sigmoid, or Semilunar Cavity, fined with

Cartilage, at the outer side of the Coronoid Process, where the round head of the Radius plays, which is connued in its place by an Annular Ligament, fixed to the Edges of this Cavity. Tab. XXII. Fig. 4. f. The Tubercle of the Una. or small rough spot under

the root of the Coronoid Process, for the insertion of the Brachialis Internus. Tab. XXII. Fig. 4. h.

At the upper and outer part of the Bone, a triangular Surface, where the Anconcus is lodged.

The Rody of the Ulna, of a triangular form, becoming gradually smaller in its descent. Tab. XXII. Fig. 4.
The sharpest Angle opposed to the Radius, for the at-

tachment of the Interesseous Ligament, Tab. XXII.

Fig. 4. g, g. The sides forming this Angle, flat, and marked by the Muscles which arise from them. Tab. XXII. Fig. 4,

A Passage slanting upwards, about a hand-breadth helow the upper end, for the Medullary Vessels. Tab.

XXII. Fig. 4. I.

The under end of the Bone, forming a small round Head, which is covered with Cartilage on that side where the Radius moves upon it, and also on its extremity, where it is opposed to a moveable Cartilage placed between it and the Carpus. Tab. XXII. Fig. 4. n, p.

The Styloid Process, at the inner side of the small round Head, from which a strong Ligament goes off to be fixed to the Bones of the Wrist, Tab. XXII. Fig. 4. o.

The Ulna is articulated at its superior extremity with the lower end of the Os Humeri, the Joint at this part forming a complete Hinge, which allows an extensive degree of flexion, and as much extension as to approach a straight line with the Upper Arm; hut little or no rotation.

## RADIUS.

The Situation of the Radius at the outer part of the Fore-arm, Tab. I. P.

The upper end of the Radius, covered with Cartilage, and formed into a circular Head, which is hollowed above, for receiving the outer part of the Articular Surface of

the Os Huneri, Tab. I.

The inner Side of the Head smooth, and also covered with Cartilage, where it plays in the small Semilunar Cavity at the outer side of the Ulna. Tah. XXII. Fig. 3. The Cervix of the Radius smaller than the Head; in the Subject, surrounded by a circular Ligament, which

keeps the Bone in its place, and allows it to roll upon the Ulna, Tah. XXII. Fig. 3.

The Tubercle of the Radius, at the under and inner

part of the Cervix, for the insertion of the Biceps Flexor Cubiti. Tab. XXII. Fig. 3. c. The Body of the Bonc larger than that of the Ulna,

convex on its outer and back part, and rounded here by the Muscles which cover it.

The Surfaces next the Ulna flat, where Muscles of the Hand take their origin. Tab. XXII. Fig. 3. e, e.

The anterior and posterior Surfaces, terminating next the Ulna, in a sharp Ridge, to which the Interesseous Ligament of the Fore-arm is fixed. Tab. XXII. Fig. 3, d, d. A Passage slauting upwards, on the fore part of the Bone, and about a band-breadth below its upper end,

for the Medullary Vessels. Tab. XXII. Fig. 3. g. A rough Sin face at the outer and middle part of the Bone, for the insertion of the Pronator Radii Teres.

The lower End of the Radius, becoming gradually larger, and flat on its fore part, where it is covered by the Pronator Radii Quadratus. Tah. XXII. Fig. 3. i.

A Ridge upon the under and back part of the Radius,

with a Fossa upon each side of it, where the Tendon's

of the Extensor Muscles of the Fingers pass. Tab. II. The outer side of this extremity of the Bone, hollowed by the Extensors of the Thumb. Tab. II.

A semilunar Cavity at the inner side of the under end of the Radius, lined with Cartilage, for receiving the coronding extremity of the Ulaa. Tah. XXII. Fig. 3. m.

The lower End of the Bone, formed into a Cavity of an oval or navicular shape, and lined with Cartilage, for receiving the two first Bones of the Carpus. Tab. XXII.

A small Transverse Ridge, frequently found in the middle of this Cavity, which insinuates itself between the

two first Bones of the Carpus.

The under and outer part of the Radius, forming a Process somewhat similar to the Styloid Process of the Ulna. Tab. XXII. Fig. 3, k. From this Process a Li-

gament is sent to the Wrist,

The Head of the Radius is articulated with the outer part of the articular Surface of the Os Humeri; the Radius is besides joined by a double articulation to the Ulna, for above, the Head of the Radius is received into the small Sigmoid Cavity of the Ulna, while the under end of the Ulna is received into the small Semilunar Cavity of the Radius; in consequence of which connection, the Radius accompanies the Ulna in the flexion and extension of the Fore-arm, while the Radius moves round its own axis above, but at the lower end, it turns upon the round head of the Ulna, carrying the Hand with it.

The Turning of the Radius with the Hand is termed Supination and Pronation; when the Palm is turned upwards, it is in a state of supination, and in pronation when in a contrary direction

The Structure of the Radius and Ulna is the same as that of other long Bones.

In the Fœtus, the extremities of the Boncs of the Fore-arm are Cartilaginous; they afterwards become Epiphyses, before they are united to the Bodies of the

## HAND,

Composed of the Bones of the Carpus, Metacarpus, and Fingers.

The posterior Surface of the Hand, convex, which gives it a greater degree of strength.

The anterior Surface of the Hand, concare, for grasping and holding Substances,

## CARPUS.

The Carpus is composed of eight Bones, disposed in two Rows; and each Bone being hroader on its posterior than anterior Surface, they form an Arch convex behind, by which it gives security and strength; and concave before, for containing the Muscles, Vessels, and Nerves, which ron to the Fingers.

The

The ends of the Arch on the Palm-side of the Wrist, form projecting Points, between which the Ligamentum Carpi Annulare is stretched, which confines the Muscles in their places. Tab. XXIV. Fig. 2. Tab. XXXI. Fig. 4.

The posterior or convex Surface of the Carpus marked by the numerous Ligaments attached to it.

The anterior or hollow Surface, also marked by Li-The Bones of the Carpus are articulated with each

other, or with the neighbouring Bones, and all their articular Surfaces are covered with Cartilage, to facilitate the motion of the Joints.

In the First Row of Carpal Bones are, The Scaphoides, Lunare, Cuneiforme, Pisiforme.

In the Second Row.

The Trapezium, Trapezoides, Magnum, Unciforme.

The Os Scaffiolds, placed at the outer and upper part of the Carpus. Tab. XXIV. Fig. 1. B. The upper Surface, convex, and articulated with the

Radius. Tab. XXII. Fig. 5. a. The under and outer Surface also conver, to be articulated with the Trapezium and Trapezoides.

XXII. Fig. 5. d. Between the upper and under Cartilaginous Surfaces, a rough Fassa for the insertion of the Capsular Liga-

ment. Tab. XXIV. Fig. 5, c. The anterior and inner Surface, having an oval Cavity,

which gives name to the Bone, where it is articulated with the Os Magnum. Tab. XXII. Fig. 5. b. A Process upon the outer end of the Bone, for the

attachment of part of the anterior Transverse Ligament of the Wrist. Tab. XXII. Fig. 1. under B.

The Os LUNARE situated upon the inner side of the former Bone. Tab. XXII. Fig. I. C.
The upper Surface, convex, for its articulation with the Radius. Tab. XXII. Fig. I. C.

The outer Edge, in form of a Crescent, from which the Bone is named, articulated with the Os Scaphoides,

The under Surface, hollow, for its articulation with the Os Magnum, Tab. XXII, Fig. 6. b. The inner Surface of the Bone, articulated with the

Os Cunciforme. Tab. XXIV. Fig. 1.

The Os Cuneiforme, situated on the inner side of the former Bone. Tab. XXIV, Fig. 1.

The auterior Edge, thin, in form of a wedge. The upper and outer Surface, articulated with the Os Lunare. Tab. XXIV. Fig. 1.

The upper part forms a slight Convexity, which is included in the Joint of the Wrist. Here the moveable Cartilage already taken notice of, is interposed hetween this Bone and the Ulna.

The under and outer Surface, articulated with the Os Uncifornie. Tab. XXIV. Fig. 1.

The auterior and inner Surface, forming a slight conrexity for its articulation with the Os Pisiforme, Tab.

XXII, Fig. 7. a

The three first Bones of the Carpus form an oval con-vexity, by which they are articulated with the lower end of the Bones of the Fore-arm; the Ossa Scaphoides and Lunare being received in the Socket formed by the Radius, while the Os Cunciforme is opposed to the Cartila-ginous end of the Ulna. Tab. XXIV. Fig. 1.

By this kind of articulation, extensive motion is allow ed forwards and backwards, and to each side; and by a succession of these motions, the Hand is made to move in a circle; but no motion is performed by the Carpus round its own axis, except what it has along with the Radius in the Supination and Propation of the Hand.

The Os Pisiforme, placed upon the anterior and inner Surface of the Os Cuneiforme, forming a Prominence which is readily felt in the Wrist, and which gives at tachment to strong Tendons and Ligaments, particularly to part of the Ligamentum Carpi Annulare. Tab. XXII. Fig. 8. Tab. XXIV, Fig. 1. D.

The Os TRAPEZIUM, named from the four unequal-Edges of its posterior Surface.

The Situation of this Bone, at the Root of the Meta-carpal Bone of the Thumb. Tah. XXIV. Fig. 1. A. The upper part of the Bone, forming a smooth Pit, to be articulated with the Os Scaphoides. Tab. XXIV. The inner side hollow, and articulated with the Os

Trapezoides. Tab. XXIV The under Surface, forming a Pulley, on which the

Metacarpal Bone of the Thumb moves. Tab. XXXI.

The anterior Surface, sending out a Process, which is prominent in the Palm, and marked by the Transverse Ligament of the Wrist, by the Flexor Carpi Radialis, and Flexors of the Thumb. Tab. XXII. Fig. 9. b.

The Os TRAPEZOIDES, so named from its being some what like the former Bone, though considerably smaller. Tab. XXII. Fig. 10.

The Situation of the Os Trapeznides, at the inset side of the Os Trapeznim. Tab. XXIV. Fig. 1. E. The upper Surface, hollow where it joins the Os Scaphoides. Tab. XXXI. Fig. 1. m.

The outer Surface conver, and articulated with the Trapezium. Tab. XXXI. Fig. 5. m.

The inner Surface, articulated with the Os Magnum. Tab. XXIV. Fig. 1, E.

The under Surface, formed into a sort of Pulley, to be articulated with the Metacarpal Bone of the Forefinger. Tab. XXIV. Fig. 1. E.

The Os MAGNUM, or CAPITATUM, or largest Bone of the Carpus, placed at the inner side of the former Bone

and consisting of four oblong sides, with a round head, and triangular under end. Tab. XXIV. Fig. 1. F.

The Head or Ball of the Bone, received into the hollow Surfaces of the Scaphoides and Lunare, like ball and socket. Tab. XXIV. Fig. 1.

The under part of the outer side, joined to the Os Trapezoides. Tab. XXIV. The inner side, to the Os Uneiforme. Tab. XXIV. The under end, opposed to the Metacarpal Boue of the Middle Finger. Tab. XXIV.

The Os Unerforme, placed in the under and inner part of the Wrist. Tab. XXIV. Fig. 1. G.

The upper and inner Surface, articulated with the Os Cunciforme. Tab. XXIV The outer Surface, articulated with the Os Magnum.

Tab. XXIV.

The inferior Surface, opposed to the Metaearpal Bones of the Ring and Little Fingers. Tab. XXIV

The anterior Surface, sending out the Unciform Process, which gives name to the Bone. Tab. XXIV.

Fig. 1. H.
The Unciform Process, curved for the passage of the Flexor Muscles of the Fingers. Tab. XXIV.

The Articulation between the first and second Row of Carpal Bones allows motion to each side, but chiefly forwards and backwards: the motion, however, is less ex-

tensive than between the Fore-arm and Wrist The Connection between the different Bones in each Row, is of such a nature as not to admit of any sensible

The Substance of the Carpal Bones is spongy, but strong in proportion to their size.

The Carpus serves as a Base to the Hand, protects its Tendons, &c. and affords free and extensive motion In the Fœtus, the Bones of the Carpus are in a Cartilaginous state.

## METACARPUS.

Consisting of four Bones for supporting the Fingers, and one for the Thumb. Tab. XXIV. Fig. I. K, &c. I.

Metacarpal Bones of the Fingers and Thumb.

Their Bodies long and round, behind, forming part of the convexity of the Hand; before, giving hollowness to the Palm. Tab. XXXII. Fig. 5. 4.

The extremities of these Bones, considerably larger than their Bodies, in consequence of which they leave

spaces for the Interossei. Tab. XXXII.

The upper Ends or Bases, flat, where they are articulated with the Bones of the Carpus. Tab. XXIV.

Round the Edges of the Cartilaginous Surfaces, at the

upper ends, the Depressions where the Capsular Ligaats are fixed. . 'Tab. XXIV. Fig. 1.

The sides of the upper ends flat, and drawu close to-

gether, where they are articulated with each other. Tab.

Their Bodies diverging towards their under extremities, by which they regulate the motions of the Fingers.

Tab. XXXII. A Ridge at the upper and back part of their Bodies, with a Depression on each side of it, formed by the Interessei. Tab. XXXII. Fig. 5.

The under and back part of their Bodies, made flat

by the motion of the Tendons of the Extensors of the Fingers. Tab. XXXII. Fig. 5.

The anterior Surface of their Bodies concave, and rendered flat at the sides, by the Interessei Muscles. Tab. XXIV. Fig. I.

The lower Ends, or Heads, formed into Balls, which are flattened upon their sides by their motions upon each other. Tab. XXIV. Fig. I.

At the fore part of each side of the Heads, a little Prominence, for the attachment of the Ligaments which bx these Bones to each other. Tab. XXIV. Fig. 1.

Round the Heads, a Depression, for the insertion of the Capsular Ligaments. Tab. XXIV. Fig. 1. The Metacarpal Bones are joined by their Bases to the

Carpus, and to each other by nearly plain Surfaces; in consequence of which, and the strength of their connecting Ligameots, their motions here are inconsiderable. The Base of the Metacarpal Bone of the Fore-finger,

opposed to, and corresponding with, the Os Trapezoides, and partly with the Os Trapczium. Tab. XXXII. Fig. 5.

The inner part of the Base, forming a Ridge, which is articulated with the Os Magnum, and with the next

Metacarpal Bone. Tab. XXIV. Fig. 1.

The connection of the Base is so firm, that it bas little or no motion.

The Metacarpal Bone of the Mid-finger, commonly the second in length. Tab. XXIV. Fig. 1. The Base of the Bone generally slanting inwards and

downwards, opposed to the Os Magnum. Tab. XXXII. Fig. 5. The outer and back part of the Base projecting, and

forming a sort of Process, the external Surface of which is connected with the Ridge of the former Bone. Tab. XXXII. Fig. 5.

The motion of this Bone is little more than that of the former one. The Metacarpal Bone of the Ring-finger, shorter than the former Bone. Tab. XXXII. Fig. 5.

Its Base, semicircular where it is opposed to the Os

Uneiforme. Tab. XXXII. Fig. 5. The motion is something greater than that of the for-

mer Bone. The Metacarpol Bone of the Little Finger, the small-

est of the four. Tab. XXIV. Fig. I. The Base, which slants downwards and outwards, oposed to the under and inner part of the Os Unciforme.

Tab. XXXII. Fig. 4.

The

The inner part of the Base destitute of a smooth surface, in the fore than in the back part. not being contiguous to any other Bone.

From the nature of the Joint, the looseness of the Ligaments, and from the existence of a proper Muscle here, this Bone possesses a larger share of motion than

any of the rest. The Metacarpal Bone of the Thumb, having the goneral resemblance of those of the Fingers, but differing from them in being placed obliquely with respect to them, and in some measure opposing them. Tab. XXIV. Fig. I. I.

This Bone thicker and stronger, but shorter than those

of the Fingers. Tab. XXIV. Fig. I.

The Base of this Bone articulated with the Pulley formed by the Trapezium, the Bone appearing to admit of flexiou and extension only; but, from the looseness of the Ligaments, enjoying the same kind of motion with Joints formed after the manner of Ball and Socket. Tah. XXIV. Fig. 1.

The inferior extremity of the Bone, considerably flatter than those of the other Metacarpal Bones.

XXIV.

## Bones of the FINGERS and THUMB.

The Fingers, composed each of three Bones; the three Rows of Bones, taken transversely, termed Phalanges. Tab. XXIV. N, &c. O, &c. P, &c.

The different Phalanges, tapering a little as they deseend, and their Bases larger than their inferior extremi-ties. Tab. XXIV.

The posterior Surfaces conver, and covered chiefly by the Tendinous Expansions of the Extensors of the Finflatness of the Joint, however, and strength of the lategers. Tab. XXXII. Fig. 5

Their anterior Surfaces flat, and in some parts con-care, for lodging the Tendons of the Flexor Muscles. Tab. XXXII, Fig. 4.

Ridges at the sides of their anterior Surfaces, for the attachment of the retaining Ligaments of the Tendons of the Flexor Muscles. Tab. XXIV. Fig. 1.

The first Phalanx longer than the second, and the second than the third. Tab. XXIV. Fig. I.

The Bases of the first Phalanx formed into Sockets, to receive the Balls of the Metacarpal Bones, and to allow motion to all sides. Tab. XXIV. Fig. I. i. i.

The lower ends of this Phalanx, consisting of lateral Prominences, and middle Cavities or Pulleys, the Cartilaginous Surfaces of which reach considerably farther up Tab. XXXII. Fig.

The Bases of the second Phalanx, with lateral Cavitics and middle Ridges, corresponding with the Pulleys of the first Phalanx, and admitting of flexion and extension only. Tab. XXIV. Fig. 1. m, m.

The lower ends of this Phalanx, similar to those of the first. Tab. XXIV. Fig. 1. n, n. The Bases of the third Phalanx, like those of the se-

cond, and the motions also similar. 'Tab. XXIV. Fig. I. P, p.
The under cuds of the third Phalanx rough, where the

Pulpy, Vascular, and Nervous Substance of the points of the Fingers is situated. Tab. XXIV. Fig. I. The peculiarities of the Bones of the Fingers consist

only in their size. The Bones of the Mid-finger the largest and longest

Tab. XXIV. Fig. I. Those of the Ring-finger next in length. Tab. XXIV. The Bones of the Fore-finger next to those of the

Ring-finger in length, and of the Mid-finger in thickness. Tab. XXIV Those of the Fourth Finger the smallest. Tab. XXIV.

The Thumb consisting of only two Bones. Tab. XXIV. Fig. I. L, M.

The first Bone like the Bones of the first Phalanz of the Fingers, but thicker and stronger. Tab. XXIV. The Cavity at the Base of the Bone, longer from one side to the other, and shallower than the Cavities of the corresponding Bones of the Fingers, but, like them, forming a Socket for the Metacarpal Bone. From the

ral Ligaments, the motions here are confined to flexion and extension only. Tab. XXIV.

The lower end of the first Bone of the Thumh like that

of the first of the Fingers. Tah. XXIV.

The second Bone of the Thumb like the third of the Fingers, but broader. Tab. XXIV.

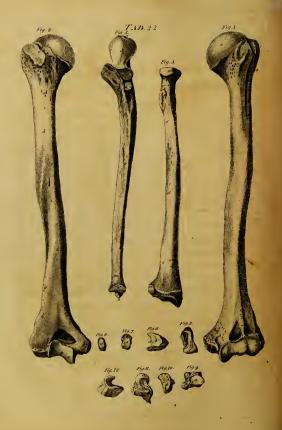
The Base of this Bone, like that of the second and third Bones of the Fingers, and like their Joints also,

admitting of flexion and extension only The Substance of the Bones of the Metacarpus, and

of those of the Fingers, is the same with that of the

Long Bones. In the Fuetus, both extremities of the Metacarpai Bones of the first and second, and upper ends of the third Phalanx, are in a state of Cartilage.





### XXII. TABLE

Represents the Bones of the Upper Arm, Fore Arm, and Carpus of the Left Side.

### FIG. 1.

### The Fore Part of the Os HUMERI.

a, The middle of the hall of the os humeri.

- b, b, The cervix of the os humeri. c, Part of the large tuberosity.
- d, The small tuberosity.
- e, e, The groove, or sinuosity which receives the long head of the hiceps. f, f, The orifices of several conduits, for the insertion of
- the fibres of the capsular ligament, and for the passage of vessels into the bone.
- g, The projecting line which answers to the large tube-
- h. Another ridge which answers to the small tuberosity. Muscular prints which give insertion to the deltoides
- k, k, The long line which occupies the whole length of the os humeri.
- I, The internal condyle. m, m, m, The three facets, or muscular prints of this
- condyle. n, Part of the external condyle.
- The head, or rounded eminence, which is articulated
- with the radius. p, p, Two other articular eminences which correspond to the ulna.
- q, The articular cavity, which receives the middle pro-
- cess of the ulna. r, Another articular cavity, which facilitates the motion
- of the radius. s, The cavity which receives the coronoid process of the ulna, upon bending the fore-arm.

## FIG. 2.

# The Posterior Part of the same Bone.

- o, The posterior part of the head of the os humeri.
- b. b. The cervix of this bone. c, c, c, The muscular prints of the large tuberosity.
- d, d, The orifices of different conduits which open into the substance of the bone.
- e, e, The superficial triangular cavity, which gives attachment to muscles.
- f, The orifice of the passage which communicates with the inner cavity of the os humeri.

- g, g, The projecting line which answers to the external
- condyle. h, A part of the posterior surface, which is bounded by the external surface.
- i, A second posterior surface, which also answers to the exteroal surface.
- k, k, A third surface, which is blended superiorly with the external surface.
- 1. The external condyle.
- m, Several muscular prints on the posterior part of this condyle. n, A portion of the eminence of the os humeri, which is
- articulated with the radius. o, o, The two eminences of the os humeri, which are ar-
- ticulated with the ulna
- p, The internal condyle of the os humeri. q, The articular cavity of the os humeri, which facili-
- tates the motion of the ulna.
- r, The posterior cavity, which receives the olecranon upon the extension of the fore-arm.

### FIG. 3.

- The Inner, and Part of the Outer Surface of the RADIUS.
- a, The semicircular eminence of the radius, which islodged in the sigmoid cavity of the ulna.
- b, The cervix of the radius.
  c, The tuberosity of the radius.
- d, d, The crest, or osseous line.
- f, f, A portion of the anterior surface.
  g, The small conduit which opens into the inner cavity of the bone.
- h. An osseous line, or muscular print.
- i. A small fossa at the inferior extremity of the radius.
- k, The styloid process. I, The oval cavity which receives the first of the carpal
- bones. m, The semilunar cavity, which receives the articular process of the ulna.

### FIG. 4.

- The Outer and somewhat Posterior Surface of the ULNA.
- a, The olecranon, a little hollow in the middle. b, The coronoid process,

c, c, c, Several muscular and ligamentous impressions.
d, The middle, or articular process of the ulua.

e, e, The articular, or great semilunar cavity.

g, g, g, An osseous line, extending the whole length of the ulna.

 $h_1$  A muscular print below the sigmoid cavity.  $i_2$ ,  $i_3$ ,  $i_4$  The inner surface of the ulna.  $k_1$ ,  $k_2$  The outer surface.

I, A small conduit which communicates with the cavity

of the bone. m, A small fossa, or muscular print of the inferior extre-

mity of the ulna. 24 A semicircular eminence articulated with the under

end of the radius.

a, The styloid process.
p, A portion of the cavity which answers to the carpus.

### FIG. 5.

The Convex or External Surface of the Os Scarholdes, viewed in a position most favourable for shewing its NAVICULAR CAVITY.

a, The upper part of the os scaphoides, hy which it is articulated with the os lunare.

b, The navicular cavity, which receives the head of the large carpal bone.
c, The middle rough part, to which several ligaments are

attached. d, The under end, hy which it is articulated with the trapezium and trapezoides.

### FIG. 6.

The Outer Surface of the Os Lunare, the under Part

a, The articular facet of the os lunare, excavated in form of a crescent, by which it is joined to the os sca-

phoides.

The large lunar cavity, by which this hone is articulated with a considerable portion of the large carpal

c. Part of the inferior surface, by which it is joined to the os cunciforme.

### FIG. 7.

The Inner Surface of the Os CUNEIFORME.

h, b, Different ligamentous impressions.

F1G. 8. OS PISIFORME

a, The articular surface by which it is connected with the os cuneiforme.

a, a, The two small surfaces on the under part of the

b, Part of the oblique process. c, Part of the sinuosi

d, The small surface by which it is joined with the first metacarpal hone.

## FIG. 10.

The different Surfaces of the Os TRAPEZOIDES.

a, Part of the external surface. b. The inferior surface.

c, The anterior surface, hy which it is joined with the

d, Part of the superior surface, hy which it is joined with the scaphoides. e, Part of the print of this hone, which is turned to-

wards the palm.

### FIG. 11.

The External and somewhat Anterior Surface of the Os MAGNUM. a, The head of this bone incrusted with a smooth carti-

lage, for facilitating the motions of its articulation with the scaphoides and lunare. b, The cervix of this hone.

The outer surface d, Part of its anterior surface.

e, Its under edge, by which it is joined with the second metacarpal hone.

## FIG. 12.

The Posterior Part of the Os Unciforne

a, The upper part, which answers to the os lunare.
b, The inner surface, where there is a sinussyy for the passage of several tendons.

c, The unciform process, on which there is a sort of groove, which also facilitates the passage of tendons.

d, The posterior and superior surface, by which it is joined to the os cunciforme.

a, The small surface, which is articulated with the os e, e, The inferior surface, divided by a small superficial

line, the larger part of which corresponds to the thirdand the other to the last metacarpal bone.





## TABLE XXIII.

Represents the different Bones of the EXTREMITIES, excepting those of the THUME and FINGERS.

posed of

H, The cervix of the radius.

1, The tuberosity for the insertion of the biceps.

K, The triangular body of the radius.

L, The interstice between the radius and ulna, fille the chiefly with the interesseous ligament.

M, The inferior broad extremity of the radius, articulated with the carpus and ulna.

N, N, The anterior concave surface of the carpus, com-

The os scaphoides, The os lunare,

The os cuneiforme,

The os trapezium, The os trapezoides, The os magnum, and

FIG. 1.

An Inside View of the Bones of the SHOULDER and

C, The notch of the scapula, which transmits vessels and

F, The anterior angle, which contains the glenoid ca-

K, The posterior end of the clavicle, fixed to the acro-

A, The venter, or anterior cavity of the scapula. B, The acromion.

D, D, The inferior costa. E, E, The base.

G, The coracoid process.
H, The posterior angle.
I, The inferior angle.

mion scapulæ.	O, &cc. The metacarpal boues of the thumb and fingers.
The sternal extremity.	O, acc. The metacarpa bodes of the thumb and imgers.
I, The ball of the os humeri, articulated with the gle-	F1G. 3.
noid cavity of the scapula.	F I G. 5.
The cervix.	The Outer and Fore Part of the Os Femoris and
The inner, or small tuberosity.	PATELLA.
The round body.	
The interval condyle.	A, The ball of the thigh-bone.
The trochlea.	B. The cervix of this bone.
	C, The trochanter major.
FIG. 2.	D. The trochanter minor, which ought not to be seen in
TC - CO - C - C - C - C - C - C - C - C -	this view of the bone.
View of the Anterior and Inner SURVACE of the Bones	E. The curved body of the bone.
of the Fore-Arm, to show their Articulation.	F. The external condyle.
. The great sigmoid cavity of the ulna, which receives	G. The cartilaginous surface on which the tibia moves.
the trochica of the os humeri.	H, The trochlea, which receives the patella.
the trochica of the os namers.	I, The patella.
The coronoid process.	-7 - 1
, I he coronold process.	FIG. 4.
	170 00 01 170 70 100 70
the interior extremity, articulated with the carpus	A View of the Outer and Fore Part of the Bones of the
by the intervention of a cartilage. , 'The styloid process.	LEC and FOOT, in their connected state.
	4 (F) 1 1 C (1 (F))
, The head of the radius, occupying the semilunar ca-	A, The head of the tibia.
vity of the ulna.	A, The head of the tible.  B, The tubercle of this bone.  C, The
105. 1.	t , 100

- C, The hody of the tihia, D, The lower extremity, at the inner side of which is
- the malleolus internus. E, The head of the fibuls, joined to the outer part of the tibia.
- F, The irregular surface of the body of the fibula.
- G, The lower end, or malleolus externus, joined to the outer side of the tibia and tarsus.
- H, The space between the tibia and fibula, filled with
- the interesseous ligament.
- I to P, The tarsus, composed of, I, The astragalus. K, The os calcis.

internum.

uniterous.

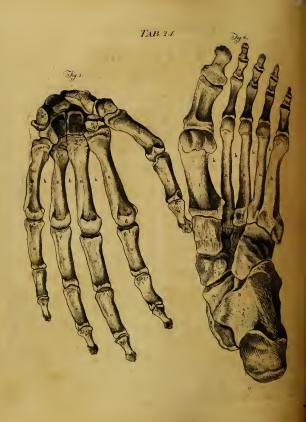
O. The occupiforms externum, and,
O. The occupiforms externum, and,
Q. &c. The ordersprace boxes of the toes,
Q. &c. The ordersprace boxes of the toes,
Q. &c. The first planks of the boars of the small toes,
S. &c. The strong planks
U. The first boxe of the great toe.
U. The first boxe of the great toe.
W, The second boxe of the great toe.

L, The projection of this hone forming the heel.

M, The os naviculare.
N, The os cunciforme medium, on the inner side of

which is seen a small part of the os cuneiforme





### TABLE XXIV.

REPRESENTS the Bones of the HAND and FOOT.

FIG. 1.

A View of the Inner or Palm Side of the Bones of the LEFT HAND.

B, The os scaphoides. C, The os luna

G, G, The os cunciforme.

D, The os pisiforme.

A, The os trapezium.

E, The os trapezoides, or pyramidale,

The os magnum. " H, The os unciforme.

H, The unciform process.

I, The metacarpal bone of the thumb.

a, The base of this bone, sending inwards a coronoid

b. The inferior extremity.

K, &c. The metacarpal bones of the fingers.

k, k, &c. The interstices occupied by the interesseous

c, c, &c. The upper ends irregular, where they are join-

ed to the carpus, and to each other.
d, d, The under ends, in form of balls, covered with cartilage.

L. The first bone of the thumb, concave, for lodging the flexor longus.

e, The base, forming a glenoid cavity for the articulation with the metacarpal bone.

f, The lower end, with two lateral protuberances, and a middle cavity

M, The second bone of the thumb. g, The base, with two lateral cavities, and a middle protuberance corresponding to the end of the former bone.

h, The under and inner side, rough and irregular, where the soft substance at the end of the thumb is placed.

N, N, &c. The first phalanx of the bones of the fingers, flat like the surface marked L.

i, i, The base, with a cavity similar to c, but rounder. I, I, The inferior extremity, similar to f.

O, &c. The second phalanx, hollow like the first.

m, m, The base, similar to g.
n, n, The under and inner surface, like f. P, q, &c. like g, h.

FIG. 2.

A View of the Under Side of the Bones of the LEFT FOOT.

A, A, The astragalus.

a, The upper and inner surface of the astragalus.
B, The body of the os calcis.
C, That portion of the os calcis which forms the lower part of the heel.
b, That part to which the tendo Achillis is fixed.

c. The large shruosity of this bone, which lodges the principal muscles, tendons, vessels, and nerves of the sole.

D, The os naviculare.

E, The os cuneiforme internum.

F, The os cuneiforme medium. G, The os cunciforme externum.

H, The os cuboides.

d, The fossa of the os cuboides, for lodging the tendon of the peroneus longus. I. The metatarsal bone of the great toe.

K, &c. The metatarsal bones of the small toes. b, &c. Interstices occupied by the interesseous muscles.

The first bone of the great toe.

M, The second bone of the great toe.

N, &c. The bones of the first phalanx of the toes.
O, &c. The bones of the second phalanx of the toes.
P, &c. The bones of the third phalanx of the toes.

### EXTREMITIES INFERIOR

OBSERVE here, Each of the Inferior Extremities, composed of the Thigh, Leg, and Foot.

## The Thigh consisting of a single Bone, viz.

### Os FEMORIS.

The Os Femoris, the longest Bone of the Body, and thickest and strongest of the Cylindrical Bones.

The Situation of the Bone, at the under and outer part of the Pelvis. Tah. XXIX.

The oblique situation of the body of the Bone; the under end being considerably neaver its fellow ou the other side than the upper one is, which is favourable for the passages at the bottom of the Pelvis, for the origin of Muscles, and for walking. Tab. I.

The Ball or Head of the Thigh-bone, smooth, covered with Cartilage, and forming almost two-thirds of a Sphere, which is received into the deep Socket formed by the Acetabulum of the Os Innominatum, Tab. XXV.

Fig. 1. a. Tab. XX.

A rough Pit at the inner part of the Ball, for the attachment of the Ligamentum Rotundum, which is fixed by its other end to the hottom of the Acetahulum. Tab.

XXV. Fig. 1. b.

The Cervix or Neck, much longer than that of any other Bone, passing obliquely downwards and outwards from the Ball, to allow the free motion of the Body of

the Bone in different directions. Tah. XXV.

Numerous Holes in the Cervix, for the insertion of the Fibres of the Ligament reflected from the Capsular one.

Tab. XXV. XXIX.

The Trachanter Major, placed at the outer part of the Neck, and upper end of the Body of the Bone, for the insertion of the Extensor, Abductor, and Rotator Muscles of the Thigh. Tab. XXV. Fig. 1. c.

Two rough Surfaces upon the upper and fore part of the large Trochenter, for the insertion of the Glutei, Me-dius and Minimus. Tab. XXV. Fig. 1. f.

A Cavity, placed at the inner side of the Root of the large Trochanter, for the insertion of the Rotator Muscles of the Thigh.

The Trochunter Minor, at the under and inner part

of the Cervix, for the insertion of the Flexor Muscles of the Thigh. Tab. XXV. Fig. 1. h. The Trochanter Minor is small and pointed, and in

the Subject is so much covered by Muscles, as to be out of the reach of the Finger.

A rough Line on the fore part of the Bone, extending

obliquely between the two Trochanters, for the insertion of the Capsular Ligament. Tab. XXV. Fig. 1. g, g. A rough Line between the Trochanters, on the back

part of the Bone, for the insertion of the Capoular Lieu ment, and of the Quadratus Femoris. Tab. XXV. Fig. 2. k, k.
The Body of the Thigh-bone, bent forwards, and a

little outwards, of a roundish form above, but somewhat triangular about its middle. Tab. XXIII. Tab. XXV.

The fore part of the Bone, flat, where it is covered by the Crureus. Tab. I. A.

The Sides of the Bone flattened at its middle and

Tab. XXV. Fig. 3 lower part by the two Vasti. The Linea Aspera, or Ragged Ridge, on the hack part of the Bone, extending from the Trochanters, but chiefly from the large one, to the lower part of the Bone, and giving attachment to numerous Muscles which pass from the Pelvis to the Thigh, or from the Thigh to the

Tab. XXV. The Linea Aspera is forked at hoth its extremities; extending above to the Trochanters, while below, the two lines into which it divides terminate in the Condyles.

Tab. XXV. The Canal for the Medullary Vessels, slanting up wards, a little below the middle height of the posterior part of the Bone. Tab. XXV. Fig. 2. q.

The under and back part of the Bone flat, where the

Popliteal Vessels and Nerves are placed.

The lower End of the Bone becoming gradually enlarged, and perforated by many Holes, for the insertion of the Capoulas Ligament of the Knee, and for the pas-sage of the Nutritious Vessels of the Bone. Tab. XXV.

The lower End, also marked by the insertion of seve-

Tab. XXV ral Musclez. The Cartilaginous Trochlea at the under and fore part

of the Bone, placed obliquely, with its outer Surface larger and higher than its inner one, to be adapted to the Patella, which moves upon it. Tab. NXV. The external and internal Condyles, continued back

from the Trochlea, and also covered with Cartilage, for the motion of the Tibia. Tab. XXV.

The internal Condyle larger and deeper than the ex-

ternal, to compensate for the obliquity of the Thig to give less obliquity to the Leg. Tab. XXV. Fig. A Notch between the back part of the Condyles, for lodging the Popliteal Vessels and Nerves. Tab. XXV.

A semilunar rough Notch, deeper and lower than the former one, for the attachment of the Crucial or internal Ligaments of the Knee. Tab. XXV, Fig. 2. y

The Thigh-bone is articulated above with the Os Innominatum, which allows the free motion of the Body of the I'one in all directions. It is restrained, however, in its notions outwards by the Ligamentum Rotundum, and by the high Brim of the Acetabulum.

The Head and Neck of the Bone can move round

their own axis, though its Body possesses little rotatory motion. In consequence of the oblique situation of the Head and Neck when the Ball rolls, the body of the Bone is only brought forwards or backwards.

In the Foctus, the different Processes of the Bone are

Cartilaginous, and afterwards form large Epiphyses. Tab. XXVII. Tab. XXXII. Fig. 15.

The inner substance of this Bone, like that of other loug Bones, consists of a fibrous reticular substance in the middle, and lamellated Cancelli at the extremities. The body of the Bone has remarkably thick and strong solid sides, but these, towards the ends, become almost as thin as a piece of paper.

Composed of two Bones, the Tibia and Fibula,-to which may be added the Patella.

### TIBIA.

The Tibia, situated at the inner part of the Leg.

The upper End of the Tibia, forming a large Head, and that divided on its upper Surface into two superficial Cavities, for receiving the Cartilaginous part of the Coadyles of the Thigh-Bone. Tab. XXV. Fig. 3. Tab.

XXXII. Fig. 7. A rough Protuberance projecting between the articulating Cavities, and received in the space between the Condyles. It is pitted on its fore and back parts, for the insertion of the acterior and posterior Crucial Ligaments.

Tab. XXXI. Fig. 17. No. 4.

The articulating Surfaces at the upper end of the Tibia, are rendered deeper in the Subject by the addition of two semilunar Cartilages placed upon their edges. Tab. XXXII. Fig. 7. c, c

The circumference of the Head of the Bone, rough and porous, for the insertion of the Capsular Ligameot.

Tab. XXV. Fig. 3. h, h.

A Tubercle at the upper and fore part of the Bone, for the insertion of the lower Tendon or Ligament of the Patella. Tab. XXV. Fig. 3. uppermost f. A Cartilaginous Surface under the outer Edge of the

Head of the Bone, for the articulation with the upper end of the Fibula. Tab. XXV. Tab. XXIII. Fig. 4. E. The Body of the Bone, of a triangular form, with the

sharpest Angle placed anteriorly. Tab. XXV. Fig. 3. a.

The anterior Angle, called Spine or Shin, a little waved, and extending from the Tubercle to the inner

Ankle, Tab. XXV. Fig. 3. b, a, b.

The anterior and inner Surface of the Bone smooth, being covered with skin only. Tab. XXV. Fig. 3. c, c. The anterior and outer Surface, hollowed by one of the Flexor Muscles of the Foot, and by the long Exten-sors of the Toes. Tab. XXV. Fig. 3. d, d.

The Angle at the outer and back part of the Bonc, giving attachment to the Interesseous Ligament. Tab.

LI. Fig. 1. 2.

The middle of the posterior Surface, also hollowed by Muscles which assist in extending the Foot, and in bending the Toes. 'I ab. XXAI. Fig. 17. No. 5.

A Ridge extending obliquely downwards from the upper and outer part of the Boue, posteriorly, to its inner Angle, and giving origin to part of the Muscles which extend the Foot and bend the Toes. Tab. ALIII. Fig. 2.

A flat Surface above the Ridge, indicating the situa-tion of the Popliteus. Tab. XLIII. Fig. 2, under the

head of the Tibia.

The Canal for the Medullary Vessels, slanting downwards at the inner and back part of the Bone, a little above its middle height. Tab. II. above B.

The under end of the Tibia smaller than the upper one, and its interior Surface hollow, and covered with Cartilage, for the Articulation with the Astragalus. Tab. XXV. Fig. 3.

The Malleolns Internus, or inner Ankle, produced from the inner and fore part of the under end, and covered also with Cartilage where the Astragalus plays. Tab-

XXV. Fig. 3. r. m. A Pit in the point of the Malleolus Internus, for the attachment of the internal lateral Ligament, and a Groove behind, where the Tendon of the Tibialis Posticus is placed. Tab. XXV. Fig. 3. m.

The semicircular Cavity, at the under and outer side of the Tibia, for receiving the under end of the Fibula.

Tab. XXV. Fig. 3. q. Tab. XXIII. Fig. 4. G. Round the edge of the articulating Cavity, the Bone,

marked by the insertion of the Capsular Ligament. Tab. XXIII, Fig. 4. P.
The Tibia has a strong external Table, with a con-

siderable quantity of spongy substance.

The Articulation of the upper end of the Tibia with the Os Femoris, is of such a nature as to allow flexion to a great degree, but the numerous Ligaments fixed here prevent it from being extended beyond a straight line with the Thigh; and then there is no rotation nor lateral motion, though, when the Joint is bent, the Ligaments are so much relaxed, that the Leg may be made in a soall degree to roll, or to turn a little to either side.

The Extremities of the Tibia are Cartilaginous in the Feetus, and become afterwards Epiphyses. Tab. XXVII.

### FIBULA.

The Fibula, placed at the outer side of the Tibia, and ' by much the smaller of the two Booes, being the most siender Bone, in proportion to its leogth, of any in the Body. Tab. XXIX. Fig. 10. 7.

The upper end of the Fibula, formed into a large Head, with a Superficial smooth Cavity towards its incer side, to be articulated with the Tibia, where it is tied by Ligaments of such strength as to allow very little motion. Tab. XXV. Fig. 4. Tab. XXIII. Fig. 4.

The Head of the Fibula, irregular and rough externally, for the insertion of the Biceps Flexor Cruris, and of the external lateral Ligament of the Knee. Tab.

XXIII. Fig. 4.

The Body of the Bone heat a little inwards and backwards, and unequally triangular, with the surfaces between the Angles marked by the Muscles which arise from it, or are placed upon it. Tab. XXV. Fig. 4. Tab. XXIII. Fig. 4.

A Ridge at the inner side of the Fibula, opposed to one at the outer part of the Tibia, for the insertion of the Interoseous Ligament. Tab. XXIII. Fig. 4.

A Canal on the back part of the Bone, slanting obliquely downwards, a little above its middle, for the passage of the Medullary Yessels. Tab. II. above C.

The under End of the Fibula broad and flat, to be received by the semilmar Cavity of the Tibia. Tab.

XXIII. Fig. 4. above G.

The under end of the Bone forming the Madleohus Externus, or outer Ankle, which is lower and farther back than the inner Ankle, the obliquity of the two Malleoli in some measure corresponding with the obliquity of the Foot. Tab. II. m.

A convex smooth Surface on the inner side of the Malleolus Externus, opposed to the outer side of the Astragalus, which moves upon it. Tab. XXV. Fig. 4. 7.

The Coronoid Process, sent down from the Malleolus Externus, from which Ligaments go to the Bones at the outer side of the Foot.

A Furrow upon the back part of the Malleolus Externus, for lodging the Tendous of the Peronci.

The Fibula being articulated with the Tibia at its superior extremity by almost plain surfaces, and tied to it by strong and short Ligaments, only a very little motion is allowed.

At the under end it is joined so firmly by strong Ligaments, that no sensible motion appears in the Subject; though in this joint, as in several others, where the Bones are firmly fixed by short Ligaments, there may be an elastic yielding in the living Body.

an clastic yielding in the living Body.

In old people, these two Bones are not unfrequently joined at their under extremities by an union of Sub-

The Fibula affords attachment to Muscles; assists in securing the Articulation of the Foot; adds to the form and strength of the Leg; and, by the head of the Bone being fixed to that of the Tibia, it widens the space for the lateroscopus Ligament

The Substance of the Tibia and Fibula is like that in other long Bones.

In the Forus, the extremities of the Fibula are Cartilaginous, and afterwards become Epiphyses, previous to being united to the Body of the Bone. Tab. XXVII.

### PATELLA OF ROTULA.

The Patella, placed at the fore part of the Joint of the Knee, and in some respects hearing the same relation to the Tibia as the Olecranon does to the Ulna. Tab. I. B.

The shape of the Patella, triangular and flat, or of the figure of a Heart as painted upon playing-cards, and having its point downwards. Tab. XXVI. Fig. 1. The anterior Surface of the Bone, convex, and perfo-

The anterior Surface of the Bone, convex, and perforated hy numerous Holes, for the insertion of Tendons and Ligaments which cover it. Tab. XXVI. Fig. 1.

The posterior Surface, which corresponds with the Trochlea of the Os Femoria, smooth, covered with Cartilage, and divided by a longitudinal prominent Ridge into two unequal-sized Cavities, of which the external is the largest, like the Trochlea, to which it is adapted. Tab. X.V.I. Fig. 2.

The circumference of the articular Surface, marked by a rough Line, into which the Capsular Ligament of the Joint is fixed. Tab. XXVI. Fig. 2. a, a.

The Base, or upper part of the Bone, horizontal, and marked by the insertion of the Tendons of the Extensors of the Leg. Tab. XXVI. Fig. 1. a.

The back part of the Apex rough and depressed, for

The back part of the Apex rough and depressed, for the attachment of the Ligament which passes from the Patella to the Tubercle of the Tibia. Tab. XXVI, Fig. 2. d.

The Ligaments of the Patella allow it to be mored upwards and downwards; and when the Leg is extended, they admit of its motion to either side, or to be rolled. When the Leg is extended, the Patella is lodged in the Trochlea of the Os Femoria; when the Lamb is

bent, the Patella is pulled down by the Tibia, and lodged in a hollow at the fore part of the Knee.

The Patella has a thin, though firm external Table. Its internal Substance is cellular, but the Cells are small, and have so wassen Osseous Matter cumployed in their formation, as to give the Bone a considerable degree of

strength.

The structure of this Bone, the tonghness of the Liguments which cover it, and the free motion it is allowed, are found to enable it better to resist any common
force applied to it, than if it had been a process continued from the Tibia, as the Olecranon is from the
Ulna.

The Patella defends the fore part of the Knee, increases the Angle of insertion of the Muscles fixed to it, and serves as a pulley or lever, by enabling the Muscles to act with greater advantage in extending the Leg.

It is entirely Cartilaginous at Birth, and is later in ossifying than most of the Epiphyses.

### FOOT

Composed of Tarsus, Metatarsus, and Toes.

### TARSUS.

Composed of seven Bones, viz. The Astragalus, Os Calcis, Naviculare, Cuboides, Cuneiforme Externum, Cuneiforme Medium, and Cunciforme Internum.

The upper part of the Tarsus convex, the under part concare. In the Concavity, numerons Museles, Vessels, and

Nerves are lodged, belonging to the Sole.

The different Bones of the Tarsus have their rough Surfaces joined together by strong Ligaments, and their parts of articulation covered with Cartilage, in such a manner as to form part of a strong and elastic Arch, for supporting the weight of the Body, and lessening the shock it would otherwise undergo in the different motions it has to sustain.

The Astragalus, placed directly under the Tihia. Tah. XXIII. Fig. 4. 1.

The upper part of the Astragalus, formed into a large Head, resembling a Pulley, which is smooth on its upper

part and sides, to be articulated with the under end of the Leg-bones. Tah. XXVI. Fig. 5. a, a, b.

Each of the Cartilaginous Surfaces of the Head of this

Bone depressed in its middle, to correspond with the parts of the Leg-bones with which it is articulated.

Round the inferior edge of the articulating Surfaces, a rough Fossa for the insertion of the Capsular Liga-ment; and at the sides of this Surface, the Bone marked by the lateral Ligaments. Tah. XXVI. Fig. 5, c, d, f.

The under part of the Bone, consisting of a deep Fossa, or sinnous Cavity, which divides it into an anterior and posterior articulating Surface. Tah. XXVI.

Fig. 7. d. c.

The Fossa in the under Surface, narrower at the inner part of the Bone, and becoming gradually wider as it goes ootwards and forwards.

The posterior articulating Surface, large and concave for its articulation with the upper and middle part of the

The anterior articulating Surface, irregular and conver, where it plays upon two smooth Cavities at the inner and fore part of the Os Calcis, and upon a Cartilainous Ligament extended between the Os Calcis and Os Naviculare. Tab. XXVI. Fig. 7. e, f.

A large oblong smooth Head, at the fore part of the

Bone, for its articulation with the Os Naviculare. Tah. XXVI. Fig. 7. g. Fig. 5. c.

The Joint between the Astragalus and Leg-booes forms a complete Hinge, which, together with the above-mentioned Ligaments, allows the Foot to bend and extend upon the Leg, but admits of no lateral nor rotatory motion, except in the extended state, when there is a little of

In the Foctus, a considerable portion of this Bone is ossified.

The Os CALCIS, the largest of the Tarsal Booes, situated under the Astragalus, and in the back part of the

Foot. Tab. XXVI. Fig. 5. B. A large rough Tuberosity or Knob, projecting behind, to form the Heel, and to make one end of the Arch of the Foot. Tab. XXIII. Fig. 4. L.

A superficial Cavity in the upper and back part of this

Knoh, for the insertion of the Tendo Achillis. XXVI. Fig. 5. above i.

A smooth Convexity on the upper part of the Bone, for its articulation with the under and back part of the Astra-

galus. Tah. XXVI. Fig. 8. u.

A Fossa or Sinuous Cavity at the fore part of this articulating Surface, running forwards and outwards, and giving origin to strong Ligaments which are inserted into the corresponding Fossa of the Astragalus. Tab. XXVI. Fig. 8. c, c.

Two Prominences at the inner and fore part of the Bone, concave, and smooth above, with a Pit between them, for the articulation with the under and fore part of the Astragalus. Tab. XXVI. Fig. 8. b, b.

From the posterior Prominence the Cartilaginous Ligament arises, which is fixed to the Os Naviculare.

A large Cavity or Arch at the inner side of the Bone. hetween the posterior of the two last-meotioned Processes and Projection of the Heel, for lodging the Tendons of the loog Flexors of the Toes, together with the Vessels and Nerves of the Sole. Tab. XXVI. Fig. 5. under B.

A Depression in the external Surface of the Bone, near its fore part, where the Tendon of the Peroncus Longus runs in its way to the Sole. Tab. XXVI. Fig.

The under and back part of the Bone, forming two Prominences, where it gives origio to the Aponeurosis, and to several Muscles of the Sole; and before the Prominences, the Bone concave, where it lodges part of these Muscles. Tab. XXXII. Fig. 10. a, b.

The anterior Surface concave, and somewhat in form of a pulley placed obliquely, for its articulation with the Os Cuboides. Tah. XXIII. Fig. 4. before K. The Os Calcis is articulated with the Astragalus by

Ligaments of such strength, that this part of the Foot, upon which the Body rests, is rendered firm and secure, but enjoys very little motion.

In the Fœtus, a large proportion of this Bone is ossi-fied, and the Projection forming the Heel is afterwards an Epiphysis.

The Os NAVICULARE, situated at the fore part of the Astragalus, and inner part of the Foot. Tab. XXVI.

Fig. 1. C.
The posterior Surface, forming a Cavity somewhat like that of a Boat, for receiving the Head of the Astragalus in the manner of Ball and Socket. Tah. XXVI. Fig.

A Prominence at the inner side of the Bone, for the insertion of Tendons, Muscles, and strong Ligaments, particularly for the Ligament stretched between this Bone and the Os Calcis, for the support of the Astraga-Tab. XXVI. Fig. 5. o.

The fore part of the Bone convey, and divided into three articular Surfaces, for the articulation with the Ossa Cuneiformia, Tab. XXVI. Fig. 5, p, p, p.

Between the O+ Naviculare and Astragalus, the Foot

has its principal lateral and rotatory motions, though each of the other Joints of the Tarsus contributes a little.

The Os CUBOIDES, placed at the fore and outer part of the Tarsus. Tab. XXXII. Fig. 12. i.

The posterior Surface of this Bone smooth, convex at its inner, and concave at its outer part, corresponding with the anterior extremity of the Os Calcis. Tab. XXVI. Fig. 12. b.

The inner side, articulated with the Os Naviculare and external Os Cunciforme. Tab. XXIII. Fig. 4. K. Its under Surface irregular where it gives attachment

to strong Ligaments, and to the Adductor Pollieis. Tab. XXXII. Fig. 10. k

A deep Fossa in the outer and under part of the Bone, for lodging the Tendon of the Peroneus Longus, where it crosses the Sole. Tab. XXXII. Fig. 10. ?.

he anterior Extremity, divided into a small inner, and large outer plain surface, to be articulated with the fourth and fifth Metatarsal Bones. Tab. XXXII. l'ic. 10.

The Three OSSA CUNEIFORMIA, situated at the fore part of the Tarsus, and inner side of the Os Cuboides,

and applied to each other like the stones of an Arch.
Tab. XXXII. Fig. 12, n, o, p.
The upper part of these Bones, flat where they are covered with Ligaments. Tab. XXXII. Fig. 12.

The under part irregular, for the attachment of Muscles and strong Ligaments lying in the Sole.

NXXII. Fig. 10. n, o, p.

The posterior Surface, flat, and covered with Cartilage, to be articulated with the Os Naviculare. Tab.

XXXII. Fig. 12. The anterior Surface, also flat, for the articulation with the Metatarsal Bones. Tab. XXXIV. Fig. 12. The Os Canciforme Externum, or Medium as being

of a middle size between the next two Bones, opposed to the Metatarsal Bone of the Third Toc .- The outer side of this Bone articulated with the Os Cuboides. Tab. XXVI. Fig. 9. Tab. XXXII. Fig. 12. p.

The Os Cuneiforme Medium, or Minimum, the least of the three, and articulated at its outside with the former Bone, and anteriorly with the second Metatarsal Bone. Tab. XXVI. Fig. 10. Tab. XXXII. Fig. 12. o. The Os Cunciforme Internum, or Maximum, the lar-

gest of the Cuneiform Bones, and placed obliquely, with its auterior Surface opposed to the Metatarsal Bone of the Great Toc. Tab. XXVI. Fig. 11. Tab. XXXII.

The sharp Edge of this Bone turned upwards, while that of the other two is in the opposite direction. Tab.

XXXII. Fig. 12. n The Os Naviculare, Os Cuboides, and Ossa Cuneiformin, are almost Cartilaginous at Birth.

### METATARSUS,

ral characters given to the Metaearpal Bones. Tab

XXIII. Fig. 4. Q, Q, &c.
Their bodies long, arched upwards, and tapering towards their anterior extremities. Tab. XXXII. Fig. 12. The extremities, large in proportion to their Bodies, and the posterior much larger than the anterior. Tab

The Bases, flat, or a very little hollowed, to be articulated with the fore part of the Tarsal Bones. Tab. From the flatness of their Bases, and the strength of

XXXII. Fig. 12.

the Ligaments which fix these Bones to those of the Tarsus, very little motion is allowed to this part of the

Round the Bases rough Surfaces for the attachment of Ligaments. Tab. XXIII. Fig. 4

The sides of the Bases flut where they are articulated with each other. Tab. XXXII. Fig. 12.

A Ridge above, and a flat Surface at each side of heir bodies, for the origin of the Interessei Muscles. Tab. XXXII. Fig. 12.

The flat Surfaces turned obliquely outwards, and the obliquity increasing the more externally the Bones are

The anterior Extremities forming Balls, to be articulated with the Toes ;-the Balls much longer from above downwards, than from one side to the other. Tsh. XXXII. Fig. 12.

Round the Heads distinct Impressions, where the Cap-sular Ligaments are fixed. Tab. XXXII, Fig. 12. The Metatarsal Bones of the Great Toe, by much

the flickest and strongest, but shortest of the Metatar-sus. Tab. XXXII. Fig. 12. The articulating Cavity of its Base, deeper than the

Tab. XXXII. Fig. 12. The anterior Extremity, bearing a greater proportion

to the Base than the rest, having a much larger share of the weight of the Body to sustain here, and formed into a middle Prominence, with two lateral Depressions, where the Bones termed Ossa Sesamoidea move. Tab. XXIV. Fig. 2.

The Metatarsal Bone of the Second Toe, the longest of the five. 'Tab. XXXII. Fig. 12

The Metatarsul Bone of the Middle Toe, the second in length, with a Base like that of the former Bone, to angular, but a little larger, to be articulated with the Os Cuneiforme Externum. Tab. XXXII. Fig. 12.

The Metatarsal Bone of the Fourth Tor, nearly of the same length as the former, but distinguished from it by its Base being thicker below, and its Cartilaginous Su face being more of a square form, corresponding with the anterior and inner part of the Os Cuboides, with which it is articulated. Tab. XXXII. Fig. 10.

The Metatarsal Bone of the Little Toc, the shortest of those of the Small Toes, with flat Surfaces facing upwards and downwards. Tab. XXXII. Fig. 10, 12

The Base which rests on the Os Cubnides, projecting Composed of fice Bones, which answer to the gene- outwardly into a large Tuberosity, which gives origin to Muscles, and forms one of the points on which the Body rests in standing. Tab. XXXII. Fig. 10. The Bones of the Metatarsus, with those of the Tar-

The Bones of the Metatareas, with those of the Tarus, form an irregular Arch for supporting the Body, one end of the Arch being formed by the projection of the Heel, the other by the anterior extremity of the Metatars all Bones. The different pieces composing this Arch are bound by Ligaments of such strength, as to give security to the whole.

### Toes.

The Bones of the Toes, the same in number with those of the Fingers, viz. two to the Great Toe, and three to each of the smaller Toes; and the different Bones here, as in the Fingers, disposed in Ranks or Phalanges. Tab. XXXII. Fig. 10. 12.

The two Bones of the Great Toe like those of the Thumb, but stronger, and placed in the same row with the Bones of the smaller Toes, for the purpose of walking, and assisting in supporting the Body. Tab. XXXII. Fig. 12.

The Bones of the Smaller Toes, every way less than those of the Fingers. Tab. XXIV.

Their under Surface depressed, where the Tendons of their Flexor Muscles are lodged. Tab. XXXII. Fig. 10.

The Bases of the first Phalaux, as in the Fingers, forming Sockets to receive the Balls or Heads of the Metatarsal Bones. Tab. XXXII. Fig. 12.

The Joints between the first and second Phalanx, and also between the second and third, as in the Fingers,

forming Hinges, and the motion similar, but more confined. Tab. KXXII. Fig. 10. 12.

Of the small Toes, the first, or that next the Great Toe, the largest, the rest becoming smaller, the more externally they are placed. Tab. XXXII. Fig. 10. 12.

The Bones of the Toce allow a free and easy motion in Children, and a considerable degree of it also in People whose Feet have not been confined in shoes. In others, especially in advanced life, the Toce are frequently found squeezed together, and some of the smallest Bones of the Toce, as the two last of the little one, have the pieces which originally composed them joined together by an uniton of Substance.

The structure of the Bones of the Foot is nearly similar to that of the Bones of the Hand.

In the Foctus, the Boues of the Metatarsus and Toes are in the same condition as those of the Metacarpus and Fingers.

### Ossa Sesamoidea.

Their size, situation, and number, vary in different per-

They are sometimes found at the roets of the Fingers and Small Toes; at the second Joint of the Thimb, and at the corresponding one of the Great Toe; between the Condyles of the Os Pemoris and Gastroenemius Muscle; between the Tendons of the Peroneus Longus and Os Cuboides, &c.

Those always present are placed in pairs at the roots of the Thumb and Great Too, between the Tendons of their Flexor Muscles and Joints.

They are convex on their outer Surface, where they are inclosed by the Tendons and Muscles fixed to them. Tab. XXXII. Fig. 12. a.

And concave, and lined with Cartalage next the Joints, where they play upon the Bones with which they are articulated. Tab. XXXII. Fig. 14. a. Tab. XXVI.

Fig. 3. 4.
They are considered by Anatomists as serving the same general purpose with the Patella.

### XXV. TABLE

Different Views of the Os Femoris, Tibia, and Fibula.

### FIG. 1.

Interior Surface of the Os Femoris of the Left Side.

- The head of the os femoris, covered with a smooth and polished cartilage
- b, A portion of the pit, or ligamentous impression of this
- c, The upper part of the neck of the os femoris. d, d, Various openings or fissures, which give passage to
- e, The trochanter major. f. The blunt point of this process.
- g, g. The ridge, or projecting line, which extends from
- the greater to the smaller trochanter.
- i, The upper and middle part of the os femoris, somewhat flattened.
- The middle part, which is convex and rounded. 1. The inferior and middle part, more of a triangular form. m, m, Muscular and ligamentous impressions upon the
- lateral and under parts of the bone n, A triangular cavity, with fissures for the insertion of the capsular ligament, and for the passage of vessels.
- o, A cavity, or pulley, at the hottom or the os femoris, covered with cartilage, to facilitate the motion of the
- p, p, The eminences which form the sides of the pulley.

## The Posterior Nurface of the same BONE.

- u. The posterior part of the head of the os femoria.
- b, The cavity, or ligamentous print of the head of the c, c, The unequal edge of the cartilaginous substance of
- d, The upper and posterior part of the cervix femoris.
- f. The openings in the cervix, for the transmission of
- vessels, which penetrate the substance of the hone g, The blunt point of the trochanter major, on which are

- h. The base of this process. i, i, Openings in this process for the transmission of teach
- k, k, The ragged eminence, or crest, which extends from ne trochanter to the other.
  - I, The trochanter minor, on which, as well as on the trochanter major, are a number of muscular prints.
- m, The middle of the inner surface of the os femoris. n. The middle of the outer surface, o, The middle of the linea aspera, which, through its
  - whole length, is only a continuation of muscular im-
- p, p, The division of this line into two branches, of which one goes to the larger, and the other to the smaller
- q, Orifice of the canal for the medullary vessels, in the natitude and inner part of the os femoris.
  r, r, Division of the linea aspera into two small ridges,
  - which extend from the middle and under part of the bone as far as its condyles.
- The triangular cavity between these two branches and the condyles, for facilitating the passage of blood-vessels. t, t, The fissures at the under part of this cavity, through
- which the vessels of the cancelli pass r, v, The condyles, encrusted with a smooth cartilage x, x, The tuherosities of the coudyles, into which liga-
- ments and muscles are inserted. y, A cavity between the coudyles.
- z, z, Ligamentous impressions upon the upper edge of

- The Anterior Surface of the TIBIA of the LEFT SIDE.
- a. The middle of the crest of the tibia
- b, b, The upper and under parts of the crest or ridge.
- d, d, The outer surface, generally hollow.
- f. f. The tuberosity of this bone divided into two parts, of which the upper gives attachment to the ligament o the patella, and the other insertion to the tendons of muscles.





- g, The small articular process, which answers to the fibula.
- h, h, Prints made by the capsular ligament on the upper part of the tibia.
- i, i, i, Openings of the spongy substance, which are orifices for the transmission of vessels spread over this
- part of the bone, k, k, A porous surface, where the tendons of muscles, with their aponeurosis, are fixed.
- 1, The under and middle round part of the tibia. m, The malleolus internus.
- n, n, Vestiges of the union of the inferior process to the bady of the bone.
- 0, The eminence which answers to the fibula. p, p, The articular cavities which correspond with the
- astragalus. q, Part of the articular cavity which receives the fibula.
- r, r, Ligamentous impressions,

- FIG. 4. The External Surface of the FIBULA of the LEFT SIDE.
- a, a, a, The length of its external surface.
- b, Part of the posterior surface. c, c, The ridge, or osseous line which separates the pos-terior from the outer surface.
- d, Part of the ridge which separates the outer from the inner surface.
- e, The superior process of the fibula.
- f, The articular cavity which receives the eminence of the tibia.
- g, The articular process of the fibula, which corresponds to the tibia,
- h, h, Asperities, or ligamentous and muscular prints. The coronoid process of the malleolus externus.
- k, k, The asperities, or bigamentous prints of this process. l, l, The orifices of several conduits, for the transmission of vessels.

## TABLE XXVI.

VIEWS of the PATELLA, OSSA SESAMOIDEA, and BONES of the FOOT.

The External Surface of the PATELLA of the LEFT SIDE.

- a, A hollow in the upper part of the patella, into which the tendon of the extensor muscles of the leg is fixed. b, The middle of the bone, somewhat convex
- c, c, The lateral parts, which are so many muscular
- Fissures on the surface of the patella, with the orifices of the couduits by which the vessels penetrate into the
- interior of the bone c, The inferior extremity of the patella, into which a very strong ligament is fixed.

### FIG. 2.

The Inner Surface of the same PATELLA

- u. a. a. The eircumference of the patella, or margin to which the capsular ligament is fixed.
- b, b, The articular cavities of the inner surface, covered with smooth cartilage.
- c, The small prominent ridge, or superficial process, which separates the two cavities. d, An irregular hollow, to which the ligament is fixed

## which goes to the tibia. FIG. 3.

One of the Sesamoid Bones of the Thumb.

A Sesamoid Bone of the Great Toe.

### FIG. 5.

The Inner Surface of the LEFT FOOT, in a Position nearly horizontal.

- A, The middle and upper part of the astragalus, where it is somewhat concave, and covered with eartilage a, a, The semicircular eminences which border the upper
  - part of this bone.

- b, The oblong cavity of the inner surface, by which it is joined with the malleolus internus. The eervix of the astragalus.
- d, Inequalities, or ligamentous prints on the upper and
- e, The head of the astragalus, which is received into the cavity of the os scaphoides. f, Inequalities on the inner surface, also marked with li-
- gamentous prints.
- g, A small eminence on the posterior part of the astra-galus, which is articulated with the os calcis. B, The middle of the inner surface of the os calcis, ex-
- cavated, in form of an oblique gutter, for the passage of tendons, vessels, and nerves. h, The upper and posterior eminence of the os calcis, by
- i, The tuberosity of this bone, the upper and back part
- of which is impressed by the insertion of the tendo Achillis
- k, The inner and upper surface of the os calcis, articulated with a small surface of the astragalus.
- I, I, The sinuosity below this eminence, through which the tendon of the flexor longus pollicis passes.
- m, The anterior eminence of the os calcis, by which it is joined with the os cuboides. C, The upper and middle part of the os naviculare, on
- which several ligamentous prints are seen. n, n, The navicular cavity, which receives the head of
- the astragalus o, The tuberosity of the os navigulare, to which the tendon of the tibialis posticus is fixed.
- p, p, p, The small surfaces by which this bone is joined to each of the cuneiform bones.
- D, The middle of the large cuneiform bone
- The under end of this boue, where there is a small surface anteriorly, to which the tendon of the tibialis anticus is fixed,—and posteriorly, a tuberosity to which the abduetor pollicis is fixed.
- r, The upper part of the same bone, by which it is join-ed with the second os cunciforme.
- E, The upper part of the second cuneiform bone.





- F, A small part of the third cuneiform bone. G, The middle and upper part of the large metatarsal
- s, The posterior part of this bone, where it is joined with the first os cuneiforme.
- t. The head of the same bone, which forms an arthrodial articulation with the first phalanx of the great toe. w, w, Eminences, or prints, on the lateral parts of this bone.
- H, The middle and upper part of the second metatarsal
- r, The posterior and upper part of this bone.
- us. Its anterior extremity, which terminates in a roundish
- 1, The upper and middle part of the first bone of the great toe The edge of the glenoid cavity of this bone.
- The anterior extremity, the articulation of which with
- the second bonc is a complete ginglymus. K, Part of the first bone of the second toe.
- L, A portion of the first boue of the third toe. M, The middle part of the second bone of the great toe,
- which is convex z, The upper and posterior part of this bone, by which
- it is joined to the first. &, The anterior extremity of the second boue, on which are asperities to support the nails, and furnish attach-ment to tendinous fibres.
- N, N, Portions of the second bones of the second and
- third toes. O, A very small portion of the third metatarsal boue.

### FIG. 6.

The Posterior Surface of the Os Scaphoides, seen a little obliquely.

- a, a, a, A large part of the upper surface of the os scaphoides, which is very irregular, and gives attachment
- to several ligaments b, A portion of the tuberosity of this boue, on which are
- muscular and ligamentous prints.
  c. The navicular cavity which receives the head of the astragalus.

### FIG. 7.

## The Under Part of the ASTRAGALUS.

- o, The outer surface of the astragalus, seen a little fore- The Upper, Posterior, and Outer Surfaces of the Middle shortened.
- b, Its great cavity, which corresponds to the large upper eminence of the os calcis.
- c, Edge of the large fossa of the astragalus.

- d, d, The bottom of this fossa, on which are several ligamentous prints.
- c, A small oval surface, which is joined with a part of the obloug cavity on the eminence of the inner surface of the os calcis.
- f, Another small eminence, which is joined with another art of the same cavity of the os calcis. g, The under part of the head of the astragalus.

### FIG. 8.

Shows the Upper Part, and External Surface of the Os CALCIS.

- a, The upper eminence of the middle part of the os calcis, which is articulated with the great cavity of the astragalus b, b, Another eminence of the inner surface of this hone,
- in which there is an oblong cavity, which is articulated with another part of the astragalus
- c, c, Irregular hollows, into which the principal ligaments which unite the astragalus with the os calcis are inserted
- d, d, d, The posterior part, or edge of the large tuberosity of the os calcis
- e, The edge of the large hollow of this bone f. The external sinussity, through which the tendon of
- the peroneus longus passes g, The small tuberosity to which part of the ligaments
- of the peronei are fixed. h, The anterior process of the os calcis, by which it is
- articulated with the os cuboides. i, The middle external part, which is slightly convex.

### F1G. 9.

The Upper and Outer Surface of the External Os Cv-NEIFORME.

- a, The upper surface, to which several small ligaments
- are fixed. b, A portion of the anterior surface
- c, That part of its outer surface which is joined to the cuboides
- d, The depressions of this surface, to which strong ligaments are fixed.
- c. The point of the bone which answers to the sole.

### FIG. 10.

- OS CUNEIFORME.
- o, The upper surface, on which are asperities, or ligamentous prints. b. Part

b, Part of the posterior surface. c, The outer surface, on which is an eminence joined to the third cunciform bone.

d, The under part, which answers to the sole.

FIG. 12. The Superior, and somewhat External Surface of the OS CUBOIDES.

FIG. 11. Parts of the Inferior and of the Anterior Surfaces of the Internal Os Cuneiforms.

a, a, The small surface, by which it is articulated with

the second bone of the same name. b, A portion of the under part of the large cuneiform

bone, which terminates in a thick tuberosity, to which the tendon of the tibialis anticus is fixed.

c, The auterior surface, a little hollow, for the articulation of this with the large metatarsal bone.

a, A part of the inner edge of this bone, which is joined to the third cuneiform bone. b, The posterior surface, on which there is an oblique

process, adapted to the os calcis, with which it is arc, The anterior surface, which receives the two last me.

tatarsal bones.

taturan ones.

d, The upper surface, the numerous asperities of which are so many ligamentous prints.

e, Part of the inferior oblique process.

f, A portion of the sinuosity, through which the tendon of the peroneus longus passes.





### TABLE XXVII.

Represents the Skeleton of a Fætus at the Full Time.

In this figure are seen the following, among other peculiarities of structure; viz. A portion of the fontanella.

A membranous substance, in form of a suture, uniting the two pieces which form the frontal hone.

A ring of bone surrounding the outer edge of the tympa-

The symphysis of the lower jaw, formed of cartilage. The os sacrum, composed of distinct vertebræ, with intervertebral substances.

The different points of ossification upon the sternum.

The cartilaginous border of the os ilium. The cartilaginous union of the three pieces which com-

pose the os innominatum.

The ends of the long bones in general of the superior

extremities, in the state of epiphyses.

The bones of the carpus cartilaginous.

The ends of the long bones of the inferior extremities, in

the form of epiphyses.

The patellæ in a state of cartilage.

The bones of the tarsus partly cartilaginous, and partly osseous.

# PRINCIPAL DIFFERENCES BETWEEN THE MALE AND FEMALE SKELETON.

The greater Part of which may be observed in Tab. I. H. XXIX, XXXI. representing the Male Skeleton, and Tab. XXVIII. XXX. the Female Skeleton. See also Tab. XV. XVI. XVII. XX.

The Female Skeleton is observed, in general, to be smaller and more slender throughout than that of the Male.

The Bone of an Adult Female, of the same size with that of a Male, is usually distinguished by the Ridges, Depressions, rough Surfaces, and other Inequalities, being less conspicuous in the former.

ing less conspicuous in the former.

The Circumference of the Female Skull is said by
SOEMMERING to be larger.

The Os Frontis is found to be more frequently divided by a continuation of the Sagittal Suture.

The Frontal Sinuses are observed to be narrower;
All the Bones of the Face more delicate;
The Bodies of the Vertebra longer, and the Vertebral

Canal, according to the Author quoted above, larger;
The Intervertebral Substances deeper or thicker;

The Cartilages of the True Ribs longer in proportion to the Osseous part, and broader and flatter to support

the Breasts;
The Sternum more raised, and the whole Thorax shorter, deeper from hefore backwards, and more distant from the Pelvis;

The length of the Sternum less, and terminating below on a line nearly opposite to the Plane of the Fourth Pair of Ribs, but in the Male Skeleton terminating opposite to that of the Fifth Pair;

The Cartilago Ensiformis oftener perforated in the middle, or bifurcated;

The length of the Loins greater;

The Pelvis wider in all its dimensions;
The Spines and Processes of the Ossa Innominata farther distant from each other;
The Feet smaller;

The Os Sacrum broader, and turned more backwards, to enlarge the Cavity of the Pelvis;

to enlarge the Cavity of the Pelvis;

The Os Coccygis more slender, turned more backwards, and having a greater degree of motion;

The Ossa Ilis flatter, and more reflected outwards, by which the under part of the Abdomen is rendered more capacious, and the impregnated Uterus better supported; The Notches of the Ossa Ilia wider, and the con-

c joined Surfaces of the Ossa Innominata and Os Sacrum e less 3

The space between the Ossa Pubis shorter from above

The space between the Ossa Pubis shorter from above downwards, but larger taken in a transverse direction, especially in Women who have born Children; or course the Ligamentous Cartilage of the Symphysis thicker;

The Angle formed by the Crura of the Ossa Pubir with the Symphysis Pubis much larger; that of the Male being acute, while in the Female the Angle extends

to 50 or 90 degrees;
The Tuberosities of the Ossa Ischia flatter, and at a greater distance from each other,

The Brim of the Pelvis wider, and of an oval form, corresponding with the Head of the Child, and the longest Diameter extending between the Ossa Ilia.

In the Male, the Brim of the Pelvis observed in have more of a circular appearance, and to have the greatest extent between the Ossa Pubis and Os Sacrum.

The Opening at the under part of the Pelvis, in the Female, much wider, and of an oval form; but the oval the reverse of that at the Brim;
The Forumina Ovalia wider.

All the Openings at the under part of the Pelvis, being wider, leave a large passage for the Birth of the Child. The Acctabula farther distant from each other, in consequence of which, Women who are very broad at this

part of the Body waggle when they walk;
The Ossa Femorum more curved; the Neck of the
Thigh-bone forming a greater Angle with its Body; the
Body of the Thigh-bone placed more obliquely; the in-

The Feet smaller;

The Clavicles less crooked;
The Scapula smaller, placed more backwards, but closer to the Thorax; of course the breadth of the Shoulders less;

The Superior Extremities shorter;

The Hands smaller;

The Ossa Carpi narrower; and, The Fingers more tapering towards their Extremities





# TABLE XXVIII.

Represents a well-formed Young Adult Female Skeleron, the different Parts of which may be understood, by comparing it with the Skelerons already described.

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### TABLE XXIX.

Represents the General Structure of the Bones, and a Front View of the Male Skeleton

### FIG. 1.

Part of the Os FRONTIS, covered with its PERIOSTEUM. the ARTERIES of which are injected.

A, The hranches which come from the orbit ;-the other small trunks of the arteries observed in several places are sent from the common integuments to the periosteum.

### FIG. 2.

The PARIETAL BONE of a Fortus, to show the Radiated Fibres of a Flat Bone, proceeding from the first ossi-

### FIG. 3

The THIGH-BONE of a Factus, to show the Longitudinal Parallel Fibres of a Cylindrical Bone.

A, The part which first ossifies.

B, B, The two extremities in a cartilaginous state.

### FIG. 4.

Section of Part of the Os Femoris, to show the Plates and Cancelli of Long Bones in general.

A, A, A, The plates of the thigh-hone separated. B, B, The cancelli.

Vransverse Section of a Bone burnt, to shew the Cavities for containing the Marrow and Vessels.

The Appearance of the Marrow, viewed with a Microscope. FIG. 7.

# The THIGH-BONE, and Longitudinally through the

A, A, A, A, The cancelli.

B, B, The union of the hone with its extremities, which are here in a state of epiphysis.

C, C, The reticular substance.

D. D. The sides, or tables, which are thick and strong tremities.

The Os ILIUM, saued through the middle to shew the

The HIP-JOINT of a Child, opened to show.

A, The head of the thigh-bone

B, The round ligament connecting it to the acetabulum C, The capsular ligament of the joint, with its arteries injected, and,

D, The numerous vessels of the fatty glandular-like substance of the joint also injected.

## FIG. 10.

A Front View of the MALE SEELETON.

## A, The frontal hone.

3, Its superciliary hole

B, The external orbitar process.

The internal orbitar process. B, The parietal hone

Between A and B, the coronal suture.

C, The temporal hone D, 4, The occipital bone. E, The bones of the nose

F, The os malæ.

G. The superior maxillary bone. H, The lower jaw.

K, The seven cervical vertebra, with their intermediate , Their transverse processes.

L. L. &c. The twelve dorsal vertehra.

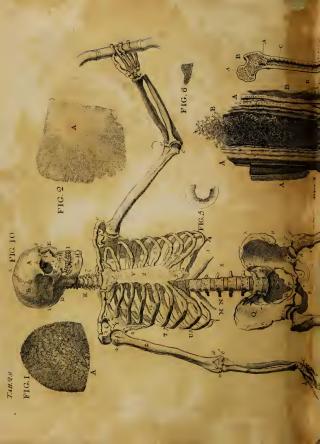
M, The five lumbar vertebra

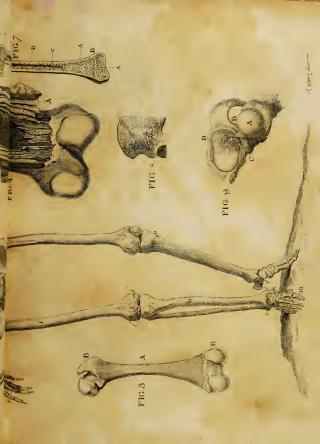
Their intermediate cartilages. s, Their transverse processes,

O. The os sacrum P, The os coceygis

Q. The









Q, The os dime

A, Its spine.

4. Its anterior-superior spinous process

, Its inferior-anterior spinous process. & The venter of the dium.

The brim of the pelvis. R, The os pubis.

S. The os ischium The crura of the ossa ischia.

The foramen thyroideum.

The acetabulum. T, The seven true ribs

U, The five false ribs.

The joining of the ribs with their cartilages.

, The cartilages of the sixth, seventh, and eighth ribs, united with each other.

V, The sternum

Its upper piece.
 Its middle piece.
 Its middle piece.
 4. Its cartilago ensiformis.

X, The clavicle Y. The concave surface of the scapula of the right side.

o, The superior costa of the scapula, with its semilunar

The coracoid process of the left side. , The acromion of the left side.

, The anterior-inferior costa of the seapula of the right

The head of the os humeri under the acromion.

ψ, A groove for the tendon of the biceps,

φ, λ grouper are transmired for the oretrained.
Z, The body of the os humeri.
σ, The trochlea.
μ, The external,
b, The internal condyle of the os humeri. d, The head of the radius of the left side

e, The olecranon of the ulna of the same side a, The ulua of the right side.

b, The radius.

c, The earpus. d, The metacarpus.

e, The phalanges of the fingers.

k, The internal,
L. The external condyle.

g, The patella. h, The tibia.

i, The fibula k, The tarsus 1, The metatarsus

m, The phalanges of the toes.

t, The malleolus internus. f, The ball of the left thigh-bone.

g, The great trochanter.

h, The errvix.

i, The small trochanter.

p, The tubercle of the tibia.

q, The os calcis,

#### XXX. TABLE

Represents a Front View of the FEMALE SKELETON, with the BONES of the HEAD.

By comparing this Figure with Fig. 10, of the former Table, the different Proportions of the Bones of the two Sexes are seen, and the Letters to the several Bones of the Male Skeleton, explained in Fig. 10. may guide the Eye to the like Bones of the Female Ske-

THE Letters added here to the BONES of the HEAD are.

a, The coronal suture.

b, The squamous suture.
 c, The lambdoid suture.

c, c, The transverse suture.

d, The zygomatic suture.

The external orbitar suture.

The lateral nasal suture.

The lateral nasal suture.

The preciliary hole of the frontal bone.

H, The os planum of the ethmoid bone. r. The lacrymal groove of the os unguis.

α, The external orbitar hole of the maxillary bone.
ξ, The tuber of the maxillary bone.

The chin.
 The base of the lower jaw.

3. Its angle.
4. Its coronoid process.

6. The mental hole.

SUPERIOR EXTREMITIES. 5. The right os humeri.

6. The head of the radius.

7. The olecranon.

8. The ulna. 9. The under end of the radius, marked by muscles. r, The coracoid process of the scapula of the left side.

v, The acromion of the scapula.
v, The semilunar nitch on the upper edge of the scapula.

10. The coronoid process of the ulna.
11. The tubercle of the radius. 12. The under end of the radius

13. Its styloid process.

14. The styloid process of the ulna-

## PELVIS, AND INFERIOR EXTREMITY.

A, The spine of the os ilium.

μ, Its anterior-superior spinous process.
γ, Its anterior-inferior spinous process.
R, The joining of the os ilium and os pubis.

S. The os ischium.

The spinous process of the os ischium.

The joining of the os sacrum with the os illumination.

The symphysis pubis.

The ne

The ball of the thigh-bone. The trochanter major. The cervix of the thigh-bone.

15. The head of the fibula. 16. The spine, and,

17. The inner edge of the tibia. 18. The under end of that bone.

r, The malleolus externus. t. The malleolus internus.

## FIG. 2.

Back View of the FRONTAL BONE.

w. The frontal sinus.

i. The sagittal suture, continued in this figure to the root of the nose The other parts seen in this View have been described in

Tab. VIII. Fig. 4.

The Inner Side of the Left Parietal Bone.—See Tab. IX. Fig. 2.

FIG. 4.

A Fore View of the OCCIPITAL BONE .- See Tab. IX

x. An os triquetrum The extremity of the cunciform process, where it joins the sphenoid bone

T, T, The condyles. , Part of the hole common to the occipital bone, and right temporal hone.

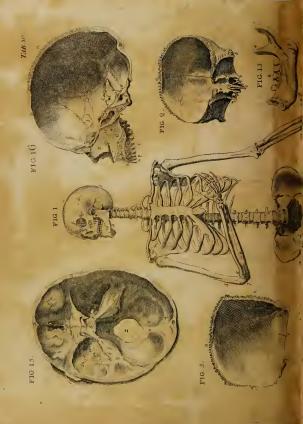
5. The hole for one of the nerves of the muth pair.

The Inner Side of the Right TEMPORAL BONE .- See

Internal View of the STHENOID BONE .- See Tab. X. Fig. 2.

3. A connection which is sometimes observed between the anterior and posterior clinoid processes.









### FIG. 7.

Enterior View of the ETHMOID BONE .- See Tab. X. Interior View of the Right Side of the CRANIUM, and Fig. 3.

#### FIG. 8.

Posterior View of the two NASAL BONES .- See Tab, XII.

The Side of the Os Unguis next the Nose .- See Tab.

## FIG. 10.

Posterior View of the Os MALE .- See Tab. XII. Fig. 8.

A View of the Lower Part, and Side next the Nose, of the Left Os MAXILLARE, with the Palate Bone, and

## s, the Os Turbinatum Inferius .- See Tab. XII. Fig. 2. FIG. 12.

The Left PALATE BONE inverted.

4, B, C, D, The palate plate. The other letters refer to parts belonging to the nose and orbit.—See Tab. XII. Fig. 11. 12.

## FIG. 13.

A View of the Inner Surface of the Right Side of the

- I. A section of the chin. The base of the jaw.
- The angle.
   The coronoid process.
- The condyle.
- The rough print of the internal pterygoid muscle.
   The orifice of the passage for the nerve and blood-
- 8. The five molares.

## FIG. 14.

A TOOTH cut perpendicularly, magnified.

- A, The fibres of the cortical part,
- B, The bony part. C, The entry for the vessels and nerve. D, The cavity of the tooth.

A View of the Interior Surface of the BASE of the SKULL .- See Tab. V

## FIG. 16.

Bones of the UPPER JAW.

- D, D, The two tables and diploe of the frontal and oc-
- cipital bones. The coronal suture. z, The serrated edges of the parietal bone, for forming
- the sagittal suture. The lambdoid suture
- b, The squamous suture. E, The furrows made by the vessels of the dura mater
- The frontal sinus.
- E, The crista Galli The nasal lamella of the ethmoid bone.
- The hollow wing of the sphenoid bone 6. The sella Turcica.
- 19. The sphenoid sinus. The usual plate of the sphenoid bone.
   The spongy substance of the sphenoid and occipital
- 8, The hold for the passage of the ninth pair of nerves. c, The squamous part of the temporal bone
- e, The ridge of the os petrosum, with the print of a small sinus.
- f. The internal meatus anditorius.
- A, The dentes incisores. H, The dens caninus.
- The dentes molares.
  - π, The forumen incisivum of the maxillary hone. ξ. The rough spine of the superior maxillary bone.
    - φ, The joining of it to the vomer.
      ε, The broad hollow base of the vomer.
    - H, The posterior edge of the vomer.
    - G. The body of the vomer.

      7. The conjunction of it with the thin plate of the sphenoid and ethmoid boues.
    - z, Its hollow anterior part, which receives the middle cartilage of the nose.
    - P. The anterior edge of the nasal bone.

### FIG. 17.

The External Surface of the BASE of the CRANIUM and UFFER JAW .- See Tab. VI

- q, The tubercle of the root of the zygoma. r, The concave moveable cartdage placed on that tu-
- bercle. t, t, Its ligaments.
- 2. The hole for the portio dura of the 7th pair of nerves.
  5. The hony part of the Eustachian tube,

#### XXXI. TABLE

Represents the LARYNN, the BONES of the TRUNK of the Body, and a Posterior View of the MALE 'SKELETON.

## FIG. 1.

Interior View of the Cartilages of the Larynx, with the Os Hyomes.

- a. The anterior surface of the base of the os hyoides. b, Its superior surface,
- c, A ligament connecting the os hyoides, thyroid carti-
- c, A ligament comecung the os nyones, thyron cardlage, and epiglottis.
  d, d, The two appendices of the os hyoides.
  3. The ligament sent out from the appendix of the left side, to the styloid process of the left temporal bone. e. The union of the base with the cornu.
- f, f, The two cornua.
- h, h, Ligaments going from the tubercles to the superior cornua of the thyroid cartilage.
- i, k, &c. The thyroid cartilage; the greater part of which is ossified in the preparation from which this
- i, The anterior middle part of the thyroid eartilage.
- I, I. Two unossified cartilaginous pieces on that side.
   m, The right superior cornu.
   n, The right inferior cornu, connected to the cricoid car-
- tilage. o, A strong ligament.
- p, The narrow anterior part of the cricoid cartilage. q, Its right side
- r, The first cartilage of the trachea arteria, divided into
- s, The second, third, and fourth cartilages of the trachea.

## FIG. 2.

Back View of the Parts represented in Fig. 1.

- d, 3, f, g, l, m, n, The same parts pointed out by these letters in Fig. 1.
   t, The epiglottis.
- r. The middle unossilied part of the cricoid cartilage.

- W, W, The bony sides of that broad posterior part.
- X, The membranous back part of the traches.
  N. B. These two Figures are as large as life; whereas the Figures of particular bones in this and the preceding Table, are represented only one half as large as nature.

- A View of the Upper Part of the first VERTEBRA of
- a. The body of the houe. The other parts are described in Tab. XVIII. Fig. 2.

#### FIG. 4.

- The Under and Back Part of the same VERTEBRA.
  - i, The smooth depression for the auterior part of the tooth-like process of the second vert For the other parts consult Tah. XVIII. Fig. 1.

#### FIG. 5.

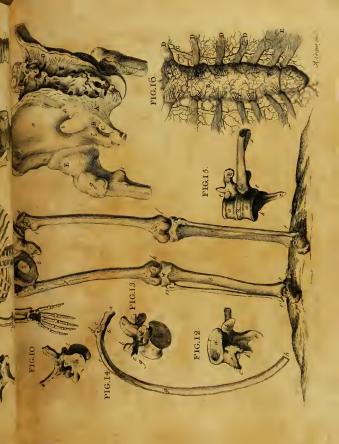
- b, The superior oblique process.
- c, The transverse process, and, farther back, the inferior oblique process
- e, The spinous proces, The spinous hole.
- h, The passage in the transverse process.

  I, The point of the tooth-like process.
- m, Its anterior smooth surface.

- of the Occipital Bone, and the Ligaments of the Tooth-like Process.









1. c, h, Part of the first vertebra. 2. c. Part of the second vertebra.

n. The point of the tooth-like process.

o, Its transverse ligament.

p, p, Its two ablique, or moderator ligaments.

# 7, Its perpendicular ligament. See Tab. XVIII. Fig. 6.

### FIG. 7.

Upper Part of the Fourth Vertebra of the Neck.

FIG. 8.

Upper Part of the Seventh Vertebra of the Neck.

# Upper Part of the Seventh Vertebra of the Back.—See Tab. XVIII. Fig. 7.

## FIG. 10.

Under Part of the Sixth Vertebra of the Back.—See Tab. XVIII. Fig. 8.

### FIG. 11. Side View of the Twelfth Vertebra of the Back.

a, The hody.
c, The transverse process.

e, The spinous process.
k, The inferior oblique process. t, The depression for the head of the rib.

FIG. 12. View of the Upper Part of the Fourth Vertebra of the Loins.—See Tab. XVIII. Fig. 10.

## FIG. 13.

Under and Lateral Part of the Third Vertebra of the

a, The under part of the body.
b, The superior oblique process.
c, The transverse process.

c, The spinous process.
g, The spinal hole.

r, The process round the body of the bone.

### F1G, 14.

The Seventh TRUE RIB of the LEFT SIDE.

## a, Its head.

process of the vertebra.
c, The depression.
d, The tubercle.

e, The angle.

f, The furrow at the inferior edge

g, 'The smooth internal side, h. The anterior extremity.

The Sixth and Seventh Vertebra of the Back, with Part of the Seventh Rib of the Left Side.

a, c, e, k, t, As in Fig. 11. u, The cartilage between the vertebra.

v. The depression made by the tubercle of the sixth rib.
W. The seventh rib articulated with the vertebra. a, The beginning of the furrow on the under edge.

## FIG. 16.

The STERNUM, with the CARTILAGES of the Ribs, and the Internal MAMMARY ARTERIES.

A, The first or upper bone of the sternum.

B. The second.

C, The third, or cartilago ensiformis.
D, D, D, D, The cartilages of the four superior ribs.

E, The conjoined cartilages of the fifth, sixth, and seventh ribs.

F, F, F, The radiated ligaments connecting the cartilages to the sternum.

G, The internal mammary artery.

## FIG. 17.

Posterior View of the MALE SKELETON.

a, The coronal suture.
b, The squamons.
o, The lambdoid.

The frontal bone.

B, The right parietal bone. C, The right temporal bone.

D, The occipital bone. E, The nasal bone.

F, The os malæ.

The angle of the lower jaw. 4. Its right coronoid process.

5. Its right condyle.

K, The seven vertebræ of the neck.\*

L, L, The twelve vertebrae of the back.
M, The five vertebrae of the loins.
b, The transverse processes of the os sacrum.
c, The posterior holes of that bone.

c, Its spinous processes.

g, The open part of the canal for the cauda equina.
P, The os coccygis.

M, The dorsum of the os ilium.

B, Its spine.

- y, The superior-posterior spinous process.

  The inferior-posterior spinous process.

  The great notch.
- 4. The superior-anterior spinous princess.
  7. The interior-anterior process.
  8. The brim of the acetabulum.
- ¿, The spinous process of the os ischium.

  7, The tuberosity of that bone.
- S, Its branch.
- R, The os pubis. , Its erus.
- 4. The great thyroid hole.

## RIGHT SUPERIOR EXTREMITY.

- d, The dorsum of the scapula.
- f, Its posterior costa. g, Its superior angle.
- p, The anterior or inferior costa-
- q, The inferior angle.
- t, The cervix of the bone. r, The acromion, to which the outer end of the clavicle

- K, The spine.
  W, The fossa above the spine. W, The fossa above the spine.

  p, The superior costa, with the semilunar notch.

  r, The inner end of the clavicle joined to the sternum.

- X, The hody of the clavicle.
  a, The ulna.
  b, The radius.
- The head and neck of the radius.
   The olecranon of the ulna.
- 9. The under end of the radius.

## RIGHT INFERIOR EXTREMITY.

- f, The ball of the os femoris.
- g, The trochanter major.
- h, The cervix of the bone.
- t, The trochanter minor.
   k, The upper part of the body of the bone.
   l, Its outer condyle.
- t, The malleolus externus of the fibula.

## LEFT SUPERIOR EXTREMITY.

- ". The inner condyle of the os humeri.
- 7. The olecranon of the ulna.

## LEFT INFERIOR EXTREMITY.

- The linea aspera,
   k, The inner condyle, and,
   The outer condyle of the os femoris.
- 4. The head of the tibia.
- 5. The hody of the bone.
- 15. The head of the fibula.
  - The malleolus externus of that hone. 10. The os calcis.

## FIG. 18.

# Posterior View of the Bones and LIGAMENTS of the

- a, The fifth lumbar vertebra.
- The first monast vertexus,
   Its superior oblique process.
   The bony plate extended to its spinal process e. c, c, cc. The posterior holes of the os sacrum.
   The channel for the cauda equina.
- α, β, γ, δ, ε, ζ, ε, As in Fig. 17. A, The posterior sacro-ischiatic ligament, extended from the tuber of the os ischium to the os ilium, os sacrum,
- and os coccygis. B, The anterior sacro-ischiatic ligament, proceeding from the spinous process of the os ischium, to the os sacrum
- and os coccygis.

  7. The notch of the os ilium, for the passage of the posterior crural vessels and nerves, and the pyriform muscle.
- C, Passage of the obturator internas.
- D, The fibrous ligamentous substance, connecting the os innominatum and sacrum
- E, The capsular ligament of the joint of the thighg, The greater,
  i, The lesser trochanter of the thigh-hone.









# TABLE XXXII.

Represents the Bones and some of the Principal LIGAMENTS of the EXTREMITIES; including

the Skeleton of Two Young Subjects.	
FIG. 1.	g, The end of that ligament, like a ring, surrounding the neck of the radius, but connected very loosely to it.
VICLES, with the LIGAMENT connecting the CLAVICLES to each other.	FIG. 4.
The posterior surface of the sternum. b, The broken ends of the two clavicles. c, c, c, The two tubercles near the extremity of each clavicle. The ligament connecting the clavicles.	Anterior Fiew of the Bones of the Right Hand.  a, The radius.  e, Its flat anterior part.  c, Its styloid process.  b, The uha,  f, Its flatened extremity.
FIG. 2.	d, Its styloid process. g, The os scaphoides of the carpus.
of the Clavicle, with their Ligaments.	h, The os lunare. i, The os pisiforme.
, The spine of the scapula, , The acromion. , The inferior angle. , The inferior costa.	k, The cunciforme. f, The trapezium. m, The trapezoides. n, The capitatum. o, The uniforme.
The cervix. The glenoid cavity, covered with cartilage for the articulation with the os humeri. 5, The cut edge of the capsular ligament of the joint of the arm.	p, Its unciform process. q, r, s, t, The metacarpal bones of the fingers. u, Their bases. v, Their heads.
The coracoid process, The point of that process, The broken end of the clavicle, Its extremity joined to the acromion.	a, The metacarpal bone of the thumb. b, The first bone of the thumb. The second bone. The first phalanx of the fingers. The first phalanx.
a, A ligament stretched obliquely from the clavicle to the coracoid process. b, A ligament coming out single from the acromion, and dividing into two, which are fixed to the coracoid pro- cess.	s, Their third phalanx.  FIG. 5.  Posterior View of the Bones of the Left Hand.
FIG. 3.	The explanation of Fig. 4. will serve for this Figure, the same letters pointing to the same bones, though in a
The JOINT of the ELBOW of the LEST ARM, with the LIGAMENTS.	different view. 4. The ridge of the radius, between the grooves made by

a, The os humeri.
b, Its internal condyle.

o, its internal complete, c, c, The two prominent parts of its trochlea, appearing through the capsular ligament of the joint.
d, The ulna.
c, The radius.

the tendons of the extensor muscles. FIG. 6.

View of the Anterior, or Palm Side of the RIGHT HAND, with its LIGAMENTS. 6. The radius.

That part of the ligament including the head of the 6, The pisiform bone, radius.

P, The hook-like process of the unciform bone. 4. The

e, The annular ligament, under which the tendons of the 1, The external depression flexor muscles pass in the cavity x.

q-t. The metacarpal bones of the fingers. y, Their bases, with the ligaments connecting them to

the bones, pointed out by m, n, o, in Fig. 4. s, s, s, r. The metacarpal bone, and the two bones of the

thumb, with the ligaments of their articulations The fore-finger, with the sheath for the tendons of

the flexor muscles entire. λ, The ligament connecting the head of its metacarpal bone to that of the middle finger.

4, The middle finger, with the sheath of the tendons cut

v, The ligaments on the back part of the second joint of the ring and little fingers.

#### FIG. 7.

The Upper Extremity of the Tibia, with the Semilunar CARTILAGES of the KNEE-JOINT and some LIGAMENTS.

a. The strong ligament which connects the patella to the tubercle of the tibia.

b, b, The parts of the extremity of the tibia, covered with cartilage, which appear within the semilunar car-

tilages.
c, The semilunar cartilages. d. Part of the crucial ligaments.

FIG. 8. Posterior View of the Joint of the RIGHT KNEE.

a, A section of the os femoris.

b, Its internal condyle. c, Its external condyle, both covered with cartilage.

d. The cavity between the condyles. e, e, The back part of the tibia.

f, The superior extremity of the fibula.
g, The edge of the internal semilunar cartilage.
h, Au oblique ligament.

i, A small perpendicular ligament.

k, A larger perpendicular ligament.

l, The external lateral ligament, connecting the femur and fibula. m, A ligament between the tibia and fibula,

### FIG. 9.

Anterior View of the Joint of the RIGHT KNEE. b, The internal condyle.

c, The external.
d, Part of the os femoris, on which the patella moves.

e, A perpeodicular ligament.

g, g, The edges of the two semilunar cartilages.

The strong ligament of the patella,

k. The back part of it, where some of the fat of the p, The external cuneiform bones. joint has been dissected away.

"", ", ", d, y, ", b, ", ". The same as

FIG. 10.

m, The internal one, on the posterior surface of the pateira A View of the Inferior Part of the Bonzs of the

a, The great knob of the os calcis. b, A prominence on its outside.

c, The interior thio process, bearing the print of the tendon of the flexor pollicle longus.
 d, The hollow, for the tendons, nerves, and blood-vessels.

e, The anterior extremity of the os calcis, f, Part of the astragalus

g, Its head, covered with cartilage. The internal prominence of the os naviculare. Its hollow in the sole of the foot.

The os cuboides.

I, Its hollow, for the tendon of the peroneus longue. m. Its anterior extremity.

n, The os cunciforme internum o. The medium.

p, The externum. q, r, s, t, The metatarsal bones of the four lesser toes,

Their bases, v, Their heads.

The metatarsal bone of the great toe. s, Its first,

y, Its second bone. 2. The depressions on the head of the metatarsal hone. for the two sesamoid bones,

ζ, Second, and,

1, Third phalanges of the four lesser toes.

## FIG. 11.

The Inferior Surface of the Two Large Sesamoid Bones at the First Joint of the Great Toe. FIG. 12.

Upper View of the BONES of the RIGHT FOOT.

a, The posterior knob of the os calcis. b. Its exterior process.

k, Its auterior extremity

c, The superior head of the astragalus. d, A depression made by the tendon of the flexor pollicis

f, The rough hollow part.

h, The os naviculare.

/, The hollow for the peroneus longus. n, The internal,

o, The middle.

11, 1, 1, 1, p, y, 3, 5, 1, The same as in Fig. 10.

### FIG. 13.

View of the SOLE of the FOOT, with its LIGAMENTS.

a, d, As in Fig. 10.

opened.
The strong cartilaginous ligament supporting the head

of the astragalus. g, h, Two ligaments which join into one, to be fixed to

the metatarsal bone of the great toe. i, i, k, l, m, Other ligaments.

n, o, The ligauents of the joints of the five metatarsal bones.

## FIG. 14.

The Superior Concave Surface of the SESAMOID BONES at the First Joint of the GREAT TOE, with their Li-GAMENTS.

a, Three sesamoid bones.

b, The ligamentous substance in which they are formed. This Figure is too small, even in proportion to Fig. 15.

FIG., 15,

Front View of the Skeleton of a Box of nine years of age.

\* \* &c. The most remarkable epiphyses. f, The joining of the ossa ilium and pubis, and, g, Of the ossa ischium and pubis.

This Figure is executed upon a scale only half as large as that of the Skeleton in Tab. XXIV.

## FIG. 16.

The Skeleton of a New-Born Child, where the shades and shrivellings in the Figure represent the parts which are Cartilaginous at Birth, and which are contracted in the Skeleton.

#### a, The fontanelle.

# TABLE XXXIIA.

Respects the STRUCTURE of BONES of CHILDREN.

#### FIG. L.

The Inner or Posterior Surface of the PATELLA of a New-born CHILD.

The darker part of the Figure represents the Attries of the Perichondrum shinng through the Cartilage, but without entring that substance. The lighter unfunished parts of the Figure shew the Tendona, Ligaments, and Membranes of the Patella, with Branches of the Articular Arteres.

#### FIG. 2.

The same kind of View of the PATELLA of a CHILD a little older thun the former.

The Vessels appear white, being full of Osseous Juice, which penetrates the Cartilage. Where they terminate, they for the most part form small Nodules. The Vessels which contained red Blood, and which are here injected with wax, shine through the Cartilage, though

### FIG. 3.

Shows the Arteries of the Patella full of Blood, and much enlarged, while Ossification is advancing.

## FIG. 4.

A View of the Inner Side of the PATELLA of a CHILD, more advanced than in the Subjects of the former Figures.

An Osseous Nucleus is observed in the middle of the Patella.

#### FIG. 5.

The Internal Surface of the PATELLA of a Cuild still older than the former.

The Osseous Nucleus is now of considerable size. The Vessels transmitting Osseous Matter are white, and

distinct from the Arteries. Sanguiferous Vessels appear through the Cartilage, and some penetrate its substance.

#### FIG. 6.

The Internal Surface of the PATELLA of a Por twelve years of age.

The Nucleus now occupies half of the Patella; the Vessels are observed which carry the Osseous Juice; others appear, which are injected with wax.

## FIG. 7.

The Parietal Bone of a Forus about the Fourth
Month, viewed externally.

The whole is composed of Osseous Fibres, which run in a radiated manner. In the middle there is an Osseous Plate, which afterwards forms the external Table.

#### FIG. 8.

The CRANIUM of a FIETUS of Six Months.

The radiated appearance of the Frontal and Parietal Bones, and which are the only parts of the Figure 5nished, is very distinct. In this the Author of the Figure points out the following Fontanellar, viz.

a, Fontanella frontalia, seu anterior.

b, ——— occipitalis, seu posterior c, ——— mastoidea.

d, \_\_\_\_ mastoidea.

# FIG. 9.

The Sternum of a Foxtus come to the full time, with part of the First Pair of Rins joined to it.

The Bone is divided into its three constituent parts, which are joined by Ligaments. Eight Osseous Nuclei appear in it, of various magnitude, and are represented





by the dark spots. The rest of the Sternum is in a cartilaginous state. A Foramen is observed in the Ensiform Cartilage.

#### FIG. 10.

The Os SACRUM of a Young Fretus viewed anteriorly.

The whole appears Cartilaginous, except four Osseous Granula which are seen in the Bodies of the Superior Vertebræ. It is one continued Cartilage, though the Bodies of the Vertebra are distinct.

#### FIG. 11.

The Left Os Femoris of various Fretuses seen from the Fore Part.

The uppermost Figure is from a Fortus in the beginning of the Third Mouth.—In the middle, an Ossous Graulum appears, from which the rest of the Booc afterwards springs by Diaphysis. All the rest of the Femur is Cartilaginous.

The other Bones are from Factuses more advanced. The last one is from a Factus in the beginning of the Sixth Month.—The Diaphysis is almost perfect. The Epiphyses are Cartilaguous.

#### FIG. 12.

The Right Os Femoris of a New-born Child cut longitudinally.

In the middle is the Cavity for lodging the Marrow. The rest of the body of the Bone is full of Reticular Substance. The Epiphyses are entirely in a Cartillaginous state, nor do any Blood-vessels appear there. The upper portion only of the Figure is finished, the rest being only in outlines.

#### FIG. 13.

The Upper Part of the Os Humeri of a Child, cut longitudinally.

The exterior parts of the Bone appear firmer and more solid than the rest, and become thinner the nearer they approach the extremity. In the Epiphysis, Osseous Nuclei appear of different sizes.

#### XXXIIB. TABLE

In this TABLE is represented the Internal Substance of Bones in the Adult State

#### FIG. 1.

A Section of the Upper Part of the CRANIUM, to shew the Tables and Diploc.

## FIG. 2.

A Section of the Right Half of the Lower JAW.

In this is observed the Base and outer parts extremely compact, while the inner parts of the Bone are spongy. The internal Maxillary Canal appears through the greater part of the length of the Jaw; its internal Orifice

## FIG. 3.

is also seen.

1 Longitudinal Section of one of the VERTEBR & of the LOINS, and of part of another.

In the Body and Spinous Process, many Cancelli appear. The passage for the Spinal Marrow is also evident.

#### FIG. 4.

A Section of the Os SACRUM and Os Coccygis, shewing the CANCELLI of the Bodies of both, and of the STI-NOUS PROCESSES of the former.

#### FIG. 5.

One of the Ossa Innominata cut through the Iliac and Pubul Portions, to show the CANCELLI and solid Sides of the Bone. The ACETABULUM and Os ISCHIUM are

# FIG. 6.

A RIB cut lengthways, to show the Outer and Inner Tables, with the intermediate CANCELLI.

#### FIG. 7.

A Longitudinal Section through the middle of the Sternum.

In this is observed the thickness of the Bone; its divisiou into three parts; the large proportion of Cancelli; and the thinness of the Tables inclosing these.

#### FIG. 8.

The Upper Portion of the Os Humert cut longitudinally.

In this appears the connection between the Head and

Body, and the spongy texture of both. In the under part of the Figure, the Cavity is seen for containing the Marrow; the solid sides of the Bone are also evi-

### FIG. 9.

The Upper End of the Os FEMORIS divided longitu-

In the Ball, the Reticular Substance appears, and the connection with the Cervix of the Bone. Farther down, the Cancelli are distinctly seen, but become less evident towards the middle of the Bone. The solid sides, on the contrary, appear thinner as they approach the upper extremity.

## FIG. 10.

A Transverse Section of the Oc Femoris of the natural size, to shew its form, the solid Substance of its Sides, and that it is replete with Reticular Work, which, in the centre, is composed of finer Threads, but nearer the circumference appears more spongy.

#### FIG. 11.

The PATELLA cut longitudinally.

Almost the whole Bone is composed of Reticular Substance, the Plates and Fibres of which become very minute towards the middle. The solid Plate surround ing it is remarkably thin.

## FIG. 12.

The Upper Part of the TIBIA, cut longitudinally.

At the upper part is seen the Cavity for containing the Marrow, and this inclosed by a solid Plate, which becomes gradually thinner towards the upper extremity. The Cancelli appear finer, but more numerous, at the end of the Bone which was formerly an Epiphysis; the distinction of which is still discernible.

The METACARFAL BONE of the THUMB, cut lengthways.

Here the Cellular Texture, as in the larger Bones, is obvious, and the distinction of the Epiphysis.





# PART II.

THE MUSCLES.



## OF THE MUSCLES IN GENERAL.

THE MUSCLES serve for the motion of the different parts of the Body, and derive their general name from their power of contracting.

# Of Muscles in general, the following things are to be attended to.

The Cellular Substance, which surrounds the Muscles, and allows them to move upon each other, and upon the adjacent parts.

The Cellular Substance, condensed in certain parts of

the Body, and giving an appearance of Membrane, formerly called Tunica Propria Musculorum.

The Division of a Muscle into
The Origin, or Head;—or that extremity of the
Muscle which arises from the most fixed part, and to-

Muscle which arises from the most fixed part, and towards which the contraction is made;

The Belly, or thickest part, which swells when the

Muscle is in action;
The Insertion, or Termination, or that extremity

which is implanted into the part to be moved, and which is commonly smaller than the origin.

The Division of a Muscle into Fleshy and Tendinous

parts.

The Fleshy part distinguished by being soft, sensible, generally of a red colour,—from the great quantity of

Blood in it,—and possessing contractility.

The Fleshy part, composed of a collection of some-what clastic semi-pellucid Fibres, of different sizes, running frequently in a parallel direction, but often converging towards one of the extremities of the Muscle.

The Fibres are intermixed with Blood-vessels, Lymphatics, and Nerves, with some Cellular Substance and

The size of the Fibres varies in different parts of the Body; they increase as a person advances towards maturity, and they become firmer and stronger by frequent exertion.

The larger Fibres may be divided into smaller, and these into still smaller, till at length they escape the ob-

servation of the naked eye.

The ultimate Fibres of Muscles have been considered by some as a collection of solid Cords, by many as hollow

by some as a collection of solid Cords, by many as hollow Tuhes, while several have described them as being composed of a chain of little Vesicles. The Muscular Fibres consists chiefly of Fibrin, with a small quantity of Gelatin, Albumen, and Saline Mat-

The Division of Muscles into Rectilineal, as in the Sactorius;—Simple Penniform, as in the Peroness Longus;—Complete Penniform, as in the Rectus Femoris;—Compound Penniform, as in the fore part of the Soleus;—Radiated, as in the Pectorulis Major;—Ilolaus, as in the Heart, Intestines, Bladder of Units.

The particular Names of Muscles are taken from their shape, size, situation, direction, composition, use, and attachment.

The Names adopted by the Author are those in common use, being in general as expressive as any yet contrived. Those of Citasvisita are added, which are taken from the attachments of the Muscles, but, in many cases, a number of principal attachments are excluded; besides, several of his names consist of so many syllables.

as to become burdensome to the memory.

Muscles are supplied with Blood-versels, which are so numerous, that when a good injection is thrown into them, they acquire the same colour with that of the injected matter.

They are also abundantly supplied with Absorbents, which, however, are rather seen in the Cellular Texture of their Interstices, than in their Substance; the Valves preventing an injection from passing from their Trunks to their small Extremities.

The Nerves of Muscles are also very numerous; but although the Muscles were called by some Authors, among others DR CULLEN, the moving Extremities of the Nerves, the latter bear a very small proportion to the former, and the Muscles appear to be quite of a different

nature from the Nerves.

The Nerves of voluntary Muscles have been described by some Writers as being much larger than those of the involuntary kind, as the Heavt; but this circumstance has been exagerated.

In various parts of the Body, the Muscles receive their Nerves from different sources, and many antagonist Muscles receive Nerves from the same source.

The Tendon, like the fleshy part of the Muscle, is of a Fibrous nature, but is not merely Muscle hardened by pressure, as was formerly by some Authors supposed; for,

for, in many instances, Tendons have a different direction from the Muscles to which they belong. Tendon is distinguished from the Flesh by being generally smaller, firmer, stronger;—of a white glistening colour, having no contractility, and little or no sensibility in the sound state. From long boiling, it is observed to afford

a large portion of Jelly, or Glue.

Tendons, like Muscles, vary considerably in their form, 25 round, flat, annular, &c.

Tendons have very few Blood-vessels, and no evident

Tendons in general connect Muscles to Bones. In some parts they unite Cartilages or Bone to each other. In others, they bind down and fortify parts over which

they pass, and, by the smallness of their size compared to the Belly of the Muscle, preserve the elegance and symmetry of the parts on which they are placed. Besides the parts of Muscles stready taken notice of Besides the parts of Muscles stready taken notice of they have the following Appendices, viz.

Appearance, or Functio, which are the Tendous et., and they are they are they are the Tendous et., and they are the are they are they are they are they are the are the are they are they are they are they are the are they are they are they are

Muscular Fibres, to keep them in their proper situation, and to brace them in their action.

Annular Ligaments, to keep Tendons from starting, Trochlese, or Pulleys, to alter the direction of Tende

Bursæ Mucosæ, placed where Tendons play over hard Substances, serving to contain Synovia, and prevent Abrasion.

## MUSCLES OF THE INTEGUMENTS OF THE CRANIUM, AND OF THE EYE-LIDS.

## OCCIPITO-FRONTALIS,

Vel Occipitalis et Frontalis, vel Epicranius, &c.

Origin: Fleshy from near the middle of the upper arched Ridge of the Occipital Bone, Tab. XL. Fig. 1. a; and Tendinous from the extremity of that Ridge, where it joins the Temporal Bone .-- It arises after the same manner on the other side. From the Fleshy Origius, and also from hetween them, a Tendinous Expansion is extended along the upper part of the Cranium, adhering firmly to the Skin, and but loosely to the Perioranium, Tab. XL. Fig. 1. b, c. Tab. XXXIV. Fig. 1. a.—At the upper part of the Forehead it becomes Fleshy, and descends with straight Fibres.

descense with straight Flores.

Insertion: Into the Skin and parts under it belonging to the Eye-brows, and to the Frontal Bone at the inner part of the Orbits. Tab. XXXIV. Fig. 1. A. Action: To move all that part of the Skin which covers it, and particularly the Skin of the Brow and

From the under and middle part of the Muscle, a Slip, termed by Chaussier Fronto-nasalie, is continued down upon the Root of the Nose, to be connected with the Compressor Naris, and Levator Labii Superioris Alæque Nasi. Tab. XXXIV. Fig. 1. b.

This Slip may either assist the Nasal Muscles connected with it, or antagonize the Occipito-frontalis.

# CORRUGATOR SUPERCILIL

By CHAUSSIER, Fronto-superciliaris.

Origin: From the internal Angular Process of the Os Frontis, above the joining of that Bone with the Os Nasi. From thence it runs upwards and outwards, under a tapering form, in the direction of the Superciliary Ridge, and behind the inferior part of the Occipito-Insertion: Into the inner part of the Occipito-fronta-

lis and Orbicularis Palpebrarum, where these two Muscles join each other, as far out as the middle of the Su-perciliary Ridge. Tab. XXXV. Fig. 1, A. Action : To assist its fellow in drawing the Eye-brow

downwards and inwards, and corrugating or wrighling the Skin between them into longitudinal folds.

## ORBICULARIS OCULI, vel ORB. PALPEBRARUM. Vel Naso-palpebralis.

Origin: From the Orbitar Process of the Superior Maxillary Bone; from the internal Angular Process of the Frontal Bone; and, by a small round Tendon, from the Nasal Process of the superior Maxillary Bone.
From these Origins the Muscle passes outwards, under the Skin of the Eye-lids, surrounding the Orbit in a circular manner; extending somewhat beyond it, and covering the upper part of the Cheek. Tab. XXXIV. Fig. 1. D.

The outer Surface of the Muscle adheres to the Skin of the Eye-lids; its upper and inner Edge is intimately connected with the Frontal and Corrugator Muscles. Action: To close the Eye by bringing the Eye-lid together, to press the Ball of the Eye inwards, and act

upon the Lacrymal Organs, so as to assist them in the production and direction of the Tears.

That part of the Orbicularis Oculi which covers the Cartilages of the Eye-lids, and which is remarkably thin, is the Musculus Ciliaris of some Authors. Tab. XXXIV.

A Fleshy Slip frequently passes down from the under and outer part of the Orbicularis, to join the Levator Labii Soperioris Alæque Nasi, Tab. XXXIV. Fig. 1, hetween F and G. When present, it may draw a little towards each other those parts to which it is attached.

## LEVATOR PALPEBRA SUPERIORIS, Vel Orbito-valuebralis.

Origin: From the upper margin of the Foramen Op-

ticum of the Sphenoid Bone. It runs forwards within the Orbit over the Levator Oculi, where it becomes gradually broader, its anterior extremity passing under the Orbicularis Oculi.

Insertion: By a broad thin Tendou, into nearly the whole length of the Cartilage of the upper Eye-lid. Tab. XXXV. Fig. 1. a.

Action: To open the Eye by raising the upper Eye-lid.

#### MUSCLES COMMON TO THE HEAD AND EXTERNAL EAR.

#### ATTOLLENS AUREM,

Vel Superior Auris, vel Temporo-auricularis.

Origin: By a broad Tendinous Expansion, from the Tendon of the Occipito-frontalis. It goes down over the Aponeurosis of the Temporalis. In its passage, it forms a thin Fleshy Slip, which becomes gradually nar-

Insertion: Into the upper part of the Root of the Cartilage of the Ear. Tab. XXXIV. Fig. 1. B.

Action: To give tension to the part into which it is inserted, and, in some persons, to raise the Ear.

ANTERIOR AURIS, vel Zygomato-auricularis. Origin: Thin and Membranous, near the posterior to draw back the Ear.

part of the Zygoma; the middle-part being mixed with Fleshy Fibres

Insertion: By a narrow Tendou into the back part of the beginning of the Helix. Tab. XXXIV. Fig. 1. C. Action: To stretch that part of the Ear to which is

## RETRAHENTES AUREM.

Vel Posteriores Auris, vel Mastoido-auricularis.

Origin: By two, and sometimes by three distinct Muscles, from the upper and outer part of the Mastoid Process

Insertion: By small Tendone into the back part of the Concha. Voz. II. First Table of the Ear, Fig. 2. Action : To stretch the Concha, and, in some persons

## MUSCLES OF THE NOSE AND MOUTH.

COMPRESSOR NARIS, vel Super-maxillo-nasalis.

Origin: By a narrow beginning from the Root of the Ala Nasi, where it is connected with the Levator Labii Superioris Alæque Nasi. It spreads into a number of thin scattered Fibres, which cross the Ala Nasi, and run towards the Dorsum Nasi, where it joins its fellow.

Insertion: Into the anterior extremity of the Nasal Bones, and to the Slip which descends from the Frontal Muscle. Tab. XXXIV. Fig. 1. d.

Action: To press the Ala towards the Septum, as in smelling; or if the Fibres of the Frontal Muscle, which are connected to it, act, they pull the Ala outwards. It also corrugates the Skin of the Nose, and assists in expressing certain passions.

LEVATOR LABIT SUPERIORIS ALÆQUE NASI,

Vel Super-maxillo-labialis Major et Medius.

Origin: By two thin Fleshy Slips; the first from the external part of the Orbitar Process,-the second from the upper part of the Nasal Process of the Superior

Insertion of the first part of the Muscle into the Up-per Lip, and of the second into the Upper Lip and outer part of the Wing of the Nose. Tab. XXXIV. Fig. 1. VOL. T.

Action: To raise the Upper Lip in opening the Mouth, and the Ala Nasi in dilating the Nostril.

Under this Muscle a few scattered Fibres are noticed by Soemmerring, and termed Musculus Anomalus Maxillæ Superioris.

## DEPRESSOR LABII SUPERIORIS ALMOUE NASI.

Origin: Thin and Fleshy, from the Alveoli of the Dentes Incisivi and Caninus of the Upper Jaw; running upwards, at the side of the Furrow of the Lip. Insertion: Into the Upper Lip, and Root of the Ala.

Action: To draw the Upper Lip and Ala Nasi down-wards. Tab. XXXVI. Fig. I. E.

## LEVATOR ANGULI ORIS.

Vel Levator Labiorum Communis, vel Caninus, vel Super-maxillo-labialis Minor.

Origin: Thin and Fleshy, from the superior Maxillary Bone, immediately under the Foramen Infra-orbitarium ;-running deeper down and farther out than the Levator Labii Superioris.

Insertion: Into the Angle of the Mouth, and to the Cheek, where it joins its Antagonist. Tab. XXXV.

Action 2

Action: To raise the corner of the Mouth ;- as in ex- Muscle. It is situated before it, and takes the same pressing joy.

## DEPRESSOR LABIT INFERIORIS.

Vel Quadratus Gena, vel Mento-labialis.

Origin: Broad and Fleshy, from the under part of the Lower Jaw, at the side of the Chin; from thence it runs obliquely upwards and inwards, of an oblong form, till it becomes contiguous to its fellow in the middle of the Lip. Its origin is concealed by the Depressor Auguli Oris,

Insertion: Into one half of the Edge of the Under Lip. Tab. XXXV. Fig. 1, G.

Action: To assist in opening the Mouth, by depressing the Under Lip, and pulling it a little outwards.

# LEVATOR LABII INFERIORIS, vel Levator Menti.

Origin: From the Roots of the Alveoli of the Dentes Incisores and Dens Caninus of the Lower Jaw. Insertion: Into the Under Lip, and Skin of the Chin.

Tab. XXXVI, Fig. 1. H. Action: To raise the parts into which it is inserted. It may also assist in inverting the Under Lip.

## DEPRESSOR ANGULI ORIS. Vel Triangularis, vel Maxillo-labialis.

Origin: Broad and Fleshy, from the under edge of the Lower Jaw, at the side of the Chin,-It runs over the Origin of the Depressor Labii Inferioris, hecoming gradually narrower.

Insertion: Into the Angle of the Mouth, where it intermixes with the Levator Anguli Oris. Tab. XXXIV. Fig. 1. K.

Action: To depress the corner of the Mouth ;-as in expressing Anger, and in crying.

## Zygomaticus Major, vel 2 ygomato-labialis Major.

Origin: Fleshy from the Os Malæ, oear the Zygomatic Suture.-Descending obliquely forwards. Insertion: Into the Angle of the Mouth; its Fibres

intermixing with those of the Depressor Anguli Oris and Orbicularis Oris, Tab. XXXIV. Fig. 1, H. Action: 'To raise the Angle of the Mouth, in the direction of its Fibres, and to make the Cheek prominent;

-as in laughing.

Zygomaticus Minor, vel Zygomato-labialis Minor. Origin: Higher on the Os Malæ than the former Fig. 1. above L.

course, but is much more slender. Insertion: Into the Upper Lip, along with the Leva-tor Auguli Oris, Tab. XXXIV. Fig. 1. G.

Action : To assist the former Muscle in raising the Corner of the Mouth, and drawing it obliquely outwards

This Muscle is often wanting. By the frequent action of the Muscles which raise the Sormers of the Mouth and Upper Lip, that Furrow is formed which extends between the outer Corner of the Nose and Mouth, and which is so conspicuous in the Face of a person advanced in life.

## BUCCINATOR,

Vel Retractor Anguli Oris, vel Bucco-labialis

Origin: From a Ridge extending between the last Dens Molaris and Coronoid Process of the Lower Jaw; and from the Upper Jaw, between the last Dens Molaris and Pterygoid Process of the Sphenoid Bone, from the extremity of which it has also part of its origin. Thence going forwards with straight Fibres, it covers and adheres closely to the Membrane which lines the Cheek.

Insertion: Into the Corner of the Mouth, along with the Orbicularis Oris. Tab. XXXVI. Pig. 1. G.

Action: To draw the Angle of the Mouth backwards and outwards, and to contract its Cavity by pressing the Cheek inwards, by which the Food is thrust between the Teeth in Manducation.—It is likewise active in expelling Substances from the Mouth, and in blowing Wind-instruments, as a Trumpet; from which last circumstance is name is derived.

### ORBICULARIS ORIS. Vel Sphincter Labiorum, vel Labialis.

This is a complete Sphincter surrounding the Mouth, and composing the principal part of the Lips, and is in a great measure formed by the Muscles which terminate in it .- At the Corners of the Mouth, the Fibres decussate each other, so as to make it resemble two semicircular Muscles, from which it has been named by some Author Semi-orbicularis Super:or, and Semi-orbicularis Inferur

Tab. XXXVI. Fig. 1. F.

Action: To shut the Mouth, to enable the Lips to embrace any Substance placed between them, and to counteract the different Muscles inserted into them.

Nasalis Labii Superioris of Albinus,-part of the former Muscle, running up to be connected to the Septum Nasi, and serving as a Levator of the Upper Lip, or a Depressor of the under part of the Nose. Tab. XXXIV.

MUSCLES

## MESCLES OF THE LOWER JAW.

### APONEUROSIS TEMPORALIS.

This is a strong Teudinous Membrane, proper to be taken notice of before describing the Temporalis. arises from the Bones which give origin to the upper semicircular part of the Temporal Muscle, aud, descending over it, is fixed to the Zygoma.

Use: To brace the whole, and to give origin to part

of the Temporal Muscle. Tab. XLIV.

### TEMPORALIS, vel Temporo-maxillaris.

Origin: Semicircular and Fleshy, from the lower half of the Parietal Bone, and Temporal Fossa of the Frontal Bone; and from the Squamous part of the Temporal, and Temporal Plate of the Spheuoid Bone.-It arises likewise from the Aponeurosis covering it;—from these Origins the Fibres descend like Radii, and the Muscle sends off a strong Tendou, which passes under the Zy-

Insertion: Into the whole of the Coronoid Process of the Lower Jaw, which it incloses as in a Sheath, and is continued to near the last Dens Molaris. Tab. XXXV.

Fig. 1. B, b Action: To pull the Lower Jaw upwards, and a little

## Masseter, vel Zugomato-maxillaris.

backwards against the Upper Jaw.

Muscle.

Origin: By strong Tendinons and Fleshy Fibres from the Superior Maxillary Bone, where it joins the Os Malæ, and from the whole length of the under and inner Edge of the Zygoma ;-the outer part of the Musele slanting backwards, the inner part forwards, and in some measure decussating the other. In its descent, it covers the Coronoid Process, and under end of the Temporal

Insertion: Into the outer side of the Angle of the Lower Jaw, and from that upwards to the outside of the Coronoid Process, Tab. XXXV. Fig. 1. C. Action: To assist the Temporalis in the elevation of the Lower Jaw, and to pull it a little forwards or backwards, according to the direction of the Fibres of the Muscle.

### PTERYGOIDEUS INTERNUS.

## Vel Major, vel Pterygo-marillaris Major.

Origin: From the Fossa Pterveoidea of the Sphenoid and Palate Bones; passing downwards and outwards.

Insertion: Into the inner side of the Augle of the Lower Jaw, and continued as far as the Groove for the inferior Maxillary Nerve. Tab. XXXVII. Fig. 1. inner side of G.

Action: To raise the Jaw, and draw it obliquely towards the opposite side.

## PTEREGOIDEUS EXTERNUS, Vel Minor, vel Pterygo-maxillaris Minor.

Origin: From the outer side of the Pterygoid Process of the Sphenoid Bone; from the Tuberosity of the superior Maxillary Bone; and from the Root of the Temporal Process of the Sphenoid Bone. From these Origins it passes almost horizontally outwards, and a little back-

Insertion: Into the Cervix and Capsular Ligament of the Lower Jaw. Tab. XXXIX. Fig. 1. k. Action: To pull the Lower Jaw to the opposite side, and, if both Muscles act, to bring it forwards, so as to make the Fore-teeth project beyond those of the Upper Jaw. The Muselc, in its different motions, acts also upon the Inter-articular Cartilage.

#### MUSCLES ON THE FORE AND LATERAL PART OF THE NECK.

## PLATTSMA MYOIDES, vel Cutaneus, vel Thoraco-facialis.

Origin: By a number of separate Fleshy Slips, from the Cellular Substance, which covers the upper parts of the Pectoral and Deltoid Muscles .- In their ascent, they unite to form a thin Muscular Expansion, which mus obliquely upwards along the fore and lateral part of the Neck, adhering to the Skin, and is similar to the Cuta-neous Muscle of Quadrupeds. Tab. XXXIV. Fig. 1.

the under parts of the Masseter and Parotid Glands Tab. XXXIV. Fig. 1. i.

Action: To assist in depressing the Lower Jaw, the

Corner of the Mouth, and the Skin of the Cheek :when the Jaws are shut, to raise all that part of the Skin connected with it under the Lower Jaw.

## STERNO-CLEIDO-MASTOIDEUS, vel Sterno-mastoideus.

Origin: From the top of the Sternum, and the ante-Insertion: Into the side of the Lower Jaw and the rior end of the Clavicle, by two distinct Heads; the first Depressor Anguli Oris, and into the Skin which covers of which is round, tendinous, and a little fleshy; the other broad and fleshy. A little above the Clavicle, told Process, which it surrounds, and becoming thin the two Heads unite to form a strong Muscle, which runs ner, the Insertion extends as far back as the Lambdoid obliquely upwards and outwards; the greater part of it being covered by the Platysma Myoides. Tab. XXXV.

Insertion: By a thick strong Teudon, into the Mas-

STERNO-HYOIDEUS.

Origin: From the Edge of the upper Bone of the

Suture.

Action: To turn the Head to one side, and assist n rolling it. When both Muscles act, they bow the Head.

### MUSCLES SITUATED BETWEEN THE OS HYOIDES AND TRUNK.

Action: To depress the Os Hyoides, or to raise the Thyroid Cartilage.

#### CRICO-THYROIDEUS.

Origin: From the side and fore part of the Cricoid Cartilage; running obliquely upwards and ontwards. Insertion: Into the Base of the Os Hyoides. Tab. Ensertion: By two portions; the one into the under part of the Wing of the Toyroid Cartilage, the other not its inferior Cornu. Tab. XLVII. Fig. 1. m. Action: To depress and pull forwards the Thyroid

Cartilage, or to raise and draw backwards the Cricoid Cartilage.

### OMO-HYOTDERS.

Origin: From the superior Costa of the Scapula, near the Semilunar Notch. It goes obliquely upwards and forwards, and is of a very slender form. It is situated under the Sterno-mastoideus, and there it grows Tendinous. Higher than this Muscle, it again becomes Fleshy. Insertion: Into the Base of the Os Hyoides, at the Origin: From the Thyroid Cartilage, where the for- side of the Sterno-hyoideus. Tab. XXXV. Fig. 11. k. Action: To depress the Os Hyoides, and pull it to one side; or, when both Muscles act, to draw it directly

#### Sternum internally, and from the adjacent parts of the Clavicle and Cartilage of the first Rib; -ascending upon the fore part of the Trachea and following Muscle. XXXV. Fig. 1. I. Action: To depress the Os Hyoides.

## STERNO-THYROIDEUS.

Origin: From the upper and inner part of the Sternum, and partly from the Cartilage of the first Rib; running along the fore part and side of the Trachea and Thyroid Gland.

Insertion: Into the under and lateral part of the Thyroid Cartilage. Tab. XXXVI. Fig. 1. K. Action: To depress the Larynx.

### THYRO-HYOIDEUS, vel Huo-thyroideus.

mer Muscle terminates, having the appearance of heing continued from it.

Insertion: Into part of the Base, and almost all the down. Corou of the Os Hyoides. Tab. XLVII. Fig. I. k.

### MUSCLES SITUATED BETWEEN THE LOWER JAW AND OS HYOIDES.

#### DIGASTRICUS.

Vel Biventer Maxillæ Inferioris, vel Mastoido-mentalis. Origin: By a Fleshy Belly, from the Groove at the Root of the Mastoid Process of the Temporal Bone. It runs downwards and forwards, and firms a strong round Tendon, which passes through the Stylo-hyoideus; -it is then fixed by a Ligament to the Os Hyoides, and, having received an addition of Tendinous and Muscular Fibres, it runs obliquely upwards and forwards, forming another

Insertion: Intn a rough Sinnosity at the under part of the Symphysis of the Lower Jaw. Tah. XLIX. Fig. 1. b. c.

Fleshy Belly.

Action : To open the Mouth by pulling the Lower

Jaw downwards and backwards; and when the Jaws are shut, to raise the Os Hynides, and of course the Throat,
—as in swallowing. When the lower Jaw is fixed, this
Muscle, according to SOEMMERRING, can extend the Head, and thereby open the Mnuth, by elevating the upper Jaw-This he thinks he has observed in a child sucking.

### MYLO-HYOIDEUS, vel Maxillo-Hyoideus.

Origin: Fleshy, broad, and thin, from the inside of the Lower Jaw, between the last Dens Molaris and the middle of the Chin where it joins its fellow; running downwards and forwards behind the anterior belly of the Digastricus

Insertion: Into the lower edge of the Body of the Or

Hyoides, and joined to its fellow by the intervention of a glossus; and running along its side, it is insensibly lost white Tendinous Line. Tab. XLIX. Fig. 2. a. Action: To pull the Os Hyoides forwards, upwards,

and to a side, or when that Bone is fixed, to assist in the depression of the Jaw.

### GENIO-HTOIDEUS.

Origin: From a Tubercle on the under and inner part of the Symphysis of the Lower Jaw, by a slender begin-ning, from which the Muscle goes obliquely downwards and backwards behind the former Muscle.

Insertion: Into the Body of the Os Hyoides. Tab. XLIX. Fig. 3. a.

Action: To draw the Os Hyoides towards the Chin. when the Jaws are shut; or the Chin towards the Os Hyoides, when the latter is fixed by the Muscles which come from the Sternum.

### GENIO-HYO-GLOSSUS.

Origin: From the same Tubercle with the former

Muscle; its Fibres spreading out like a Fan.

Insertion: Ioto the whole length of the Tongue, and into the Base of the On Hyaidon- Fab. LANIII. No. 57.

Action: According to the direction of its Fibres,—to draw the Tongue forwards or hackwards,-to pull it downwards, and render its Dorsum concave,-and when the Jaws are shut, to make the Os Hyoides advance towords the Chin.

#### Hyo-GLOSSUS.

Origin: From one of the Cornua, and half of the Base of the Os Hyoides; running upwards and a little outwards.

Insertion: Into the side of the Tongue, near the Styloglossus. Tab. XLVII. Fig. 3. e. Action: To depress the edge of the Tongue, and thereby render its upper Surface convex.

#### LINGUALIS.

Origin: From the root of the Tongue, laterally. It advances between the Genio-hyo-glossus and Hyo-glossus, with the Fibres of both of which it intermixes Insertion: Into the tip of the Tongue, Tab. XLVII.

Fig. 4. k. Action : To raise the point of the Tongue ; to contract its substance, and bring it backwards.

### STYLO-GLOSSUS.

Origin: From the Styloid Process of the Temporal Bone, and from the Ligament which connects that Process to the Angle of the Lower Jaw. It goes downwards and forwards, and is of a slender form.

Insertion: Into the root of the Tongue, near the Hyo-

near the Apex. Tab. XLVII. Fig. 2. d. Action : To draw the Tongue backwards, and to move it laterally.

#### STYLO-HYODEUS.

Origin: From the under half of the Styloid Process. It goes downwards and forwards, splitting for the passage of the Digastricus.

Insertion: Into the Os Hyoides, at the junction of the Base and Cornu. Tab. XLIX. Fig. 1. d. Action: To pull the Os Hyoides to one side, and a

little upwards.

### STYLO-HYOIDEUS ALTER. When present, it is a more slender Muscle than the

former, but, like it, has nearly the same Origin, Insertion, and Action.

### STYLO-PHARYNGEUS.

Origin: From the root of the Styloid Process,-it goes downwards and forwards. Insertion: Into the side of the Pharynx, along which

it expands.—It is also fixed to the back part of the Thy-roid Cartilage. Tab. XLVII. Fig. 8. g, h, i, k, l. Action: To dilate and raise the Pharynx, and thereby prepare it to receive the Morsel from the Month. It at the same time elevates the Thyroid Cartilage.

#### CIRCUMFLEXUS PALATI,

Vel Tensor Palati, vel Pterygo-palatinus.

Origin: From the Spinous Process of the Sphenoid Bone, from the Osseous and Cartilaginous parts of the EUSTACHIAN Tube, and from the root of the internal Pterygoid Process. It runs along the Pterygoideus Internus, passes over the Hook of the Internal Plate of the Pterygoid Process; and playing on it by a round Tendon, as on a Pulley, it spreads out into a broad Membrone.

Insertion: Into the Velum Palati, and semilupar edge of the Os Palati, extending as far as the Suture which joins the two Bones. Generally some of its posterior Fibres join the Constrictor Pharyngis Superior and Palato-pharyngeus. Tab. XLVII, Fig. 14. b, c.

Action: To depress and stretch the Velum laterally.

#### LEVATOR PALATI.

### Vel Levator Palati Mollis, vel Petro-palatinus.

Origin: From the point of the Pars Petrosa of the Temporal Bone, and also from the Membranous Portiou

of the Eustachian Tube. From these parts it descends.

Insertion: By a broad Expansion, into the Velum Pa-

MUSCLES SITUATED UPON THE BACK PART OF THE PHARYNX.

ing with its fellow. Tab. XXVII. Fig. 14, a. Action: To raise the Velum in the time of Swallowing, and prevent the food or drink from passing into the Nose, by pressing the Velum against the back part of the Nostrils.

### CONSTRICTOR ISTHMI FAUCIUM, Vel Glosso-palatinus.

Origin: From the side of the root of the Tongue. consists of a few thin Fibres which run in the doubling of the Skin, that forms the anterior Arch of the Palate. Insertion: Into the middle of the Velum Palati, at the root of the Uvula, where it is connected with its fel-

Action: To draw the Palate and root of the Tongue towards each other, and thereby to shut the Opening into the Fauces.

## PALATO-PHARYNGEUS, vel Pharyngo-palatinus.

Origin: From the middle of the Velum Palati, at the root of the Uvula; and from the insertion of the Constrictor Isthmi Faucinm and Circumflexus Palati. The

Muscle consists of a thin Stratum of Fibres, which proceed within the posterior Arch of the Palate, and run

lati, extending as far as the root of the Uvula, and unit- to the upper and lateral part of the Pharynx, where they spread, and mix with those of the Stylo-Pharyngens. Insertion: Into the edge of the upper and back, pare of the Thyroid Cartilage; some of its Fibres being loss between the Membrane and inferior Constrictors of the Pharynx. Tab. XLVII. Fig. 11. c, c.

Action: To draw the Velum and Uvula downwards; the Larvax and Pharyax being at the same time raised: along with the Constrictor Superior and Tongue, to assist in shutting the passage into the Nostrils, and, in swallowing, to convey the food from the Fauces into the

Pharynx. The Salpingo-Pharyngeus of Aebinus, is composed of a small portion of the former Muscle, which arises from the EUSTACHIAN Tube, and which, when acting may affect it. Tab. XLVII. Fig. II. e. e.

#### Azygos Uvulæ, vel Palato-uvularis.

Or igin: From the posterior extremity of the longitu-dinal Palate Suture. It runs in the middle of the Velum Palati, and goes through the whole length of the Uvale. inclosed in the Membrane covering that Body, and adheres in its passage to the Circumfteni.

Insertion: Into the point of the Uvula. Tab. XLVII.

Fig. 10. b. Action : To shorten the Uvula.

### CONSTRICTOR PHARYNGEUS INFERIOR. Vel Laryngo-pharyngeus.

Origin: From the sides of the Thyroid and Cricoid Cartilages. The superior Fibres, running obliquely upwards, cover the under part of the following Muscle, and terminate in a point; the inferior Fibres run more trans-versely, and cover the beginning of the (Esophagus.

Insertion: Into its fellow, by the medium of a longi-tudinal Tendinous line in the middle of the back part of the Pharynx. Tab. XLVII, Fig. 6, a, b. Action : To compress the lower part of the Pharynx,

and to draw it and the Larynx a little upwards.

### CONSTRICTOR PHARYNGEUS MEDIUS, Vel Hyo-Pharyngeus.

Origin: From the Appendix and Cornn of the Os Hyoides, and also from the Ligament which connects the Cornn to the Thyroid Cartilage. In its passage it spreads out, and terminates in a point both above and below; the upper part covering the following Muscle,

Insertion: Into the Cuneiform Process of the Occipi-

tal Bone, before the Foramen Magnum, and to its fellow on the opposite side by a Tendinous Line, in a sim lar manuer to the former Muscle. Tab. XLVII. Fig. 7

Action: To compress the middle and upper part of the Pharyux.

### CONSTRICTOR PHARYNGIS SUPERIOR. Vel Cephalo-pharyngeus.

Origin: From the Canciform Process of the Occipital Bone, before the Foramen Magnum; from the Pterygoid Process of the Sphenoid Bone, and from both Jaws, near the last Dentes Molares: It is likewise connected with the Buccinator, and with the root of the Tongue and Palate. From these origins, it runs almost hori-

Insertion: Into its fellow, by the intervention of a Tendinous line, as in the former Muscle. Tab. XLVII. Fig. 8. a, d.

Action: To compress the upper part of the Pharynx, and, with the assistance of the other Constrictors, to thrust the food into the Œsophagus.

#### MUSCLES OF THE GLOTTIS.

#### CRICO-ARYTENOIDEUS POSTICUS.

Origin: Broad and Fleshy, from the back part of the

Cricoid Cartilage.

Insertion: By a narrow extremity, ioto the back part of the Base of the Arytenoid Cartilage. Tab. XLVII.

Fig. 11. p.
Action: To pull back the Arytenoid Cartilage, by which the Ligament of the Glottis is made tense, and

the Glottis itself longer, as in forming acute sounds.

#### CRICO-ARVIENOIDEUS LATERALIS.

Origin: From the side of the Cricoid Cartilage, where it is covered by the Thyroid.

Insertion: Into the side of the base of the Arytenoid Cartilage. Tab. XLVII. Fig. 16. b.

Action: To open the Glottis, by separating the Ary-

tenoid Cartilages, and, with them, the Ligaments of the Glottis, as in forming grave sounds.

#### THYRO-ARYTENOIDEUS.

Origin: From the under and back part of the middle of the Thyroid Cartilage, from which it runs backwards and a little upwards, in a double order of Fibres, upon the side of the Glottis and Ventricle of the La-

Insertion: Into the fore part of the Arytenoid Car-

tilage. Tab. XLIX. Fig. 7. k.

Action: To pull the Arytenoid Cartilage outwards and forwards, and thereby to widen the Glottis, and shorten and relax its Ligaments. It therefore assists the former Muscle in forming grave sounds. It may also affect the

Ventricle of the Larynx.

A small Slip, termed by Albinus Thyreo-Arytenoideus Alter Minor, arises from the upper and back part of the middle of the Thyroid Cartilage, and is inserted into the Arytenoid Cartilage, above the insertion of the Crico-Arytenoideus Lateralis. Usc: To assist the former in shortening and relaxing the Ligaments of the

ARYTENOIDEUS OBLIQUUS, vel Minor.

Origin: From the root of one of the Arytenoid Carti-

lages; crossing its fellow obliquely.

Insertion: Near the point of the other Arytenoid Cartilage. Tab. XLVII. Fig. 11. n.

Action: To draw the Arytenoid Cartilages towards each other, and assist in closing the Aperture of the Glottis, and in forming acute sounds.

Frequently one of the ohlique Arytenoid Muscles is wanting.

#### ARYTENOIDEUS TRANSVERSUS, vel Major.

Origin: From almost the whole length of the back part of one of the Arytenoid Cartilages, running transversely.

Incertion: In a similar manner, into the other Aryte-noid Cartilage. Tab. XLVII. Fig. 11. o.

Action: To act with the Oblique in closing the Glottis, by drawing together the two Arytenoid Cartilages and the Ligaments of the Glottis.

#### THYRO-EPIGLOTTIDEUS.

Origin. By a few scattered Fibres from the Thyroid Cartilage.

Insertion: Into the side of the Epiglottis. Tab. XLVII. Fig. 16. c, c, f.

Action: To assist its fellow, in drawing the Epiglottis towards the Glottis.

### ARYTENO-EPIGLOTTIDEUS.

Origin. By a number of small Fibres from the Aryteooid Cartilage. It runs along the outer side of the external Opening of the Glottis.

Insertion: Into the Epiglottis, along with the former Muscle. Action: To assist its fellow, in drawing the Epiglottis

immediately down upon the Glottis. It is counteracted by the elasticity of the Epiglottis.

The two last-mentioned Muscles are obscurely seen, excepting in robust bodies.

### MUSCLES SITUATED ON THE ANTERIOR AND LATERAL PARTS OF THE ABDOMEN.

it is proper to take notice of certain Expansious or Fascise covering the first of these

Over the Tendon of the Muscle called External Obtique, there is a thin Expansion, termed Superficial Fascia, consisting chiefly of Transverse Fibres. This

PREVIOUS to the description of the Abdominal Muscles, It adheres to the whole length of the Crural Arch. Part of it is fixed to Ligaments about the root of the Penis and Clitoris. It sends also a sheath along the Spermatic Cord as far as the Scrotum, the rest of it spreads over the In-

guinal Glands, and vanishes in the Fat of the Thigh. The whole of this Fascia is frequently so thin, as to

can also be traced down upon the fore part of the Thigh. appear little else than Cellular Substance condensed. In

the inflamed state, however, it sometimes becomes re-markably thick. It forms the Outer, or Superficial Fas-

cia, in Inguinal and Crural Hernize Under the Superficial Fascia, on the Thigh, there is a thick and strong Aponeurosis, which arises from the fore part of the Spine of the Ilium, from the whole under edge of the Crural Arch, and from the upper and fore part of the Os Pubis. This forms part of the Fascia Lata Femoris, (to be afterwards taken notice of), which incloses the Muscles upon the Thigh.

The portion arising from the Ilium and Crural Arch is termed Ilial, and that from the Pubis, Pubal portion of the Fascia Lata. The Ilial and Puhal portions are united behind the upper end of the Vena Saphena Major, and form a considerable Angle at the inner side of the Femoral Vessels, and between the Muscles on the fore and those

on the inner side of the Thigh.

The upper and inner part of the Ilial Portion, forms a Semilunar Edge, which is concave towards the inner part of the Thigh, and is described by MR BURNS, in the Edinburgh Medical and Surgical Journal for 1806, under the name of Falciform Process. This leaves a large Opening, where the Veno Saphena Major, ascending upon the Pubal Portion of the Fascia Lata, terminates in the Femoral Vein,

This Process covers the great Femoral Blood-vessels, directly after their exit from the Abdomen.

At the edge of the Falciform Process, there is some Fat and Cellular Substance; here also a Gland is commonly placed, and sometimes two, through which part of the Superficial Lymphatics of the Thigh pass in their course towards the Abdomen. At this part of the Thigh, the portion of the Bowels passing through the Crural Ring, protrudes in Femoral Herma.

Frequently the Semilunar Edge of the Fascia is indistinct, the Hial and Pubal Portions being then coofusedly united by an intermixture of Tendinous and Cellular Sub-

Behind the Great Vessels of the Thigh, part of the Pubal Portion of the Fascia is continued down, to be fixed to the Os Femoris, as far as the place where the Femoral Artery perforates the Triceps Muscle.

OBLIQUUS DESCENDENS EXTERNUS. Vel Obliquus Externus Abdominis, vel Costo-Abdomi, nalis.

Origin: In a serrated manner, from the lower edge of the eight inferior Ribs, near their Cartilages. The Serrae intermix with the Indentations of the Serratus Major Anticus, and the Muscle is commonly connected with the Pectoralis Major, Intercostales, and Latissimus Dorsi; the last of which covers the edge of a portion of it, extending from the twelfth Rib to the Spine of the Os Ilinm, from the anterior half of which it has also part of its origin.

From these attachments the Fibres of the Muscle run obliquely downwards and forwards, and terminate (some times by distinct Indentations) in a broad Tendon, or A times by distillation of the two following Muscles, Tab.

XXXIV Fig. 1. G., G. where it forms a curved line, called Linea Semilunaris. From this the Tendinous Fibres are continued in the same direction with the Flesh Fibres, to the middle of the Abdomen.

Insertion: Into its fellow of the opposite side, by the medium of a Tendinous Line, Tab. XXXIV. Fig. 1. E. E. which extends from the Cartilage Ensiformis to the Pubis, and is known by the name of Linea Alba

The Linea Alba is formed by the meeting of the Tendons of the Oblique and Transverse Muscles of the Abdomen, and is perforated in the middle by the Umbilicusoriginally a passage for the Umbilical Cord, and now formed into a Cicatrix. Tab. XXXIV. Fig. 1. F.

The Tendon of this Muscle is strengthened by other Tendons of a more delicate nature, lying upon its outer surface. These decussate it, in a curved direction, upwards and inwards, and are intimately connected with or take their origin from, the under end of the Tendon of the Muscle.

The under part of the Tendon, thicker and stronger than the rest of it, extends from the superior-anterior Spinous Process of the Os Ilium, over the Flexor Muscles and great Vessels and Nerves of the Thigh, to the upper part of the Os Pubis, to which it is fixed. Tab. XXXIV

This part of the Tendon, which was formerly know by the name of Pourart's, or Fallorius's, or Inquinal Ligament, forms a curve behind, but more especially over the Blood-vessels, and therefore is now known by the name of Crural Arch.

Somewhat higher, and farther out, than the Symphysis Pubis, or about an inch and a half in a full-sized Adult, Poupart's Ligament divides into an upper and

under column.

The upper column is fixed to the Ligament of the Symphysis Pubis, and to the Os Pubis of the opposite side. The under one is twisted or doubled in, and inserted into the upper part of the Os Pubis, and Pubis portion of the Linca Ilio-pecticae, from the Fenoral Vessels, as far as the Crest or Tuberosity of the Bone, and forms a firm sharp line towards the Abdomen, which constitutes the posterior edge of the Crural Arch, or forms the Crure Ring of GIMBERNAT, of late so frequently mentioned by

The posterior edge of the Crural Arch is quite tense, when the Limb is extended; but when the Thigh is much bent, the edge of the Arch becomes quite lax, so as to favour the return of the Bowels in the reduction of Crural Hernia.

The under column is looser and more slender in the Female than in the Male; and the space between the Femoral Vessels and the insertion of this part of the Ligament is larger; in consequence of which, Protrusions of the Bawels happen here more frequently in Women.

Where the columns separate, a space is left, of an oval form, or rather like the barrel of a Quill cut obliquely, with the large end of the opening outermost. It is about an inch in length in the Male, but less in the Female, the direction running upwards and outwards, or somewhat in a line between the Pubis and Spine of the Ilium. This is the Ring of the External Oblique Muscle, or Under Abdominal, or Spermatic, or Supra-pubial Ring. Tah. tic Cord in the Male, and the round Ligament of the Uterus in the Female, and where the Bowels protrude in Inguinal Hernia.

Surrounding the exit of the Cord, or the round Ligament, from the Ring, there is a quantity of Cellular Substance, and some Tendinous Fibres, which assist in filling that opening, and in preventing any communication between the outer and inner parts.

The place where the columns separate to form the Ring varies in different Subjects. In some, the separation is considerably farther out than the part already described, though more generally the division is directly at the outer part of the Ring. At this end of the Ring, the Columns are joined by Tendinous Fibres, which arise from the Os Hium, and from Pourart's Ligament; and are part of the Fibres mentioned above, as decussating the Tendon of the External Oblique Muscle.

Through the Abdominal Ring, there is no direct opening into the Cavity of the Abdomen; the passage being shut by the Ohliquus Internus and Transversalis Abdominis, and by a Tendinous Expansion termed Fascia

Action of the Obliquus Externus : To support and compress the Peritoneum and Bowels of the Abdomen; to assist in the evacuation of the Faces and Urine, and in the exclusion of the Fœtus; to thrust the Diaphragm upwards, and draw down the Ribs in Expiration; to bend the Body obliquely to one side when a single Muscle acts, and directly forwards when both act; and to raise the Pelvis when the Thorax is fixed.

### OBLIQUUS ASCENDENS INTERNUS,

Vel Obliquus Internus Abdominis, vel Ilio-abdominalis.

Origin: From the back part of the Os Sacrum ;from the pinous Processes of the three lowest Lumbar Vertebra, by a Tendon common to it and the Scrratus Posticus Inferior and Latissimus Dorsi ;-from the whole length of the Spine of the Os Ilium ; - and from the inside of Pourant's Ligament, at the middle of which it sends off the Cremaster. From these Origins the Fibres are disposed in a radiated manner; but the greater part of their run in a slanting direction upwards

At the Linea Semilunaris, the Muscle becomes Tendinous, and adheres firmly to the Tendon of the Obliquus

anterior Layer, with the greater part of the inferior portion of the posterior Layer, joins the Teudon of the External Ohlique, and goes over the Rectus, to be inserted into the whole length of the Linea Alba. The posterior Layer joins the Tendon of the Transversalis, and goes behind the Rectus; and this union is continued down, till it reaches about half way between the Umbilicus and Os Pubis. Lower than this, only a few scattered Fibres of the posterior Layer are to be found behind the Rectus; the principal part of it passing before that Muscle, to be inserted into the Linea Alba.

Insertion: Into the Cartilages of all the False Ribs; into the Cartilago Ensiformis, and whole length of the Linea Alha. Tab. XXXV. Fig. 1. Trunk, f, i, k, l.

Action: To assist the former Muscle. It bends the

Body, however, in the same direction with the Obliques Externus of the opposite side.

### TRANSVERSALIS.

Vel Transversus Abdominis, vel Lumbo-abdominalis.

Origin; Fleshy from the inner Surface of the Cartilages of the six or seven Lower Ribs, where it intermixes with the Digitations of the Diaphragm, and with the Intercostal Muscles; from the Transverse Processes of the twelfth Dorsal and four superior Lumbar Vertchræ; from the whole inner edge of the Spine of the Os Ilium; and anterior to this, it is connected to the under edge of the Ohliquus Externus. At the Linea Semilunaris, the Muscle changes into Tendon, which is continued across, adhering to the Obliquus Internus in the manner already mentioned.

Insertion: Into the Cartilago Ensiformis and Linea Alba. Tab. XXXVI. Fig. 1. Trunk, C, D, E. Action: To support, and immediately to compress, the

Abdominal Bowels From the inside of the Crural Arch, and from the pine of the Ilium, a Tendiuous Aponeurosis, tenned Iliac Fascia, is sent off, which is reflected over the Iliacus Interuus, and Psoas Magnus, which it braces and protects. It descends afterwards between the Psoas and External Iliac Vessels, to give a lining to the Bones, Muscles, and Ligaments, at the inner side of the Pclvis. It is firmly attached to the Linea Ilio-pectinea, and behind the Origin of the Crural Vessels, is incorporated with the Pubal part of the Fascia Lata, in such a manner, that the one may in a great measure be considered as a continuation of the other.

From the Crural Arch, from the Iliac Portion of the Linea Ilio-pectinea, and reflected also from the under part of the Expansion covering the Iliacus Internus, another Aponeurotic Expansion, of a thin and delicate nature, the Fascia Transversalis of MR Cooper, is sent upwards, which lines the under part of the inner side of the Transversalis, lies between it and the Peritoneum, and vanishes in its ascent in the Abdomen.

The Angle of reflection between these two Expan-Externus. Here its Tendon divides into two Layers : the sions being formed of strong Tendinous Fibres, the Abdomen at this place is fortified, and the Bowels are prevented from protruding between the Spine of the Ihum and Hiac Blood-vessels

Besides these Expansions, others are mentioned by late Authors, as being sent down to inclose the Femoral Vessels at the upper part of the Thigh, so as to form what is called the Crural Sheath.

The beginning of the Crural Sheath, or that part next the Cavity of the Pelvis, is formed anteriorly by the Fascia Transversalis, Crural Arch, and Cellular Substance blended together, posteriorly by the conjoined Fascia Iliaca, Pubal part of the Fascia Lata, and Cellular Substance. 'The anterior and posterior portions of the Fas-cia uniting together at the sides of the Blood-vessels,

form the lateral parts of the Sheath. Lower than the Crural Arch, and extending as far as the Perforation in the Tendon of the Great Adductor Muscle of the Thigh, the Artery is covered before by the Cascia Lata, behind by the deep part, or Pubal portion of that Fascia, and laterally by the two Fascia conjoined

by Cellular Substance.

The Sheath and Vessels it incloses, at the upper part of the Thigh, with the External Iliac Vessels also at the inner part of the Pelvis, are strengthened by some Tendinous slips, which run between, and also at the sides of the Vessels; uniting thom together, to the Crural Arch before, and to the Bones behind, over which they pass. Within the Fascise the Vessels are closely connected

together, as the Great Vessels in the Neck are, by a Vagina of Cellular Suhstance condensed, and which may be considered as the proper Sheath of the Great Vessels

situated in the Thigh

Between the inner part of the External Iliac Vein, and the insertion of the under column of POUPART'S Ligament into the Os Pubis, and having the Os Pubis behind covered by its Ligament, a triangular space is left, at the outer part of which there is a small aperture, which forms the Crural Foramen of GIMBERNAT. The triangular Cavity and Aperture are more considerable in the Female than in the Male, on account of the greater width of the Pelvis. Through this Foramen the Bowels protrude in Femoral Hernia. In the Male the opening is more filled up, in consequence of the greater thickness of the Flexor Muscles of the Thigh, and the breadth of the surrounding Ligaments.

The Crural Foramen is at the beginning of the Crural Sheath, and situated within it, and is commonly occupied by Absorbent Glands; or sometimes by the Trunks of the Absorbents themselves, coming from the Thigh; or now and then by a cross Stratum of Ligamentous Matter; in consequence of which, when the parts are prepared, there may be either a Foramen, or a Cribriform appearance, or an Impervious Septum in the Crural Ring. In this last case, the Absorbents are found to creep along the Coats of the Blood-vessels, in their course to the Abdomen

Half way between the Spine of the Ilium and Symphysis Pubis, the Expansion termed Fascia Transversalis leaves an opening for the passage of the Spermatic Cord, or for the round Ligament of the Uterus; the be-

giuning of which passage may be considered as the Inter-nal or Superior Abdominal Ring.

The under part of this opening is formed by POLPAR'S Ligament, the upper by the Transverse and Internal Ob-

lique Muscle,

From this opening there is no direct passage outwards. the part being shut by the Tendon of the Obliques Externus.

The inner Ring is of the same form and size with the outer Ring, and is directed in the same manner with it. Between the Internal and External Ahdominal Rings. the passage is oblique, like the Rings themselves, and is ahout an inch in length. It has also a quantity of Cellu-lar Substance, which is considered by some Authors as forming a distinct Canal, under the name of Abdominal or Inguinal. The Cellular Substance surrounds the Cord, or the round Ligament, and assists these in completely filling the whole of this passage.

### RECTUS, vel Pubio-sternalis, vel Sterno-pubialis.

Origin: Tendinous from the fore and upper part of the Symphysis Pubis. It soon becomes Fleshy, and runs upwards in form of a flat Band, the whole length of, and parallel to, the Linea Alba. Between its upper Extre-mity and the Umhilicus, it is divided into three nearly equal portions, by as many transverse Tendinous Intersections, and there is generally a half intersection below the Umbilicus. These seldom penetrate through the whole thickness of its Substance. They adhere firmly to the anterior part of the Sheath which incloses the Muscle, so as to render its separation difficult, but slightly to the posterior Layer.

Insertion: Into the Cartilages of the three inferior True Ribs and extremity of the Sternum. It frequently intermixes with the under edge of the Pectoralis Major.

Tab. XXXV. Fig. 1. D, D.

Action: To compress the fore part of the Abdomen; to draw down the Ribs in Expiration; and to bend the Body forwards, or to raise the Pelvis. By means of its Sheath and Tendinous Intersections, it is kept in its place, and allowed to act more equally.

### Pyramidalis, vel Pubio-sub-umbilicalis.

Origin: By a broad Base, from the upper part of the Symphysis Pubis. It runs upwards within the same Sheath with the Rectus, tapering to a point in its ascent. Insertion: Into the Linea Alba and inner edge of the Rectus, near half-way hetween the Pubis and Umbilicus. Tah. XXXIV. Fig. 1. p. Action: To assist the under part of the Rectus in

drawing down the Rihs, or to compress the under part of the Abdomen

It is frequently wanting in both sides, and then the under end of the Rectus is larger, thus in some measure supplying its place.

### MUSCLES OF THE MALE PARTS OF GENERATION, AND OF THE ANUS.

### CREMASTER, vel Musculus Testis.

Origin: From the under Edge of the Obliques Internus Abdominis. Passing through the Ring of the Obliquus Externus, it surrounds the Spermatic Cord as far as the Testicle, where the Fibres separate and expand.

Insertion: Into the Tunica Vaginalis Testis, and Cellular Substance of the Scrotum. Tah, XXXIV, Fig. 1. K.

Action: To contract the Scrotum, to suspend and elevate, and to compress and evacuate the Testicle.

#### ERECTOR PENIS.

### Vel Ischio-cavernosus, vel Ischio-sub-penialis.

Origin: Tendinous from the inner side of the Tuberosity of the Os Ischium .- It runs upwards, Fleshy, increasing in hreadth, and emhracing the whole inner part of the Crus Penis.

Insertion . By a thin Tendon into the elastic Membrane which covers the Corpora Cavernosa Penis, as far as the union of the Crura. Tab. XLVIII. Fig. 6. d. Action: To compress the Crus Penis, by which means the Blood is pushed from it into the fore part of the Corpora Cavernosa, and the Penis thereby more completely distended.

### ACCELERATOR URINA Vel Ejaculator Seminis, vel Bulbo-uvethralis.

Origin: Fleshy from the Sphincter Ani, and Membranous part of the Urethra; and Tendinous from the Crus and beginning of the Corpus Cavernosum Penis .-In its course it forms a thin Fleshy Layer, the inferior Fibres of which run more transversely than the superior, which descend in an oblique direction; the Muscles on

the opposite sides completely inclosing the Bulb of the Insertion: Into its fellow by a Tendinous line running

longitudinally on the middle of the Bulb. Tab. XLVIII.

Action: To propel the Urine or Semen forwards, and by compressing the Bulb, to push the Blood into, and thereby distend, the Corpus Cavernosum Urethrae and Glans Penis.

#### TRANSVERSUS PERINEL.

### Vel Transversalis Urethra, vel Ischio-perinealis.

Origin: From the inside of the Tuberosity of the Os Ischium, close to the Erector Penis; running transversely, though sometimes in an oblique direction upwards.

Insertion: Into the back part of the Accelerator Urine, and adjoining part of the Sphincter Ani. Tah. XLVIII. Fig. 6. b.

Action: To dilate the Bulb of the Urethra for the reception of the Semen or Urine; and to assist the Lcvator Am in retracting the Anus, after the discharge of the Faces.

There is frequently another Muscle, termed Transversalis Perinei Alter, running along with the former, and having nearly the same Origin, Insertion, and Action, but going more obliquely upwards.

#### SPHINCTER ANI.

Origin: By a Ligamentous Substance, from the extremity of the Os Coccygis, running forwards within the Skin and Fat which cover the verge of the Anus, and in its passage forming a broad, flat, oval Muscle, which surrounds the extremity of the Intestinum Rectum.

Insertion: By a narrow point, into the Acceleratores Urino and Transversi Perinei. Tab. NLVIII. Fig. 9. a. Action: To shut the Anus, and thereby retain the contents of the Rectum, and also to pull down the Bulb of the Urethra, by which it assists in ejecting the Urinc and Semen. It is assisted by the Sphincter Internus of some Authors, which is merely the circular Muscular Coat of the end of the Rectum.

### LEVATOR ANI, vel Sub-pubio-coccygeus.

Origin: By a semicircular Edge, from the Os Pubis, within the Pelvis, at the upper edge of the Foramen Thyroideum, the fore part coming off near the under end of the Synchondrosis; from the Aponeurosis which covers the Obturator Internus and Coccygeus; and from the Spinous Process of the Os Ischium. From these Origins it is continued down, occupying the under and inner portion of the Pelvis. Its Fibres descend like Radii from a circumference, to meet those of its fellow, and with it to form a kind of inverted Funnel.

Insertion: Into the Sphineter Ani, Accelerator Urina, and under and fore part of the Os Coccygis.-It surrounds the extremity of the Rectum, Neck of the Blad-der, Memhranous Portion of the Urethra, Prestate Gland, and part of the Vesiculæ Seminales. Tab.

NLVIII. Fig. 9. b.

Action: To support the contents of the Pelvis; to retract the end of the Rectum, after the evacuation of the Fæces; and to assist in the evacuation of the Rectum, Bladder, Vesiculæ Seminales, and Prostate Gland. -It is likewise considered by some as a principal agent in the distension of the Penis, by pressing upon its Veins.

Part of the Levator Ani, which arises from the Os Pubis, between the lower part of the Symphysis and the upper part of the Foramen Ovale, and assists in inclosing the Prostate Gland, is called by SOEMMERRING Compressor Prostate.

Between

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Between the Membranous part of the Urethra, and distinct Muscular Fibres, closely sucrounding this Canal, that portion of the Muscle which arises from the inner which has been described by Ma Witzow, in the Medicoide of the Symphysis Pubs, there is a reddish, Cellular, Chirungical Transactions of London for 1999, as A. and very Vascular Substance, but apparently without any tinct Compressor Urethra.

### MUSCLES OF THE FEMALE PARTS OF GENERATION, AND OF THE ANUS.

### ERECTOR CLITORIDIS, vel Ischio-sub-clitorideus.

Origin: As in the Erector Penis in the Male, but the Muscle smaller.

Insertion: Into the Crus and Body of the Clitoris. Tab. CIV. N.

Action: To draw the Clitoris downwards and backwards; and by pushing the Blood into it from its Crus, it may render the Body of the Clitoris more tense.

#### SPHINGTER VAGINE, vel Perinea-clitorideus.

Origin: From the Sphincter Ani, and, near the Perineum, from the posterior side of the Vagina. It passes along the outer end of the Vagina, covers the Corpus Cavernosum Vaginæ; going behind the Nymphæ.

Insertion : Into the union of the Crura Chitoridis. Tab. CIV. M. See Lateral View of Female Parts of Generation. Action: To contract the external Orifice of the Vagina, hy compressing its Corpus Cavernosum, from which it likewise pushes the Blood into the Nymphæ and Clitoris.

### TRANSVERSUS PERINEI.

Origin: As in the Male.

Insertion: Into the upper part of the Sphiacter Ani,

the adjacent parts of the Sphineter Vaging, and into a tough white Substance in the Perineum. Tab. CIV. L. Action: Upon the Perineum and Anus, as in the Male.

When a Transversus Perinei Alter is present, it has the same relation to the former Muscle as in the Male.

#### SPHINCTER ANI.

Origin and course as in the Male. Insertion: Into the Sphincter Vagina, and tough white Substance in the Perineum. Tah. CIV. K.

Action: To shut the Anus, and, by pulling down the erineum, to assist in contracting the external Orifice of the Vagina.

#### LEVATOR ANI.

Origin: As in the Male. In its descent, it embraces the inferior parts of the Vagina, Urethra, and Rectum. Insertion: Into the Perineum, Sphincter Ani, extre-mity of the Vagina, and Rectum. Tab. CIV. H.

Action: Upon the Bladder, Urethra, and Rectum, as in the Male.—It also assists in supporting and contracting the Vagina, and may, by pressing upon the Veins, contribute to the distension of the Cells of the Clitoria and Corpus Cavernosum Vaginæ.

#### MUSCLES OF THE OS COCCYGIS.

### Coccygeus, vel Ischio-coccygeus. Origin: By a narrow point, from the Spinous Process

of the Os Ischium .- In its passage, it gradually expands, and covers the inside of the posterior Sacro-ischiatic Ligament.

Insertion: Into the whole length of the side of the Os Coccygis. Tab. XLVIII. Fig. 3.

Action : To move the Os Coccygis forwards, by which it assists the Levator Ani in supporting or raising the end of the Rectum.

CURVATOR COCCYGIS, vel Sacro-corrogeus. Origin: From the under and forc part of the Os Sa-

Insertion: Into the fore and under part of the Os Coccygis.

Action: To assist the Coccygeus in hending the Os Coccygis. The Curvator Coccygis was formerly considered as

part of the Coccygeus.

### MUSCLES SITUATED WITHIN THE CAVITY OF THE ABDOMEN.

#### DIAPHRAGMA.

that of the Thorax, and is perforated by several Holes, The Diaphragm forms a Fleshy and Tendinous Particome out from the Abdomen. It is concave below, and tion, which separates the Cavity of the Ahdomen from convex above; the middle of it reaching as high within the Thorax as the fourth pair of Ribs. Above, it is covered by the Fleura, and below, by the Peritoneum; and is commouly divided into two portions, called Superior or Larger, and Inferior or Smaller, Muscles of the Diaphragm.

### Superior, or Greater Muscle of the Diaphragm.

Origin: By Fleshy Indentations, from the Cartilago Ensiformis, and from the Cartilages of the seventh, and of all the inferior Ribs on both sides. From these different Origins, the Fibres run in a radiated manner.

Insertion: Into a Cordiform Tendon, placed in the middle of the Diaphragm, in which the Eibres of the opposite sides are interlaced—Towards the right side, the Tendon is perforated by a triangular Hole for the passage of the Vena Cava Inferior; and to the upper convex part of it, the Pericardium and Mediastimum are convex part of it, the Pericardium and Mediastimum are

# INFERIOR, or Lesser Muscle, or Appendix of the Diaphragm.

Origin: By four pair or Heads, of which one Pair in the middle; commonly called its Long, or Teedinous Crura, is the longest. The long Crura arise from the four part of the fourth Lumbar Vestrhen, and adhere to the Book and the Vestrhen and adhere to the Book and the Vestrhen and adhere to the Book and the Crura and Transaction of the Common and the Crura and the

ing for the passage of the Esophagus.

Insertion: By strong Fleshy Fibres, into the posterior Edge of the Cordiform, or middle Tendon. Tab. XLVIII.

Fig. 2.

Action: To calarge the Cavity of the Thorax in Inprization, by its Plenby part conting and bringing its two sides down from a convex on plane Surface; the Adominal Muncles at the same convex on plane Surface; the Tendinous part of the Diaphragian pricing the Cavity of the Cavity of the Cavity of the Cavity of the tenane studies. In Expiration, the Dig nearly in replaced, chiefly by the action of the Abdominal Muncles. It is the Antagonist of the Abdominal Muncles in Impiration, but acts in concert with them in Dejection and in Vomiting.

### QUADRATUS LUMBORUM, vel Ilio-costalis.

Origin: Broad, Tendinous, and Fleshy, from the

posterior half of the Spine of the Os Ilium, and from a Ligament extended between it and the Transverse Process of the last Lumbar Vertebra.

Insertion: Into the Transvense Processes of all the Lumbar Vertehwe; into the last Hih, near the Spine; and, hy a small Tendon, into the side of the last Dorsal Vertebra. Tah. XXXVII. Trunk, D.

Action: To move the Loins to one side, to pull down the last Rih in laborious Expiration, and, when both act, to hend the Loins forwards.

### Psoas Parvus, vel Prelumbo-pubialis.

Origin: Fleshy, from the side of the last Vertebra of the Back, and from that of one or two of the upper Vertebra of the Loius. It seeds off a slender Tendon, which runs down by the inner side of the Pooss Maguus, and an Aponeurosis which expands upon the neighbouring Muscles.

Insertion: Into the Brim of the Pelvis, at the joining of the Binn sud Pubis. Tab. NNNVII. Fig. 1. C, S.
Action: To assist in bending the Spine upon the Pelvis, and, in particular positions, in raising the Pelvis, This Muscle is frequently wanting.

### Psoas Magnus, vel Prelumbo-trochantineus.

Origin: From the side of the Rodies, and from the Transverse Processes of the last Dorsal, and of all the Lumbar Vertebrus, by an equal number of Hesly Silp, which untileg, from a thick strong Marcke, that bounds over the off-the distribution of the Pelvis; passing down over the Original Silp, and the Silp, and the Aller of Insertion: Teachinous and Flesh Longonethe Minor, and part of the Body of the Os Femoris. Tab. XXVIII. Fig. 1, A.

Action: To heud the Thigh, and turo it a little ontwards, or, when the Inferior Extremity is fixed, to assist in hending the Body.

### ILIACUS INTERNUS, vel Ilio-trochantineus.

Origin: Piesly, from the Transverse Process of the last Lousher Veriebra; from all the inner Edge of the Spine of the O. Blium; from the Edge of that Desire of the O. Blium; from the Edge of that Desire of the O. Blium; from the Edge of that Desire of the O. Blium; from most of the bellow part of the O. Blium; from most of the bellow part of the O. Brazer, which covers the Alusche. It joins the Posses Algara, where it begans to be come Tradinous on the O. Politis.

\*\*Insertion: Along with the Posses Maguas. Tab.

\*\*XXVIII.Fig. 1.8.\*\*

Action: To assist the Psous in bending the Thigh.

MUSCLES.

### MUSCLES SITUATED UPON THE ANTERIOR PART OF THE THORAX.

#### PECTORALIS MAJOR, vel Pectoralis, vel Sterno-Humeralis.

Origin: From the Sternal half of the Clavicle; from the fore part of the Edge of almost the whole length of the upper and middle Bone of the Sternum, and here the Muscle is connected with its fellow; and from the Cartilages of the fifth and sixth Ribs, where it mixes with the Obliques Externes. The Fibres from thence converge towards the Axilla, where they decessate, and send off

a flat twisted Tendon.

Insertion: Into the Ridge at the outer Edge of the Groove for lodging the Tendon of the long Head of the Biceps. Tab. XXXIV. Fig. I. A.

Action: To draw the Arm downwards and forwards,

or in a direction towards the Sternum. Between the Portious of the Muscle arising from the Clavicle and Sternum, there is a slight separation, in consequence of which these Portions have been considered by some Authors as two distinct Muscles.

### PECTORALIS MINOR.

Origin: Tendinous and Fleshy, in a serrated manner, from the third, fourth, and fifth Ribs, near their Cartilages. Passing obliquely outwards, it becomes gradually

narrower. Insertion: Tendinous, into the point of the Coracoid

### Vel Serratus Minor Anticus, vel Costo-coracoidalis.

Process of the Scapula. Tab. XXXV. Fig. 1, B. the Ribs.

### MUSCLES SITUATED BETWEEN THE RIBS, AND WITHIN THE THORAX

#### INTERCOSTALES EXTERNI.

Origin: From the under Edge of each Rib, excepting the twelfth. They run obliquely downwards and for-wards from the Spine to the joining of the Ribs with their Cartilages, from which, to the Sternum, they are discontinued; that place being occupied by an Aponeu-

Insertion: Ioto the upper Edge of each Rib, immediately below that from which they take their respective Origins. Tab. XXXVI. Fig. 13. B, &c.
Portions of the Intercostales Externi, which arise from

the Transverse Processes of the Vertebrae, and terminate in the Ribs immediately below, are termed by Albinus, Levatores Costarum Breviores, Tab. XLIII. Fig. 1. C, C .- Other portions, which arise in the same manner, but pass over one Rib, and terminate in the next below it, are named by the same Author, Levatores Costarum Longiores. Tab. XLIII. Fig. I. D. D.

Action: To bring the Scapula downwards and forwards, or, in laborious Respiration, to raise the Ribs

### Subclavius, vel Costo-clavicularis.

Origin: Tendinous, from the Cartilage of the first It soon becomes Fleshy, and runs outwards, under the Clavicle, increasing in breadth Insertion: Into the under Surface of the Clavicle,

from near its Head, as far outwards as the Coracoid Process of the Scapula. Tab. XXXV. Fig. I. A. Action : To pull the Clavicle, and with it the Scapula, downwards and forwards.

### SERRATUS MAGNUS.

Vel Serratus Major Anticus, vel Costo-scapularis. Origin: From the nine superior Ribs, by an equal

number of Fleshy Digitations. It runs obliquely up-wards and backwaste upon the side of the Thorax, and hetween it and the Subscapularis.

Insertion: Fleshy, into the whole length of the Base of the Scapula, and in a manner folded round it, between the insertion of the Rhonihoideus and the origin of the Subscapularis. Tab. XXXV. Fig. 1. C, C. Tah. XLI.

Action: To move the Scapula forwards or downwards, according to the direction of its different Digitations; and when the Scapula is forcibly raised, as in violent Inspiration, to assist in dilating the Thorax, by elevating

# INTERCOSTALES INTERNI.

Origin: The same with mat of the Externi; but they begin at the Sternum, and run downwards and backwards, decussating the former Muscles like the strokes of the letter X, and continuing as far as the Angles of the Ribs, from which to the Spine they are wantin

Insertion: In the same manner as the Externi. Tab.

NLIII. Fig. 1. a, &c.
Portions of the Intercostales Interni, near the under part of the Thorax, which pass over one Rib, and ter-minate in the next below it, are called, by Douglas, Costarum Depressores Proprii. Tah. XLIX. Fig. 8.

L, L. Action of the Intercostales Interni, as well as of the Externi: To enlarge the Cavity of the Thorax, by elevating the Ribs in the time of Inspiration; and the obliquity of the one set balancing that of the other, allows them to be raised more immediately upwards.

From the obliquity of their Fibres, they are found to possess a greater power in raising the Ribs, than Fibres going in a perpendicular direction.

The Intercostales Externi end near the Sternum, and the Interni near the Spine, to admit the ready motion of the Ribs; for, had the former been continued to the Sternum, and the latter to the Spine, the parts of these Muscles supposed to be thus fixed, would of course have become Antagonists to the rest.

The Portions called Levatores and Depressores Costarum assist in raising the Ribs, in the same manner as the

rest of the Intercostales.

STERNO-COSTALIS, vel Triangularis Sterni.

Origin: From the Edges of the Cartilago Ensiformis,

and lower half of the middle Bone of the Sternum, within the Thorax. It runs upwards and outwards, behind the Cartilages of the Ribs.

Insertion: Generally by three Angular Terminations into the Cartilages of the third, fourth, and fifth Ribs, and sometimes also hy a fourth Termination into the corresponding part of the Cartilage of the second or sixth Rib, near the union of the Cartilaginous with the Osseons part of the Ribs. Tab. XXXIX. Fig. 1. i, i, &c.

Action: 'To depress the Ribs into which they are fixed, and, of course, to assist in contracting the Cavity of

the Thorax during Expiration.

### MUSCLES CONTIGUOUS TO THE ANTERIOR PART OF THE VERTEBRÆ OF THE NECK.

#### Longus Colli, vel Predorso-atloideus.

Origin: Tendinous and Fleshy, from the side of the Bodies of the three superior Vertebre of the Back, and from the Transverse Processes of the four inferior Verte-

hree of the Neck.

Insertion: Into the fore part of the Bodies of all the Vel Rectus Anterior Minor, vel Trachelo-sub-occipitalis ertebra of the Neck, by as many small Tendons, Vertebræ of the Neck, by as many small Tendons, which are covered with Flesh. Tab. XLIX. Fig. 8.

Action : To bend the Neck forwards and to one side. or, when both Muscles act, to hend the Neck directly forwards.

### RECTUS CAPITIS ANTERIOR MAJOR.

Vel Rectus Anterior Longus, vel Trachelo-sub-occipitalis Major.

Origin: From the forc part of the Transverse Processes of the third, fourth, fifth, and sixth Vertehræ of the Neck. It runs upwards, and a little inwards, cover-

ing the onter edge of the Longus Colli.

Insertion: Into the Cuneiform Process of the Occi-

pital Bone, near its joining with the Os Sphenoides. Tab. XLIN. Fig. 8. C.

Action: To bend the Head forwards.

RECTUS CAPITIS ANTERIOR MINOR,

Origin: From the fore part of the Atlas, opposite to its superior Oblique Process. It runs obliquely inwards behind, and a little to the outside of the former Muscle. Insertion: Into the Cunciform Process of the Occipi-

tal Bone, immediately before the Condyles. Tab. XLIX. Fig. 8. B. Action : To assist the Rectus Major.

### RECTUS CAPITIS LATERALIS, vel Atloido-sub-occipitalis.

Origin: From the anterior part of the Transverso Process of the Atlas .- It goes obliquely ontwards.

Insertion: Into the Occipital Bone, directly behind

the Jugular Fossa. Tab. XLV. Fig. 4. C.

Action: To incline the Head a little to one side.

### MUSCLES SITUATED UPON THE POSTERIOR PART OF THE TRUNK.

Trafezius, vel Cucullaris, vel Dorso-super-acromialis.

Origin: From the middle of the great arched Ridge of the Occipital Bone; from its fellow over the Spinous Processes of the Cervical Vertebre, by the intervention of a strong Tendon, called Ligamentum Nucha, vel Colli; from the Spinous Processes of the two Inferior Vertebræ of the Neck, and from all those of the Back, adhering Tendinous to its fellow the whole length of its Origin.

Insertion: Fleshy, into the Scapulary half of the Cla-

vicle: Tendinous and Fleshy, into the Acromion, and into the Spine of the Scapula. Tab. XL. Fig. I. I, I.

Action : To move the Clavicle and Scapula, according to the directions of its different Fibres. The superior Fibres descending, raise the Shoulder; the middle run-ning transversely, pull it backwards; and the inferior Fibres ascending, depress it. The whole acting together, hring it immediately back.—When the Scapula is fixed, the Muscle assists in moving the Head backwards.

#### The second Free Land Company of the second S

LATISSIMUS DORSI, vel Lumbo-humeralis.

Origin: By a broad Tendinous Expansion, from the posterior part of the Spine of the O Blium; from all the Spinous Processes of the Vertebra extending between the under end of the OS Secura and sixth Downsl Vertebra, and, by three or four Tendinous or Fleshy Sips, from an equal number of inferior fibs. The Tendon by degrees changes into a Muscle of great breadth, the inferior Fibres of which run upwents and outwards, and the superior transversely over the inferior Apple of the the Atula, where the Fibres of the Muscle in general are collected, twisted, and folded, like those of the Pectoralis Major.

Insertion: By a strong thin Tendon, into the inner Edge of the Groove for looding the Tendon of the long Head of the Biceps. Tab. XL. Fig. 1. K, K. Action: To pull the Arm downwards and backwards,

and to roll the 'Os Humeri inwards, by which the Palm of the Hand is made to face backwards. When the Pectoralis Major acts at the same time with this Muscle, the Arm is brought immediately down towards the Trunk. The Latening Down and Pactoralis Major form the

The Latissimus Dorsi and Pectoralis Major form the Axilla, in which the great Vessels and Nerves, and likewise the Glands, lie which helong to the Arm.

### SERRATUS POSTICUS INFERIOR, vel Lumbo-costalis.

Origin: By the same common Tendon with the La-

tassima Borsi, from the two interior Borsii, and from the three superior Lumbar Vertebræ.

\*\*Insertion:\* By four Fleshy Slips, into the same number of inferior Ribs, near their Cartilages. Tab. XLL.

Fig. 1. Trank, D.

\*\*Action: To depress the Ribs into which it is inserted, and thereby, during Expiration, to assist in contracting the Cavity of the Thorax.

# RHOMEOIDEUS, vel Dorso-scapularis. Origin: Tendinous, from the Spinous Processes of

the four or five superior Dorsal, and of the three inferior Cervical Vertebrae, and from the Ligamentum Nuchae; descending obliquety.

Insertion: Into the whole length of the Base of the Scapula. Tab. NLI. Fig. 1. Trunk, AB.

Scapula. Tab. N.Ll. Fig. 1. Trunk, A.B.

Action: To draw the Scapula upwards and back-wards.

This Muscle is frequently divided by an indistinct Line into two unequal Portious: The part Ac, arising from the Dorsal vertchre, and fixed to the Base of the Scapula under the Spine, is commonly called Rhomboides Major, and the other part of the Muscle, B, Rhomboides Minor.

### SPLENIUS,

### Vel Cervico-mastoideus et Dorso-cervicalis.

Origin: Tendinous, from the Spinous Processes of the four superior Dorsalt, and Tendinous and Fleshy, from those of the fee inferior Cervical Vertebra. It adhress famly to the Ligamentum Nucha, and at the third Cervical Vertebra, it recedes from its fellow, so that part of the Complexus is seen.

Insection: By as many Tendons into the free suprime Transverse Processes of the Cervical Verethers, and by a Tendinous and Fleshy Portion, into the posterior part of the Mastod Process, and into the O. Occupits, where it joins with that Process. Tab, XLL, Fig. J. Neck, C. Bright Process, C. Bright

This Muscle is divided by ALBINUS into Splenius Capitis, or that which arises from the Neck, and goes to
the Head; and Splenius Colli, or that which arises from
the Back, and is fixed to the Neck.

### SERRATUS POSTICUS SUPERIOR, vel Dorso-costalis.

Origin: By a broad thin Tendon, from the Ligamentum Nuchz, over the Spinous Processes of the three last Cervical, and two appermost Dorsal Vertebræ; going obliquely downwards.

Insertion: By four Fleshy Slips, into the second, third, fourth, and fifth Rihs, under the upper and back part of the Scapula, Tab. XLI. Fig. I. Trunk, c.

the Scapula. 12b. M.H. Fig. 1. Trunk, c.

Action: To elevate the Ribs, and thus to dilate the
Thorax in violent Inspiration.

### SACRO-LUMBALIS, vel Sacro-costalis.

Origins In common with the Longissians Denis, Tendinons without, and Bleshy within, from the site, and all the Spinous Processes of the Os Sarrum; from the potentiar part of the Spin of the Os lium; and from all the Spinous and Transverse Processes of the Lumbar Vertebra. The common Mead fills up the space between the Os liums and Os Sarrum, and also the the Mostle Denis. At the under part of the I homas the Mostle Denis At the under part of the I homas the Mostle Denis At the under part of the I homas the Mostle Denis At the Common part of the I homas the Mostle Denis At the under part of the I homas the Mostle Denis At the Mostle Denis

Insertion: Icio the Angles of all the Ribs, by an equal number of Tendons. Tab. XLII. Fig. 1. Trunk, C. From six or eight of the lower Ribs arise an equal number of Fleshy Portions, which terminate in the inserside of this Muscle, and get the name of Musculi Accesside of this Muscle, and get the name of Musculi Accession.

sorii, vel Additamentum ad Sacro-lumbalem.

Action: To assist in raising and keeping the Trank
of the Body creet. It also assists the Serratus Inferior,

Fig. 1. Neck, L.

It

and Quadratus Lumborum, in depressing the Rihs during

laborious Expiration. From the upper part of this Muscle, a Fleshy Slip, called Cervicalis Descendens, runs up to he fixed to the Transverse Processes of the fourth, fifth, and sixth Cervical Vertebræ, by three distinct Tendous. It turns the

## Neck obliquely hackwards and to one side. Tah. XLII. LONGISSIMUS DORSI, vel Sacro-spinalis.

Origin: In common with the Sacro-lumbalia. forms a large, thick, and strong Muscle, which fills the

hollow hetween the Spine and Angles of the Rihs; hecoming gradually smaller in its ascent.

Insertion: Into the Transverse Processes of all the Dorsal Vertebræ, chiefly by small double Tendons; and, hy a Tendinous and Fleshy Slip, into the lower Edge of each of the Ribs, excepting the two inferior, near their Tubercles. Tab. XLII. Fig. 1. Trunk, B. Action: To extend the Trunk, and keep it erect ; the

outer part may assist in depressing the Ribs during lahorious Expiration.

From the upper part of this Muscle, a round Fleshy Slip runs up to join the Cervicalis Descendens.

#### SPINALIS DORSE.

Origin: By five Tendinous Slips, from the Spinous Processes of the two upper Lumbar, and the three lower Dorsal Vertebræ. In its ascent, it is incorporated with the Longissimus Dorsi.

Insertion: Into the Spinous Processes of the eight or nine uppermost Dorsal Vertebre, excepting the first, hy as many Tendons. Tah. XLII. Fig. 1. Trunk, A.

Action : To fix the Vertebrae, and to assist in extending the Trunk, and in keeping it erect.

#### Complexus, vel Trachelo-occipitalis.

Origin: By distinct Tendons, from the Transverse Processes of the seven superior Dorsal, and four inferior Cervical Vertebræ, and, by a Fleshy clip, from the Spinous Process of the first Dorsal Vertebra. In its passage upwards, it is intermixed with Tendinous and Fleshy parts.

Insertion: Into a Depression, under the middle of the large arched Ridge of the Occipital Bone. Tab. XLII. Fig. 1. Neck, c, d.

Action: To draw the Head backwards, and to one side; and when both act, to draw the Head directly hackwards.

The long Portion of this Muscle, which lies next the Spinous Processes, is more loose than the rest, and has a roundish Tendon in the middle of it, with a Fleshy Belly at each end, on which account it is called by AL-BINUS, Biventer Cervicis.

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### TRACHELO-MASTOIDEUS,

Vel Complexus Minor, vel Mastoideus Lateralis.

Origin: From the Transverse Processes of the three uppermost Dorsal, and five lowest Cervical Vertebrae, where it is connected to the Transversalis Cervicis, by as many thin Tendons, which unite into a sleuder Belly, and run up under the Splenius.

Insertion: Into the posterior margin of the Mastoid Process, by a thin Tendon. Tab. XLII. Fig. 1. Neck,

Action: To assist the Complexus; but pulling the Head more laterally.

### LEVATOR SCAPULE,

Vel Levator Proprius, vel Musculus Patientia, vel Trachelo-scapularis.

Origin: From the Transverse Processes of the five superior Cervical Vertebræ, hy the same number of distiuct Heads, which soon unite to form a flat Muscle, rouning downwards and outwards.

Insertion: Into the superior Angle of the Scapula. Tah. XLI. Fig. 1. A, d.

Action: To pull the Scappla upwards, and a little forwards, as in shrugging the Shoulder; and, when the Scapula is fixed, to pull the Neck a little to one side.

### Semi-Spinalis Dorsi, vel Transverso-spinalis Dorsi.

Origin: From the Transverse Processes of the seventh. eighth, ninth, and tenth Dorsal Vertebræ, hy as many distinct Tendons, which soon grow Fleshy, and then again become Tendinous. Insertion: Into the Spinous Processes of the six or

seven uppermost Dorsal, and two lowest Cervical Verte-hræ, hy as many Tendons. Tab. XLIII. Fig. I.

Action : To extend the Spine obliquely backwards.

#### MULTIFIDUS SPINE.

Formerly described as three distinct Muscles, viz. Transverso-spinalis Lumborum, Transverso-spinalis Dorsi, and Transverso-spinalis Colli.

Origin: From the side and Spinous Processes of the Os Sacrum, and from that part of the Os Ilium which joins with the Sacrum; from all the Oblique and Transverse Processes of the Lumbar Vertebra; from all the Transverse Processes of the Dorsal, and of the four Inferior Cervical Vertebræ, by as many distinct Tendons, which soon become Fleshy, and run obtiquely upwards and inwards.

Insertion: By distinct Tendous, into all the Spinous Processes of the Lumbar, Dorsal, and Cervical Vertebraz,

Muscle.

bræ, excepting the Atlas. Tab. XLIII. Fig. 1. Trunk, It forms a thick Belly, which rous upwards and out-Action : To extend the Spine obliquely, and pull it to

a side. When both Muscles act, they draw the Spine directly backwards.

### SEMI-SPINALIS COLLI,

Vel Transverso-spinalis Colli.

Origin: From the Transverse Processes of the six uppermost Dorsal Vertebræ, by an equal number of dis-tinct Tendons, which run obliquely under the Complexus. Insertion: Into the Spinous Processes of all the Cervical Vertebrae, except the first and last. Tab. XLIII. right side of Neck, I, I.

Action: To extend the neck obliquely backwards, and to a side.

#### TRANSVERSALIS COLLL.

Origin: From the Transverse Processes of the five

uppermost Dorsal Vertebre, by the same number of Ten-dinous and Fleshy Slips. It runs between the Trachelo-Mastoidens, Splenius Colli, and Cervicalis Descendens, Insertion: Into the Transverse Processes of all the Cervical Vertebra, except the first and last. Tab. XLII.

Fig. I. Neck, I, I. Action: To turn the Neck obliquely backwards, and

a little to one side. RECTUS CAPITIS POSTICUS MINOR.

Vel Rectus Minor, vel Atloido-occipitalis. Origin: Tendinous, close to its fellow, from a small Protuberance which is instead of the Spinous Process of the first Cervical Vertebra; spreading out in its ascent.

Insertion: Fleshy, into a Depression between the middle of the smaller Arch and Foramen Magnum of the Occipital Bone. Tab. XLIII. Fig. 1. A. Action: To assist the following Muscle in drawing the Head backwards.

### RECTUS CAPITIS POSTICUS MAIOR. Vel Rectus Major, vel Avoido-occipitalis.

Origin: Fleshy, from the external part of the Spinons Process of the second Cervical Vertebra. It becomes gradually broader, and goes obliquely upwards and ontwards.

Insertion: Tendinous and Fleshy, into the Os Occipi-tis, at the outside of the insertion of the Rectus Minor, part of which it covers. Tab. XLIII. Fig. 1. B. Action: To pull the Head backwards, and to assist a little in its rotation.

### OBLIQUUS CAPITIS INFERIOR, vel Axoido-atloideus.

Origin: Fleshy, from the Spinous Process of the second Cervical Vertebra, at the outside of the Rectus Major.

Insertion: Into the Transverse Process of the first Cervical Vertebra. Tab. XLIII, Fig. I. D.

Action : To roll the Head. OBLIQUUS CAPITIS SUPERIOR.

### Vel Atloido-sub-mastoideus.

Origin: From the Transverse Process of the first Cervical Vertebra, passing upwards and a little in-

Insertion: Into the Occipital Bone, at the outer part of the Insertion of the Rectus Major. Tab. XLIII, Fig. 1. C.
Action: To assist in drawing the Head backwards,

and a little to one side.

### SCALENUS ANTICUS, vel Costo-cervicalis Anticus.

Origin: Tendinous and Fleshy, from the upper part of the first Rib, near its Cartilage

Insertion: Into the Transverse Processes of the fourth, fifth, and sixth Cervical Vertebrat, by no many Tendons. Tab. XXXVI, Fig. 1. L.

### SCALENUS MEDIUS, vel Costo-cervicalis Medius.

Origin: From the upper and outer part of the first Rib, from its Root to near its Cartilage. Insertion: Into the Transverse Processes of all the

Cervical Vertebræ, by as many strong Tendons. Tab. XXXVII. Neck, M, N. The Subclavian Artery, and the Nerves which form the Brachial Plexus, pass between this and the former

SCALENUS POSTICUS, vel Costo-cervicalis Posticus.

Origin: From the upper edge of the second Rib, near Insertion: Into the Transverse Processes of the fifth and sixth Cervical Vertebre. Tab. XLII. Neck, E. Action of the three Scaleni: To bend the Neck to

### one side; or, when the Neck is fixed, to raise the Ribs, and dilate the Thorax, as in violent Inspiration. INTERSPINALES COLLI-

The spaces between the Spinous Processes of the Cervical Vertebrae, most of which are forked, are occupied by double Fleshy Portions

Origin: From the upper part of each Spinous Process,
Insertion: Into the under part of each Spinous Process, insmediately above that from which it takes its origin. Tab. XLIII. Neck, G, G.

Action: To draw these Processes nearer to each other, and of course the Neck a little backwards.

#### INTERTRANSVERSALES COLLI.

The spaces between all the Transverse Processes of the Cervical Vertebre, which are also forked, are filled up in like manner with double Fleshy Portions. Action: To draw these Processes towards each other.

Action: To draw these Processes towards each other, and turn the Neck a little to one side. Tab. XXXVII. Neck, f, f.

Interspinales et Intertransversales Dorsi.

These are rather small Tendons than Muscles, serving to connect the Spinous and Transverse Processes. Tah. XLIII. Trunk, c, c, d, d.

### INTERSPINALES LUMBORUM.

They are of the same nature with the Interspinales and Intertransversales Dorsi.

### INTERTRANSVERSALES LUMBORUM.

These are five distinct Muscles, which occupy the Spaces between the Transverse Processes of the last Dorsal and of all the Lumbar Vertebray, and serve to draw them a little towards each other. Tah. XLIII. Loins, H., H.

### MUSCLES OF THE SUPERIOR EXTREMITY

### MUSCLES ARISING FROM THE SCAPULA.

#### Supra-Spinatus

Vel Super-scapulo-trochitereus Parvus.

Origin: Fleshy, from the whole Fossa Supra-spinata, and from the Spine and Superior Costa of the Scapula; passing under the Acronion, and adhering to the Capsular Ligament of the Joint.

Insertion: Tendinous, into the fore part of the large Tubercle on the Head of the Os Humeri. Tah. XLI.

Shoulder, B.

Action: To raise the Arm, and at the same time to pull the Capsular Ligament from between the Bones, so as to prevent it from being pinched.

#### INFRA-SPINATUS.

### Vel Super-scapulo-trochitereus Magnus.

Origin: Fleshy, from all that part of the Dorsum Scapule which is below its Spine; and from the Spine itself as far as the Cervix Scapule. The Fibres run obliquely towards a Tendon in the middle of the Muscle which goes forwards, and adheres to the Capsular Liga-

Insertion: By a flat thick Tendon, into the upper and outer part of the large Protuberance on the Head of the Os Humeri, Tab. XLL Shoulder, C.

Os Humeri. Tab. N.Ll. Shoulder, C. Action: To roll the Os Humeri outwards; to assist in raising, and in supporting it when raised; and to pull the Ligament from hetween the Bones.

These two Muscles are covered by an Aponeurosis, a which extends hetween the Costa and edges of the Spine

of the Scapula, and gives rise to many of the Muscular Fibres.

### TERES MINOR,

Vel Super-scapulo-trochitereus Minimus,

Origin: Fleshy, from the inferior Costa of the Scapula. It ascends along the under edge of the Infra-spinatus, and adheres to the Capsular Ligament.

Insertion: Tendinous, into the back part of the large Protuberance on the Head of the Os Humeri, a little below the Infra-spinatus. Tab. XLI. Shoulder, D. Action: To roll the Os Humeri outwards, to draw it hackwards, and to prevent the Ligament from heing pinched between the Bones.

### TERES MAJOR, vel Scapulo-humeralis.

Origin: Fleshy, from the Dorsal side of the inferior Angle of the Scapula, and from a small part of its inferior Costa. It is situated at the under part of the Teres Minor, and sends off a broad flat Tendon, which accompanies that of the Latissimus Dorsi.

Insertion: Along with the Latissimus Dorsi, into the Ridge at the inner side of the Groove for ledging the Tendon of the Long Head of the Biceps. Tab. XLI. Shoulder, E.

Action: To roll the Humerus inwards, and to draw it backwards and downwards.

### DELTOIDES, vel Sub-acromio-humeralis.

Origin: Fleshy, from all the outer part of the Clavicle

unoccupied by the Pectoralis Major, from which it is separated by a small Fissure; Tendinous and Fleshy, from the Acromion, and lower Margin of almost the whole Spine of the Scapula, opposite to the insertioo of the Tra-

From these origins it runs, under the appearance of an Appoeurosis to the internal Condyle of that Bone. three Muscles going in different directions, and separated from each other by slight Pissures; viz. from the Clavicle outwards, from the Acromion downwards, and from forwards, the Spine of the Scapula forwards; and is composed of a number of Fasciculi, forming a strong Fleshy Muscle, which covers the Joint of the Os Humeri.

Insertion: Below that of the Pectoralis Major, by a short and strong Tendon, into a rough Surface, on the outer side of the Os Humeri, near its middle, where the Fibres of this Muscle intermix with part of the Brachialis

Exterous. Tab. XL. Shoulder, A Action: To pull the Arm directly outwards and upwards, and a little forwards or backwards, according to the different directions of its Fibres,

CORACO-BRACHIALIS, vel Coraco-humeralis.

Origin: Tendinous and Fleshy, from the fore part of

MUSCLES CHIEFLY SITUATED ON THE ARM, SERVING FOR THE MOTION OF THE FORE-ABM.

APONEUROSIS OF THE SUPERIOR EXTREMITY .- Tab. XXXIII, Fig. 1, 2,

THE greater part of the Superior Extremity is covered by a Tendinous Membrane or Aponeurosis, which arises from the different Processes of the Bones of, and

the Muscles on, the Shoulder It covers the two Spinati Muscles on the back part of

the Scapula, as already mentioned.

On the Humerus, it incloses the Flexor and Extensor Muscles of the Fore-arm, and is connected to the Ridges

and Condyles at the under end of the Os Humeri. At the bending of the Elbow, it is connected to the ends of the Radius and Ulna, and receives considerable additions from the Tendons of the Biceps and Triceps

of the Fore-arm, where the Fibres from the opposite sides decussate each other It becomes thicker and stronger oo the Fore-arm, and

forms a firm covering to the Muscles there. In its descent, it gives origin to many Muscular Fibres, and sends off among the Muscles, Partitions which are fixed to the Radius and Ulna. The Membrane is at

length lost insensibly upon the Hand.

It is thicker and stronger on the outer than upon the inner side of the Extremity, particularly on the Fore-arm, at the under and back part of which it forms a thick and strong Band, which, running transversely, gets the name

of Ligamentum Carpi Annulare Posterius. The use of this Aponeurosis, like that in other parts of assists in stretching the Aponeurosis.

the Coracoid Process of the Scapula, in common with the short Head of the Biceps, to which it adheres through

the greater part of its length.

Insertion: Tendinous and Fleshy, into the internal part of the Os Humeri, near its middle, where it sends down-

Tab. XXXVI. Arm. C. Action: To bring the Arm obliquely upwards and

Subscapulabis, vel Sub-scapulo-trochineus

Origin: Fleshy, from the three Costse and whole in-

ner Surface of the Scapula. It is composed of a number of Tendinous and Fleshy portions, which run in a radiated manner, and make prints on the Bone; in its passage outwards, adhering to the Capsular Ligament. Tab. XXXVII. Shoulder, A.

Insertion: Tendinous, into the upper part of the in-teroal Protuberance at the Head of the Os Humeri. Action: To roll the Arm inwards, to draw it to the

side of the Body, and to prevent the Capsular Ligament from being pinched,

the Body, is to brace-the Muscles, by keeping them in their proper place while in action, and to give origin to many of the Muscular Fibres which lie immediately un-

> BICEPS FLEXOR CUBITI, Vel Biceps, vel Scapulo-radialis.

Origin: By two Heads: The outer one, called its Long Head, begins by a slender Tendon from the upper edge of the Glenoid Cavity of the Scapula, passes over the Ball of the Os Humeri within the Joint, and, in its descent without the Joint, is inclosed in a Groove upon the upper and fore part of the Bone, by a Ligament which proceeds from the Capsular Ligament and adjacent Tendons: The inner one, called its Short Head, arises. Tendinous and Fleshy, from the Coracoid Process of the Scapula, in common with the Coraco-brachialis. A little below the middle of the fore part of the Os Humeri, the two Heads unite, and form a thick Fleshy Belly.

Insertion: By a strong roundish Tendon, into the Tuberete at the upper and inner part of the Radius, and by a Tendinous Expansion into the Aponeurosis of the Fore-arm, which it likewise assists in forming. Tab. XXXV.

Action: To bend the Fore-arm, and to assist the Supinator Muscles in rolling the Radius outwards, and, of course, to turn the Palm of the Hand upwards. It also

BEACHIALIS.

### BRACHIALIS INTERNUS, vel Humero-cubitalis.

Origin: Fleshy, from the middle of the Os Humeri, at each side of the insertion of the Deltoides, covering all, and attached to most, of the under and fore part of the Bone. It runs over the Joint, adhering firmly to the Capsular Ligament.

Insertion: By a strong short Tendon, into the Coronoid Process of the Ulna. Tab. XXXVI. Arm, D. Action : To bend the Fore-arm, and to prevent the Ligament of the Joint from heing pinched.

### TRICEPS EXTENSOR CUBITI, Vel Scapulo-humero-olecraneus.

Origin: By three Heads: The first, or long Head, broad and Tendinous, from the Inferior Costa of the Scapula, near its Cervix: The second, or short Head, acute, Tendinous, and Fleshy, from the outer and back part of the Os Humeri, a little helow its upper extremity: The third, formerly called Brachialis Externus, arises by an acute heginning, from the back part of the Os Humeri, arm.

near the insertion of the Teres Major. The three Heads unite about the middle of the Humerus, and cover the whole posterior part of that Bone, adhering to it in their desecut.

Inscrtion: Into the upper and outer part of the Olecranon of the Ulna, and partly into the Condyles of the Os Humeri, adhering closely to the Ligament. Tah. XLI. Arm, F, g, h, i.
Action: Tu extend the Fore-arm.

### ANCONEUS, vel Epicondilo-cubitalis.

Origin: Tendinous, from the posterior part of the external Condyle of the Os Humeri. It deseends under a triangular form, soon becomes Fleshy, and part of its Flesh is likewise continued from the third Head of the Triecps.

Insertion; Fleshy and thin, into a Ridge on the outer and hack part of the Ulna, a little below the Olecranon. Tah. XLI. Fore-arm, 1.

Action: To assist the Triceps in extending the Fore-

### MUSCLES ON THE FORE-ARM AND HAND, SERVING FOR THE MOTION OF THE HAND AND FINGERS.

the prone state of the Hand,-the Arm is here supposed to be placed by the side of the Body, with the Hand in a state of supination; so that the Radius and Thumb are upon the outer, and the Ulna and Little Finger upon the inner side.

### Palmaris Longus, vel Epitrochlo-palmaris. Origin . Tendinous, from the internal Condyle of the

Os Humeri; soon becoming Fleshy, and sending off a long slender Tendon.

Insertion: Into the Ligamentum Carpi Annulare Anterius, and into the Aponeurosis Palmaris. Tab.

XXXVIII. Fore-arm, B, v.

Action: To stretch the Aponeurosis Palmaris, and

assist in bending the Hand. This Muscle is frequently wanting, but the Aponeu-

rosis is always to be found.

#### APONEUROSIS PALMARIS.

This Tendinous Expansion is situated directly under the Integuments of the Palm of the Hand. It begins at the Ligamentum Carpi Annulare Anterius; and, after reading out and covering the greater part of the Palm, is fixed to the Roots of all the Fingers by an equal number of double Stips. Tab. L. Fig. 1.

Action: To bend
It hinds down and braces the Muscles in the Palm, nation of the Haud.

To prevent confusion in the application of the terms and protects the Blood-vessels and Nerves in their course Outer and Inner, when the Muscles are described in to the Fingers.

### PALMARIS BREVIS, vel Palmaro-cutaneus.

Origin: By small bundles of Fleshy Fibres, from the -Ligamentum Carpi Annulare Anterius, and Aponeurosis Palmaris, and passing across, it has its

Insertion into the Skin and Fat which cover the Abductor Minimi Digiti, and into the Os Pisiforme. Tab. L. Fig. I. o.

Action: Tn assist in contracting the Palm of the

#### FLEXOR CARPI RADIALIS.

### Vel Radialis Internus, vel Epitrochlo-metacarpeus

Origin: Tendinous and Fleshy, from the inner Condyle of the Os Humeri, and from the fore and upper part of the Ulna, between the Pronator Radii Teres and Flexor Sublimis, to which it firmly adheres. It forms a long Toudon, which passes down near the Radius, goes through a Fossa in the Os Trapezium, and becomes flat at its inferior extremity

Insertion: Into the fore and upper part of the Metacarpal Bone which sustains the Fore Finger. Tab.

XXXVIII. Arm, z, s.

Action: To bend the Wrist, and to assist in the pro-

### FLENOR CARPI ULNARIS,

Vel Ulnaris Internus, vel Cubito-carpeus.

Origin: Tealinous, from the internal Coadyle of the Os Humeri, and, by a small Fleshy beginning, from the corresponding side of the Olecruson. It passes along the inner side of the Ulan, from which also it derives part of its origin for a considerable way down. A number of its Fleshy Fibres likewise arms from the Aponeurosis of the Fore-arm.

Insertion: By a strong Tendon, into the Os Pisiforme. Tab. XXXVIII. Right Arm, a. Action. To assist the former Muscle in bending the

### EXTENSOR CARFI RADIALIS LONGICE,

Vel Radialis Externus Longior, vel Humero-supermetacarpeus.

Origin: Broad, thin, and Fiesby, directly below the bright of the Ridge of the Os Hameri, above its external Condyle. It sends off a long flat Tendon, which passes down, first upon the outer, and then upon the back part of the Radius, deseeming in a Groove there, and going under the Ligamentum Carpi Annulare Posterius.

mentum Carpi Annulare Posterius.

Insertion: Into the upper, back, and outer part of the Metacarpal Bone of the Fore Finger. Tab. XLV. Right

Arm, F. Action: To extend the Wrist, and bring the Hand backwards.

### EXTENSOR CARPI RADIALIS BREVIOR,

Vel Radialis Externus Brevior, vel Epicondilo-supermetacarpeus.

Origin: Tedinous, in common with the Extense Longior, but farther down; from the external Condyle of the Os Huneri; and from the Ligament which connects the Radius to it.—Passing down upon the back part of the Radius, its Tendon goes under the Ligamentum Annular Pesterius, in the same channel with the Tendon of the Extense Longior.

Invertion: Into the upper and back part of the Metacarpal Bone of the Middle Finger. Tab. XLV. Right Arm, G.

Action: To assist the former Muscle in extending the Wrist; or, with it and the Flexor Carpi Radialis, to draw the Hand to the side next the Thumb.

### EXTENSOR CARPI ULNARIS,

Vel Ulnaris Externus, vel Cubito-super-metacarpeus.

Origin: Tendinous, from the external Condyle of the Os Humeri; and in its progress Fleshy, from the middle of the Ulna, where it passes over that Bone. Its round

Tendon is inclosed by a Membranous Sheath, in a Groove at the back part of the extremity of the Lina.

Insertion: Into the posterior and upper part of the Metacarpal Roue of the Little Finger. Tab. XLIV. Right Arm, Q. Action: To assist the two former Muscles in extend-

Jetion: To assist the two former Muscles in extending the Wrist; or, with the assistance of the Flexor Ulnaris, to draw the Hand towards the side next the Lattle Finger.

### Flexor Digitorum Sublimis, vel Perforatus, Vel Epitrochlo-phalangeus Communis.

Origin: Tendinous and Fleshy, from the internal Codyle of the Or Humeri; Tendinous, from the Root of the Coronoid Process of the Unix, and Membranous dius. Its Fleshy Belly sends of four round Tendons before it posses under the Ligamentum Carpi Annulus: Anterius. In their course, they are connected to those of the following Muscle by fine Membranous West, State and Company of the Company of th

Insertion: Into the anterior and upper part of the second Phalaux of the Fingers, being, near the ender part of the first Phalaux, spitt and twisted to form a passage, and at the same time a kind of Sheath, for the Tendons of the Flexor Profundus. Tab. XXXVIII. Left Arm, 2, A.

Left Arm, 2, A.

Action: To bend the second, and then the first Phalanx of the Fingers.

### FLEXOR DIGITORUM PROFUNDUS, vel PERFORANS, Vel Cubito-phalangeus Communis.

Origin: Fiesby, from the external side and upper part of the Ulna, for some way down; and from a large share of the Interesseous Ligament. It descends behind the Flexor Sublinia, and, like it, splits into four Tendons, a little before it passes under the Ligamentum Analare, and these pass through the Silts in the Tendons of the Flexor Sublimis. Tab. XXXIX. Left Arm, V, W, X.

Insertion: Into the anterior and upper part of the third Phalams of the Fingers.

Action: To bend the last Joint of the Fingers.

## LUMBRICALES, vel Palmo-phalangeus.

These consist of four small Muscles somewhat resembling Farth-worms, from which they derive their name. Origin: Thin and Fleshy, from the outside of the Tendons of the Hesor Perfondacy, a title above the lower cipic of the Ligamentum Carpi Annulare. At the under ends of the Metacaptal Fonces, each seeds of a eleculer Tendon.

Insertion: Into the outer sides of the broad Tendon.

Phalanx. Tab. L. Fig. 3. m, &c.

Action: To bend the lirst Phalanx, and increase the Flexion of the Fingers, while the long Flexors are in full

### EXTENSOR DIGITORUM COMMUNIS. Vel Epicondilo-super-phalangeus Communis.

Origin: Tendinous and Fleshy, from the external Condyle of the Os Humeri, where it adheres to the Supinator Radii Brevis. It passes down upon the back part of the Fore-arm, and before it goes under the Ligamentum Carpi Annulare Posterius, it splits into three or four Tendons, some of which may be divided into smaller ones. Upon the back of the Metacarpal Bones, the Tendons become broad and flat, and near the Heads of

these Bones send Aponeurotic Expansions to each other. Insertion: Into the posterior part of all the Bones of the four Fingers, by a Teudinous Expansion, which is thick and strong at the sides of the Joints, but thin at their back part, to facilitate their motious. Tab. XLV.

Right Arm, S, T.

Action - To extend all the Joints of the Fingers.

### SUPINATOR RADII LONGUS, vel Humero-super-radialis.

Origin: By an acute Fleshy beginning, from the Ridge of the Os Humeri, above the external Condyle, nearly as high as the middle of the Bone. It forms a thick Fleshy Belly, which covers the upper part of the Extensor Car-pi Radialis Longior; and about the middle of the Forearm, sends a tapering Tendon along the edge of the Ra-Insertion: Into the outer side of the under end of the

Radius. Tab. XXXVIII. Fore-arm, W. Action . To roll the Radius outwards, and, of course, to turn the Hand into a supine situation, or with the Palm

upwards.

### SUPINATOR RADII BREVIS. vel Epicondilo-radialis. Origin: Tendinous from the external Condyle of the

Os Humeri, and Tendinous and Fleshy from the outer and upper part of the Ulna, and from the Interosscous Ligament. It passes over the external edge of the Radius.

Insertion: Into the upper and fore part of the Radius. Tab. XLIV. Fore-arm, O.

Action: To assist the Supinator Longus.

### PRONATOR RADII TERES, vel Epitrochlo-radialis.

Origin: Fleshy from the internal Condyle of the Os Humeri, and Tendinous from the Coronoid Process of the Ulna. It goes obliquely across the upper end of the Plexor Muscles of the Wrist, and is of a tapering form.

Insertion: Thin, Tendinous, and Fleshy, into the

of the Interessei Museles, about the middle of the first middle of the posterior part of the Radius. Tab.

XXXIV. Fore-arm, G.

Action: To roll the Radius inwards, by which it brings the Palm of the Hand downwards, or into a state of Pronation.

### PRONATOR RADII QUADRATUS, vel Cubito-radialis.

Origin: Broad, Tendinous, and Fleshy, from the under and inner part of the Ulna, 'The Fibres running transversely, the Muscle has its

Insertion into the under and fore part of the Radius. Tab. L. Fig. 4. a.

Action : To assist the Pronator Teres.

#### FLEXOR LONGUS POLLICIS MANUS, Vel Flexor Tertii Internodii, vel Radio-phalangeus Pollicis.

Origin: By an acute, Fleshy beginning, from the fore part of the Radius and Interosscous Ligament, the Oriin extending from the Tubercle of the Bone, as far as the Pronator Quadratus. It has frequently another Origin, by a distinct Fleshy Slip, from the internal Condyle of the Os Humeri.

Insertion: Into the last Joint of the Thumb, after its Tendon has passed under the Ligamentum Carpi Annulare Anterius. Tab. XXXIX. Left Fore-arm, «, β. Action: To bend the last Joint of the Thumb.

## FLEXOR BREVIS POLLICIS,

Vel Flexor Secundi Internodii, vel Carpo-phalangeus Pollicis. Origin: From the Ossa Trapezoides, Magnum, et

Unciforme. It is divided into two Portions, which form a Groove for the Tendon of the Flexor Longus Pollicis. Insertion: Into the Ossa Sesamoidea, and Base of the first Bone of the Thumb. Tab. L. Fig. 2. m, n. Action : To bend the first Joint of the Thumb.

#### OPPONENS POLLICIS.

Vel Flexor Ossis Metacarpi Pollicis, vel Flexor Primi Internodii, vel Carpo-metacarpeus Pollicis.

Origin: Fleshy, from the Os Trapezium and Ligamentum Carpi Annulare Anterius. It lies immediately under the Abduetor Pollicis.

Insertion: Tendinous and Fleshy, into the under and fore part of the Metacarpal Bone of the Thumb. Tab. L. Fig. 2. 1.

Action: To bring the Thumb inwards, so as to make it oppose the Fingers; from which circumstance it has derived its name.

EXTENSOR OSSIS METACARPI POLLICIS, Vel Cubito-super-metacarpeus Pollicis.

Origin: Fleshy, from the middle of the posterior

parts of the Ulna, Radius, and Interesseous Ligament. It runs obliquely over the Radius, sending one, or more frequently two Tendons, through an Annular Sheath. Insertion: Into the Os Trapezium, and upper and

back part of the Metacarpal Boue of the Thumb. Tab. XLIV. Right Fore-arm, 'i.

Action : To extend the Metacarpal Bone of the Thumb, and draw it from the Fingers.

EXTENSOR PRIMI INTERNODII POLLICIS, Vel Extensor Minor, vel Cubito-super-phalangeus Primus Pollicis.

Origin: Fleshy, from the back part of the Ulna, and from the Interosseous Ligament, near the former Muscle, by the side of which it runs. Insertion: Tendinous, into the posterior part of the

first Bone of the Thumb. A portion of it may be traced as far as the second Bone. Tah. XLIV. Right Fore-

Action: To extend the first Joint of the Thumb.

### EXTENSOR SECUNDI INTERNODII, Vel Extensor Major, vel Cubito-super-phalangeus Secundus Pollicis.

Origin: By an acute, Tendinous, and Fleshy beginning, from the middle of the back part of the Ulna, and from the Interesseous Ligament. Its Tendon runs through a small Groove at the under, inner, and back part of the Radius.

Insertion: Into the last Bone of the Thumb. Tab. XLIV. Left Fore-arm, R. Action: To extend the last Joint of the Thumb.

### ABDUCTOR POLLICIS. Vel Carpo-super-phalangeus Pollicis.

Origin: Broad, Tendinous, and Fleshy, from the Ligamentum Carpi Annulare, and from the Os Trapezium. It lies immediately under the Skin, and over the Opponens Pollicis.

Insertion: Tendinous, into the outer side of the root of the first Bone of the Thumb. Tab. L. Fig. I. i. Action: To draw the Thumb from the Fingers.

A particular portion on the inner side of this Muscle is called, by ALBINUS, Abductor Brevis Alter.

### ADDUCTOR POLLICIS, vel Metacarpo-Phalangeus Pollicis.

Origin: Fleshy, from almost the whole length of the Metacarpal Bone of the Middle Finger; going across the Metacarpal Bone of the Fore Finger, its Fibres converge and send off a short Tendon.

Insertion: Into the inner part of the root of the first Bone of the Thumb. Tab. XXXIX. Fig. 1. Right Arm, g.

Action: To pull the Thumh towards the Fingers.

## INDICATOR,

Vel Extensor Ludicis Proprius, vel Cubito-super-phalan. geus Primus Indicia.

Origin: By an acute Fleshy beginning, from the middle of the posterior part of the Ulna, at the inner side of the Extensor Secundi Internodii Pollicis. Its Tendon passes under the same Ligament with the Extensor Digitorum Communis.

Insertion : Along with part of the Extensor Digitorum Communis, into the posterior part of the Fore Finger. Tab. XLIV. Left Fore-arm, T.

Action: To assist the Extensor Communis in extending all the joints of this Finger, as in pointing at any thing, hence called Indicator.

#### ABDUCTOR INDICIS.

Origin: From the Os Trapezium, and from the upper part and inner side of the Metacarpal Bone of the

Insertion: By a short Tendon, into the onter and back part of the first Bone of the Fore Finger. Tab. L. Action : To bring the Fore Finger towards the Thumb.

### FLEXOR PARVUS MINIMI DIGITI, Vel Carpo-phalangeus Secundus.

Origin: From the Unens of the Os Unciforme, and adjacent part of the Annular Ligament. It passes obliquely over the under end of the following Muscle. Insertion: By a roundish Tendon, into the inner part of the Base of the first Bone of this Finger. Tab. L.

Action: To bend the Little Finger, and assist the Ad-

### ABDUCTOR MINIMI DIGITI,

Vel Carpo-phalangeus Minimi Digiti.

Origin: Fleshy, from the Os Pisiforme, and from that part of the Ligamentum Carpi Annulare Anterius next it; going nearly straight down at the inner side of the

Insertion: Tendinous, into the inner side of the Base of the first Bone of the Little Finger. Tab. L. Fig. 2. v. Action: 'To draw the Little Finger from the rest.

#### ADDUCTOR MINIMI DIGITI-

Vel Metacarpeus, vel Carpo-metacarpeus Minimi Digiti. Origin: Fleshy, from the edge of the Hook-like Pro-cess of the Os Unciforme, and from that part of the Ligamentum Carpi Annulare next it.

Invertion: Tendinous into the inner side, and anterior

or under extremity, of the Metacarpal Bone of the Little Finger. Tah. L. Fig. 2. w.

Action :

Action: To beod the Metacarpal Bone, and bring this Finger towards the rest.

#### INTEROSSEI.

### Vel Metacarpo-phalangei Laterales.

Origin: From the sides of the Metacarpal Bones. They fill up the spaces between these, and are something

similar to the Lumbricales, but larger. Insertion: By sleoder Tendons, along with those of the Lumbricales, into the sides of the Tendinous Expansions of the Extensor Digitorum Communis. Tab. L.

Fig. 4. e-1. Fig. 5. 6. 7.

Action: To give the Fingers their lateral motions, and to assist a little, according to their situations, in bend-

ing or extending the first Phalaox of the Fingers. Of the Interessei, three, seen in the Palm of the Hand, arise with single Heads, and are called Interni; and four on the back of the hand, with double Heads, termed Externi, or Bicioites. Part of the Externi, however, are also seen in the Palm of the Hand.

#### INTEROSSEI INTERNI.

#### PRIOR INDICES.

Origin: From the outer or Radial side of the Meta-Carpal Bone of the Fore Finger.

Insertion: Into the outside of the Tendon on the

back of the Fore Finger.

Action: To draw the Finger outwards, towards the Thumb.

#### POSTERIOR INDICIS.

Origin: From the inner or Ulnar side of the Metacarpal Bone of the Fore Finger.

Insertion: Into the inside of the Tendon on the back of the Fore Finger.

Action : To draw the Fore Finger inwards,

#### PRIOR ANNULARIS.

Origin: From the outside of the Metacarpal Bone of the Ring Finger. Insertion: Into the outside of the Tendon on the back

of the Ring Finger.

Action: To draw the Ring Finger outwards.

#### INTEROSSEUS AURICULARIS.

Origin: From the outside of the Metacarpal Bone of the Little Finger. Insertion: Into the outside of the Tendon on the back

of the Little Finger. Action: To draw the Little Finger outwards.

### INTEROSSEI EXTERNI. PRIOR MEDII DIGITI.

Origin: From the corresponding sides of the Meta-carpal Bones of the Fore and Middle Fingers. Insertion: Into the outside of the Tendon on the back of the Middle Finger.

Action: To draw the Middle Finger outwards.

#### POSTERIOR MEDII DIGITI.

Origin: From the corresponding sides of the Metacarpal Bones of the Middle and Ring Fingers.

Insertion: Into the inside of the Teodoo oo the back. of the Middle Finger.

Action: To draw the Middle Finger inwards.

#### POSTERIOR ANNULARIS.

Origin: From the corresponding sides of the Meta-carpal Bones of the Ring and Little Fingers. Insertion: Into the inside of the Tendon on the back. of the Riog Finger.

Action: To draw the Ring Finger inwards.

## \_\_\_\_ MUSCLES OF THE INFERIOR EXTREMITIES

### MUSCLES ON THE PELVIS AND THIGH, SERVING FOR THE MOTION OF THE THIGH AND LEG.

APONEUROSIS OF THE INFERIOR EXTREMITY.

PREVIOUS to the description of the Muscles of the Inferior Extremity, it is proper to take notice of the Fas- nected to the Ridges and Processes of the Bones. VOL. I.

cio Lata, or Tendinous Expansion, which, as in the Superior Extremity, forms a general Covering to the Mus-cles, and sends off Partitions between them, to be con-

It is thick and strong on the outside of the Thigh and its Symphysis, helow and behind the former Muscle; It eg, but towards the inner side of both, particularly on runs obliquely outwards. Leg, but towards the inner side of both, particularly on the former, it gradually turns thinner, and has rather the

appearance of Cellular Membrane.

It descends from the Processes and other Projections on the outside of the Bones of the Pclvis, but more especially from the I endons of the External Layers of the Muscles of the Loins and Abdomen .- See the description

of the upper part of this Fascia in p. 112.

A little below the Trochanter Major, it is intimately connected to the Linea Aspera. At the Joint of the Knee it receives additions from the Tendons of the Extensors of the Leg, and is there connected with the outer aud inner sides of the Head of the Tibia and Fihula. In the Leg, it is firmly fixed to the Spines or Ridges of the Tibia and Fihula, and at the under end, to the Bones of the Ankle, where part of it, thicker and stronger than the rest, is extended from the Malleolus Internus and Os Naviculare, to the Malleolus Externus, and adjacent part of the Os Calcis, to form the Ligamentum Tarsi Annulare,

It vanishes at last upon the Foot. It serves the same general purposes with the Aponeurosis of the Superior Extremity.

PECTINALIS, vel Pectineus, vel Super-pubio-femoralis.

Origin: Broad and Fleshy, from the upper and fore part of the Os Pectinis vel Pubis, between the upper part of the Foramen Thyroideum and Brim of the Pelvis. It runs downwards and ontwards at the inner side of the Insertion: By a flat and short Tendon, into the Li-

aca Aspera of the Os Femoris, a little below the Tro-chanter Minor. Tab. XXXIV. Thigh, E

Action: To pull the Thigh npwards and inwards, and to give it, and of course the Foot, a degree of rotation outwards.

#### TRICEYS ADDUCTOR FEMORIS.

Under this appellation are comprehended three distinct Muscles, viz. Adductor Longus, Adductor Brevis, and Adductor Magmus.

### ADDUCTOR LONGUE, vel Pubio-femoralis. Origin: By a strong roundish Tendon, from the upper

and fore part of the Os Pubis, and Ligament of the Synchondrosis, at the inner side of the Pectinalis: It runs downwards and outwards.

Insertion: By a broad flat Tendon, into the middle of the Linea Aspera. Tab. XXXVIII. Thigh, c.

## ADDUCTOR BREVIS, vel Sub-pubio-femoralis.

Origin: Tendinous, from the Os Pubis, at the side of

Insertion: By a short flat Teudon, into the inner and upper part of the Linea Aspera, from a little below the Trochanter Minor, to the heginning of the Insertion of the Adductor Longus. Tab. XXXIX. Left Thigh, c.

### ADDUCTOR MAGNUS, vel Ischio-femoralis.

Origin: From the side of the Symphysis Pubis, a little lower than the former. The Origin is continued downwards from the Crus and Tuberosity of the Os Ischium. The Fibres run outwards and downwards, spread-

ing out wide, and forming a very large Muscle.

Lisertion: Into the whole length of the Linea Aspera: the under part of the Muscle extending along the Ridge which leads to the inner Condyle of the Os Femoris. It is also fixed by a roundish Tendon, into the upper part of that Condyle, a little above which the Femoral tery, in its course towards the Ham, passes between the Tendon of this Muscle and the Bone. Tab. XXXVII. Fig. 1. Thigh, D. Fig. 2. A, B, C.

Action of the three Adductors : To bring the Thigh inwards and upwards, according to the different directious of their Fibres, and to assist a little in rolling it out-

#### OBTURATOR EXTERNUS. Vel Sub-pubio-trochantereus Externus.

Origin: By a semicircular Margin, from the parts of the Ossa Pobis and Ischium, which form the anterior half of the Foramen Thyroideum, and from the Membrane which fills up that Foramen. The Fibres are collected like rays towards a centre, and pass outwards over the back part of the Cervix of the Os Femoris. Insertion: By a strong round Tendon, into the Cavity

at the inner and back part of the Root of the Trochan ter Major, adhering in its course to the Capsular Li-gament of the Thigh-bone. Tah. AXXVII. Fig. 1. Thigh, C.

Action: To roll the Thigh-hane obliquely outwards, and to prevent the Capsular Ligament from being pinch

### GLUTEUS MAXIMUS, vel Sacro-femoralis

Origin: Fleshy, from the back part of the Spine of the Os Ilium; from the under and outer part of the Os Sacrum; from the Os Coccygis; and from the posterior Sacro-sciatic Ligaments, over which part of the inferior edge hangs in a Flap. The Fibres are collected into course Fasciculi, which run obliquely forwards and a lit-tle downwards. The upper part of it covers almost the whole of the Trochanter Major, and it is intimately connected with the broad Tendou of the Tensor Vagena Fe moris. This Muscle is the largest of the Body, and com poses the principal part of the Luttock.

Insertion: By a strong, thick, and broad Tendon, into the upper and outer part of the Linea Aspera, along which it is continued for some way down. Tab. XL.

Pelvis and Thigh, A. A.

Action : To extend the Thigh, and pull it hackwards and a little outwards. It extends also the Pelvis on the Thigh in standing; and, assisted by the other Glutei, maintains the equilibrium of the Body on the lower Extremity, which rests on the ground, while the other is carried forwards.

### GLUTEUS MEDIUS, vel Ilio-trochantereus Magnus.

Origin: Fleshy, from all that part of the Spine of the Os Bium which is unoccupied by the Gluteus Maximus; from the upper part of the Dorsum of that Boue; and from an Aponeurosis which covers the Muscle, and joins the Fascia of the Thigh. It sends off a broad Tendon,

Insertion into the outer and hack part of the Trochanter Major. Tab. XLI. Pelvis, A.

Action: To pull the Thigh outwards, and a little backwards. The fore part of the Musclo assists in rolling it inwards.

#### GLUTEUS MINIMUS, vel Ilio-trochantereus Parvus.

Origin: Fleshy, from the lower half of the Dorsum of the Os Ilium. Its Origin is continued from the superioranterior Spinons Process, along a rising of the Bone, as far as the great Sciatic Notch; and the Muscle runs in a radiated manner to a strong flat Tendon.

Insertion: Into the fore and upper part of the Tro-

chanter Major. Tab. XLII. Pcivis, A. Action: To assist the former in pulling the Thigh outwards, and a little backwards; and, along with other

Muscles, in rolling it inwards.

### Pyriformis, vel Sacro-trochantereus.

Origin: Within the Pelvis, by three Tendinous and Fleshy Heads, from the second, third, and fourth pieces of the Os Sacrum; and, becoming round and tapering, it passes out of the Pelvis, along with the Sciatic Nerve, through the great Notch of the Ilium, from which it re-ceives the addition of a few Fleshy Fibres.

Insertion: By a roundish Tendon, into the upper part of the Cavity at the inner side of the root of the Tro-

chanter Major. Tah. XLI. Pelvis, B. Action: To assist in the Abduction of the Thigh, and in its rotation outwards.

### Gemini, vel Gemelli, vel Ischio-trochantereus.

Origin: By two distinct Heads; the superior from the Spinons Process, and the inferior from the Tuherosity of the Os Ischium, and from the Sacro-sciatic Liga- the Abduction of the Thigh, and in its rotation inwards.

ment. The two Heads are united by a Toudinous and Fleshy Membrane, and form a Sheath for the reception

of the Tendon of the Obturator Internus. Insertion: Tendinous and Fleshy, into the Cavity at

the inner side of the root of the Trochanter Major, on each side of the Tendon of the Obturator Internus, to which they firmly adhere. Tab. XLI. Pelvis, C. Action: To roll the Thigh outwards, and to prevent

the Tendon of the Obturator Internus from starting out of its place while the Muscle is in action,

#### OBTURATOR INTERNUS.

### Vel Marsupialis, vel Sub-pubio-trochantereus Internus.

Origin: Within the Pelvis, by a semicircular Fleshy margin, from the anterior half of the Foramen Thyroideum, and, in part, from the Obturator Ligament. Fibres couverge, and send off a round Teudon, which asses over the Os Ischium, between the Spine and Tuber of that Bone, as a rope passes over a pulley.—Where it goes over the Capsular Lagament of the Thigh-hone, it is inclosed in the Sheath of the Gemini. Insertion: By a round Tendon, along with the Gemi-

ni, into the large Pit at the root of the Trochanter Major. Tab. XLII. Fig. I. Pelvis and Inferior Extremity, B.

Action : To roll the Thigh obliquely outwards.

### QUADRATUS FEMORIS, vel Inchio-sub-trochantereus.

Origin: Tendinous and Fleshy, from the outer side of the Tuberosity of the Os Ischium; running transversely outwards.

Insertion: Fleshy, into a rough Ridge continued fromthe root of the great to that of the small Trochanter. Tah. XLI. Pelvis, E.

Action : To roll the Thigh outwards. This Muscle is occasionally wanting.

The Pyriformis, Gemini, Quadratus, and Obturatores, which are the Rotators of the Thigh when it is in a line with the Body, become its Abductors when it is in the bended state.

#### TENSOR VAGINÆ FEMORIS. Vol Ilio-aponeuroso-femoris.

Origin: By a narrow, Tendinous, and Fleshy heginoing, from the external part of the anterior-superior Spinous Process of the Os Ilium. It goes downwards, and a little backwards, forming a thick Fleshy Belly, which is inclosed in a doubling of the Aponeurosis or Vagina of the Thigh.

Insertion: A little below the Trochanter Major, into the inner Surface of the Aponcurosis which covers the outside of the Thigh. Tab. XXXIV. Thigh, A.

Action: To stretch the Aponeurosis, and to assist in R 2 SARTONWS.

### SARTORIUS, Vel Ilio-pretibialis.

Origin: Teudinous, from the superior-anterior Spinous Process of the Os Ilium, at the inner side of the Tensor Vagine Fenoris. It soon becomes Fleshy, runs obliquely downwards over the Muscles situated upon the fore and inner side of the Thigh, and is the longest Muscle of the Body.

of the 1909.

Insertion: By a broad and thin Tendon, into the inner side of the Tibia, near the inferior part of its Tubercle.

Tab. XXXVIII. Right Inferior Extremity, 8, 9.

Action: To bend the Knee, and bring one Leg oblique by inwards across the other, as tailors do at their work.

### GRACILIS, vel Rectus Internus, vel Sub-pubio-pretibialis.

Origin: By a thin Tendon, from the Os Pubis, near the Symphysis; soon becoming Fleshy, and descending in a direct course by the inside of the Thigh. Insertion: Tendinous, into the Tibia, lower than the

Insertion: Tendinous, into the Tibia, lower than the Sartorius. Tab. XXXVI. Fig. 1. Thigh, G. Fig. 2. D. Action: To assist the Sartorius in making the full Flexiou of the Knee, after it has been bent to a certain

# degree, by the Flexors on the back part of the Thigh. RECTUS, vel Gracilis Anterior, vel Hio-rotuleus.

Origin: Eledry from the inferior-saterior Spinous Process of the O lime; and Tendinous, from the Dorsum of that Bone, a little above the Acctabolim. It runs which indexes the Certai of the O. Fernous, and, in its passage along the fore part of the Thigh, becomes gradually larger as far as its middle, after which it decreases towards its lower extremity. In the middle of the fore part of the Musici, there is a hoggitudisal Tendinous of a feather; the Tendou itself being most comprisons behind.

Denina.

Insertion: Tendinous, into the upper part of the Patella. Tab. XXXIV. Fig. 2. A.

Action: To extend the Leg.

#### CRURALIS, vel Crurcus, or Middle of the Tri-femororotuleus.

Origin: Fleshy, from between the two Trochanters of the O. Femoris, but weaver the Minor; and from the fore part of the Thigh-bone to near its under extremity. Its sides are connected to both Vasti Muscles; anteriorly, it is covered by the Rectus, the Tendon of which it ions near the lower part of the Thigh.

joins near the lower part of the Thigh.

Insert on: Into the upper and back part of the Patella, behind the Rectus. Tab. XXXV. Fig. 2. A.

Action: To assist in the extension of the Leg.

### VASTUS EXTERNUS,

Or Outer Part of the Tri-femoro-rotuleus.

Origin: Broad, Tendinous, and Fleshy, from the of the Tihia. Tab. XLII. Thigh, C.

outer part of the Boot of the Trochanter Major. Its Origin is continued from the Trochanter, along the whole outer side of the Linea Aspera, to near the external Condyle of the Os Femoris, by Fleshy Fibres, which form the principal part of the outer portion of the Thigh, and obliquely forwards to a middle Tendon, where they terminate.

Buserion: Into the upper and onter part of the Patella, at the edge of the Tendon of the Rectus, with which it is connected. Part of it ends in an Aponeurosis, which is fixed to the Head of the Tibia, and afterwards is continued to the Leg. Tab. XXXV. Fig. 2. C. Action: To extend the Leg.

### VASTUS INTERNUS, Or Inner Part of the Tri-femoro-rotuleus.

Origin: Tendinous and Flesby, from hetween the fore part of the Os Femoris, and root of the Trochanter Minor. The Origin is also continued along the whole inside of the Linea Aspera, by Fibres running obliquely forwards and downwards, which occupy the under and inner side of the Timph.

side of the Tingh.

Insertion 7 Tendinous, at the side of the Crureus with
which it is connected, into the upper and inner edge of
the Patella, continuing Fleshy lower than the Vastua Exterms. Part of it likewise ends in an Aponeurosis, which
is fixed to the upper part of the Tiblia, and afterwards is
continued to the Leg. Tab. XXXV. Fig. 2. B.

continued to the Leg. Tab. XXXV. Fig. 2. B.
Action: To assist the three former Muscles in extending the Leg; then the Patella, fixed to the Tuberele of
the Tibia by a strong Lagament, supplies the office of a
Pulley.

Semitendinosus, vel Lichio-pretibialis.

Origin: Tendinous and Fleshy, in common with the long Head of the Biceps, from the posterior part of the Tuberosity of the Os Isothum. Its Fleshy Belly rans down the back part of the Thigh, and sends off a long roundish Teudon, which passing by the inner side of the Knee, afterwards becomes flat.

Insertion: Into the inside of the Ridge of the Tibia, a little below the Tubercle, and connected to the under edge of the Gracilis. Tab. XLI. Thigh, E.

Action: To bend the Lcg, and, when beuded, to roll tinwards.

### Semimembranosus, vel Ischio-poplito-tibialis.

Origin: By a broad flat Tendon, from the upper and back part of the Taberosity of the Os Ischima. The Fibres composing the Plesby Belly, form a semi-penniform Muscle, by running in an oblique direction towards a flat Tendon at the inner and under part of the Muscle, which is situated helind the Semitendinous.

Insertion: Into the inner and back part of the Head f the Tihia. Tab. XLII. Thigh, C.

Action .

Action: To hend the Leg, and bring it directly back- inner Ham-string, and the Biceps the outer Ham-string;

### BICEPS FLEXOR CRURIS.

### Vel Ischia-femoro-peronealis.

Origin: By two distinct Heads. The first, or Long Head, arises in common with the Semitendinosus, from the upper and back part of the Tubeconsity of the Os Ischimu. The second, or Short Head, arises from the Linea Apera, a little below the termination of the Glatean Maximus, by a Fleshy active beginning, which son grows broader, as it descends to join the first Head a little above the external Condyle of the Os Fe-

Insertion: By a strong Tendon, into the upper and outer part of the Head of the Fibula. Tab. XLI. Thigh, b, c.
Action: To hend the Les.

The Semiteudinosus and Semimembranosus form the

MUSCLES SITUATED ON THE LEG AND FOOT, SERVING FOR THE MOTION OF THE FOOT AND TOES.

#### GASTROCNEMIUS EXTERNUS, vel Gemellus, vel Bifemorocalcaneus.

Origin: By two distinct Heads; one from the upper and back part of the internal Condyle of the Os Femoris, and from a little above the Condyle, by two separate beginnings: The other, Tendinous from the upper and back art of the external Condyle. A little below the Joint, their Fleshy Bellies meet in a middle Tendon, the union giving the appearance of a longitudinal Rapbè. Below the middle of the Tibia, the Muscle sends off a broad thin Tendon, which, becoming gradually narrower, joins that of the Gastrocnemius Internus, a little above the Ankle. Tab. XL. Leg, K, K, M.

### GASTROCNEMIUS INTERNUS. Vel Soleus, vel Tibio-calcaneus.

Origin: By two Heads. The first from the back part of the Head, and upper and back part of the Body of the Fibula : The other from the back part of the Tibia, running inwards along the under edge of the Popliteus, towards the inner part of the Bone, from which it receives Fleshy Fibres for some way down. The Flesh of this Muscle, which is of the compound Penniform kind, covered by the Tendon of the Gastrocnemius Externus, descends uearly as far as the extremity of the Tibia, a little above which the Tendons of both Castrocnemii unite, and form a strong round Cord, called Tendo ACHILLIS, or simply IIcel Tendon.

Insertion: Into the upper and back part of the Os Calcis, by the projection of which the Tendo Achillis is hetween the Ham-strings the great Vessels and Nerves are situated, which run to the Leg.

### POPLITEUS, vel Femoro-poplito-tibialis.

Origin: By a small round Teudon, from the outer and under part of the external Condyle of the Os Fcmoris, and from the back part of the Capsular Ligament of the Joint. In passing the Joint, it becomes Fleshly, and spreads out, the Fibres running obliquely inwards and downwards, covered with a Tendinous Membrane.

Insertion: Thin and Fleshy, into a Ridge at the upper and inner part of the Tibia, a little below its Head-Tab. XLII. Leg, G.

Action: To assist in bending the Leg, and, when bent. to roll it inwards. The Muscle also prevents the Capsular Ligament from being pinched.

at a considerable distance from the Tibia. Tab. XLL Leg, H, L.

Action: To extend the Foot, by raising the Heel.

By the Bellies of the two Gastroenemii, but partieularly of the Externus, the Calf of the Leg is formed.

### PLANTARIS, vel Femoro-calcaneus Parvus.

Origin: Thin and Fleshy, from the upper and back part of the external Condyle of the Os Femoris, and from the Capsular Ligament of the Joint. A little below the Head of the Fibula, it sends off a slender Tendon, the longest of the Body, which descends obliquely inwards, between the inner Heads of the Gastroenemii, and afterwards runs along the inner Edge of the Teudo ACHILLIS, to which it is closely connected.

Insertion: Into the inside of the posterior part of the Os Calcis, below the Tendo Achillis. Tab. XLJ. Leg,

Action: To assist the Gastrocnemii, though in a small degree only, and to pull the Capsular Ligament of the Knee from between the Bones. It likewise agitates a Fatty substance belonging to the Bursæ Mucosæ, at the insertion of the Tondo ACHILLIS.

This Muscle is sometimes, though very seldom, wanting.

### TIBIALIS ANTICUS, vel Tibio-super-tarseus.

Origin: Tendinous, from the upper and fore part of the Tibia, between its 'I therele and Articulation with the Fibula. It then runs down, Fleshy, on the outside of the Tibia, adhering to it and to the upper part of the Interosseous Ligament. Towards the under part of the Leg, it sends off a strong round Tendon, which passes

under the Ligamentum Tarsi Amuniare, near the inner Ankle, and, running over the Astragalus and Os Naviculare, it has its Insertion: Tendinous, into the middle of the Os Cua-

cularc, it has us
Insertion: Tendinous, into the middle of the Os Cuneiforme Internum and Base of the Metatarsal Bone of
the Great Toe. Tab. XXXIV. Leg, G, c.

Action : To bend the Foot.

### TIBIALIS POSTICUS, vel Tibio-sub-tarscus.

Origin: Fleshy, from the upper and fore part of the Thia, under the Process which joins it to the Flubta, there, passing through a Flusure in the upper part of the attreaseous Ligoment, it continues its Origin from the one half of the upper part of the last-amed Bone, as also from the Interesseous Ligoment, the Fluces manning towards a middle Tendon, which, in its descent, becomes round, and passes in a Groove behind the Mallooba In-

Insertion: Tendinous, chiefly into the upper and innerpart of the Os Naviculare, and partly into the under Surface of the Tarsal Boues by separate Sips, the last of which goes to the root of the Metatarsal Bone of the Middle Toe. Tab. XLIII. Leg, B.

Action: To extend the Foot, and, with the assistance of the Tibialis Anticus, to turn the Toes inwards, and the outer edge of the Foot downwards.

### PERONEUS LONGUS,

### Vel Primus, vel Peroneo-sub-tarscus.

Origin. Tendinons and Fleshy, from the fore part of the Head of the Flush; and Hesby, from the outer part of that Bone, down to within a hand-breadth of the Askle. The Flush is and Flushing manner towards a long Tendon, which becomes round, and, included in a long Tendon, which becomes round, and, included in a Factorian. It is then selected to the Shonoity of the Or Calciv, runs along a Groove in the Os Cuboides, and one obliquely across the Boose in the middle of the

Insertion: Tendinous, into the outside of the root of the Metatarnal Bone of the Great Toe, and partly into the Occureiforme Internum. Tab. NLII. Leg. I. b. Action: To extend the Foot a listle, to draw it outwards, and to turn the inner edge of it downwards.

### PERONEUS BREVIS,

### Vel Secundus, vel Peroneo-metatarseus Magnus.

Origin: Fleshy, from the outer part of the Fibula, beginning some way above the middle height of the Bone, and continuing its adhesion as far as the Malleolus Externus. The Fibres run, like those of the former Musele, to an external Tendon, which becomes round, passes hehind the outer Ankle, where it is included in the same

Sheath with the Tendon of the preceding Muscle, and there crossing behind that Tendon, runs forward in a Sheath proper to itself.

Insertion: Tendinous, into the root and external part of the Metatarsal Bone of the Little Toc. Tab. AL11.

Leg, M, C. Tab. NLIII. Leg, C. Action: To assist the former Muscle in pulling the Foot outwards, its outer edge upwards, and to extend it in a small degree.

### EXTENSOR LONGUS DIGITORUM,

### Vel Peroneo-super-phalangeus Communis.

Origin: Tendinous and Flosby, from the upper and outer part of the Head of the Histin, and from the Head, and almost the whole length of the anterior Spine of the Flulus. It earnest, also, Flosby, from the Aponeurous which covers the upper and outer part of the Leg, and from the Interoseous Ligament. Under the Ligamentum Twi Annulare, it splits into four round Tendons, which pass along the upper part of the Foot.

Insertion: Into the Base of the first Phalanx of the four small Town, by flat Toodons, which are expanded over the upper side of the Foes as far as the root of the last Phalanx. The N.N.N.V. Leg, 8, 6.

Action: To extend all the Jointe of the four small

Toes, and to assist in the flexion of the Ankle.

Peroneus Tertius of Albinus, Vel Peroneo-metatarseus Minor,

Is a Portion of the former Musele.

Origin: From the middle of the Fihula, in common with the Extensor Longus Digitorum. It continues down to near the Malleous Externus, and sends its Fleshy Fibres forwards to a Tendon which passes under the Ligamentum Annular.

Insertion: Into the root of the Metatarsal Bone of the Little Toe. Tab. XLVI. Left Leg, W,V. Action: To assist in bending the Foot.

### EXTENSOR BREVIS DIGITORUM,

### Vel Calco-super-phalangeus Communis-

Origin: Fleshy and Teudinous, from the outer and fore part of the Os Calein; soon forming a Fleshy Belly, which is divided into four Portions. These send off an equal number of Tendana, which pass over the upper part of the Foot, crossing under those of the former burners.

Insertion: By four slender Tendons, into the Tendinous Expansion continued from the Long Extensors of all the Toes, excepting the little one. Tab. XXXVI.

Action: To assist in the extension of the Toes.

#### AFONEUROSIS PLANTARIS.

This, like the Aponeurosis Palmaris, is a strong Tendinous Expansion, which covers the Muscles, Vessels, and Nerves of the Sole.

It arises from the Tuherosity at the under and back part of the Os Calcis, and is divided into three Portions, which run forwards, to he connected to the Heads of the Metatarsal Bones of all the Toes. The middle Portion is subdivided into five Slips, which split at the roots of the Toes, and embrace the Tendoos of the Flexor Muscles. Tab. L. Fig. 8. a, b, c.

Besides serving the general purpose of Aponeuroses, it performs the office of a Ligament, by binding the two ends of the arch of the Foot together.

### FLEXOR BREVIS DIGITORUM,

Vel Flexor Sublimis, vel Perforatus, vel Calco-sub-Phalangeus Communis.

Origin: Narrow and Fleshy, from the inferior-anterior part of the Tuberosity of the Oc Calcis, and from the Aponeurosis Plantaris. It forms a thick Fleshy Belly, which sends off four small Tendons, that split for the which sends on four small retuons, that spir for the passage of the Tendons of the Flexor Longus.

Insertion: Into the second Phalanx of the four small Toes. Tab. L. Fig. 9. a.

Action: To bend the first and second Joints of the

Toes, but particularly the second. The Teudon of the Little Toe is frequently wanting.

### FLEXOR LONGUS DIGITORUM,

Vel Flexor Profundus, vel Perforans, vel Tibio-phalangeus Communis.

Origin: By an acute Tendon, which soon becomes Fleshy, from the back part of the Tibia, at the under edge of the Poplitens; and this Origin is continued down the inner edge of the Bone, by short Fleshy Fibres end-ing in its Tendon. It arises also by Tendinous and Fleshy Fibres, from the outer edge of the Tibia; and hetween this double order of Fibres, the Tibialis Posticus lies inclosed. Having gone under two Annular Ligaments behind the inner Ankle, it passes through a Sinuosity at the inside of the Os Calcis, and about the middle of the Sole, receives a Tendou from the Flexor Longus Pollicis. It they divides into four Tendons which run through the Slits of the Perforatus

Insertion: Into the Base of the third Phalanx of the four smaller Toes; the Tendons of this, as well as of the Flexor Brevis, being inclosed upon the Toes by Annular Ligaments. Tab. XLII. Leg, l. Tah. L. Fig. 10.

a, f, f.
Action: To bend the different Joints of the Toes, particularly the last one.

### FLEXOR DIGITORUM ACCESSORIUS. Vel Massa Carnea JACOBI SYLVII.

Origin: By two Portions; the inner Fleshy, from the Sinussity of the Os Calcis; the outer Tendinous, but soon becoming Fleshy, from the fore and onter part of that Bone.

Insertion: Into the Teudon of the Flexor Longus Digitorum, before it divides into smaller Tendons. Tab. L. Fig. 10. b, c, d.

Action: To assist the Flexor Longus.

### LUMBRICALES, vel Planto-sub-phalungeus.

Origin: By four Tendinous and Fleshy beginnings, from the | endon of the Flexor Proluudus, just before its division. They run forwards, under the same general appearance with those in the Hand, but are somewhat smaller.

Insertion: By four slender Tendons, at the inside of the first Joint of the four small Toes, into the Tendinous Expansion sent from the Extensors to cover the upper part of the Toes. Tah L. Fig. 10. g, h, i, k. Action: To increase the flexion of the Toes, and to draw them inwards.

### EXTENSOR PROPRIUS POLLICIS.

Vel Extensor Longus, vel Peronco-super-phalangeus

Origin: By an acute, Tendinous, and Fleshy heginning, from the fore part of the Fibula, some way below its Head. It continues its Origin from the same Bone to near the outer Ankle, by Fleshy Fibres which descend obliquely towards a Tendon.

Insertion: Tendinous, into the posterior part of both the Bones of the Great Toe. Tab. XXXV. Leg, d, e, f. Action: To extend the Great Toe, and assist in bending the Ankle.

### FLEXOR LONGUS POLLICIS. Vel Peroneo-sub-phalangeus Pollicis.

Origin: Tendinous and Fleshy, from the back part of the Fihula, some way below its Head; being continued down the same Bone, almost to its under end, by a double order of oblique Fleshy Fibres. Its Tendon asses under an Annular Ligament behind the inner Ankle, then through a Fossa in the Astragalus,

Insertion: Into the last Joint of the Great Toe. Tab. XLII. Leg, H.

Action: To hend the Great Toe, particularly the last

### FLEXOR BREVIS POLLICIS,

Vel Tarso-sub-phalangeus Pollicis.

Origin: Tendinous, from the under and fore part of

the Os Calcis, and from the Os Cunciforme Externum. It is inseparably united with the Abductor and Adductor

Insertion: Into the external Os Sesamoideum, and root of the first Bone of the Great Toe. Tah. L. Fig. Action: To bend the first Joint of the Great Toe.

# Origin: Fleshy, from the anterior and inner part of

the Protuberance of the Os Calcis, and Tendinous from the same Bone, where it joins with the Os Navigulare. Insertion: Tendinous, into the internal Os Sesamoi-deum, and root of the first Bone of the Great Toe. Tah.

Action : To pull the Great Toe from the rest.

### ADDUCTOR POLLICIS. Vel Metatarso-sub-phalangeus Pollicis.

Origin: By a long thin Tendon, from the under part of the Os Calcis, from the Os Cuboides, from the Os Curciforme Externum, and from the root of the Meta-tarsal Bone of the Second Toc. The Muscle is divided

into two Fleshy Portions. Insertion: Into the external Os Sesamoideum, and root of the Metatarsal Bone of the Great Toe. Tab.

L. Fig. 11. g, h.
Action: To pull the great Toe towards the rest.

### ABDUCTOR MINIMI DIGITI,

### Vel Calco-sub-phalangeus Minimi Digiti.

Origin: Tendinous and Fleshy, from the edge of a Cavity on the under part of the Protuberance of the Os Calcis, and from the root of the Metatarsal Bone of the

Insertion: Into the outer part of the root of the first Bone of the Little Toe. Tab. L. Fig. 9. d, e. Action : To draw the Little Toe outwards,

### FLENOR BREVIS MINIMI DICTEL

### Vel Tarso-sub-phalangeus Minimi Digiti.

Origin: Tendinous, from the Os Cuhoides, near the Groove for lodging the Tendon of the Peroneus Longus; and Fleshy, from the outer and back part of the Metatarsal Bone of the Little Toe. Insertion: Iuto the anterior extremity of the Meta-

tarsal Bone, and root of the first Bone of the Little Toe.

Tab. XXXV. Fig. 11. f.

Action: To head this Toc.

#### TRANSVERSALIS.

### Vel Metatarso-sub-phalangeus Transversalis Pollicie. Origin: Tendinous, from the under and fore part of

the Metatarsal Bone of the Great Toe, and from the internal Os Sesamoideum of the first Joint. It forms a Fleshy Belly, which runs transversely between the Metatarsal Bones and Flexor Muscles of the other Small

ABBUCTOR POLLICIS, vel Calco-sub-phalangeus Pollicis. Insertion: Tendinous, into the under and outer part of the anterior extremity of the Metatarsai Bone of the Little Toe, and Ligament of the next Toe. Tah. L. Fig. 11. /.

Action : To contract the Foot, by bringing the roots, of the outer and inner Toes towards each other.

#### INTEROSSEI,

### Vel Metatarso-phalangei Laterales.

The Interconcination Tendinous and Fleshy from, and fill the spaces between, the Metatarsal Bossos. Three, called Interni, arise with single Heads, and are placed in the Sole; and four, termed Externi, or Bicipites, arise with double Heads, and appear on both sides of the Foot.

The Insertion of all the Interessei is by slender Tendons, into the Expansion seut off from the Tendons of the Lumbricales, and of the Extensor Muscles of the

### INTEROSSEI INTERNI.

### Tab. L. Fig. 12.

### PRIOR, vel Abductor Medii Digiti.

Origin: From the inside of the Metatarsal Bone of the Middle Toe.

Insertion: Into the inside of the root of the first Bout of the Middle Toe. Action : To pull the Middle Toe inwards.

### PRIOR, vel Abductor Tertii Digiti.

Origin: From the inner and under part of the Metatarsal Bone of the third of the small Toes

Insertion: Into the inside of the root of the first Bone of the third Toe. Action: To pull the third Toe inwards.

### PRIOR, vel Adductor Minimi Dibili.

Origin: From the inside of the Metatarsal Bone of the Little Toe,

Insertion: Into the inside of the root of the first Booe of the Little Toe.

Action: To pull the Little Toe inwards,

INTEROSSEI EXTERNI, vel Bicipites. Tab. L. Fig. 12, Tab. XXXVII. Foot, F.

PRIOR, vel Abductor Indicis.

Origin: From the contiguous sides of the Metatarsal Bones of the Great and Fore Toes. Lisertion: Into the inside of the root of the first Bone of the Fore Toe.

Action: To pull the Fore Toe inwards.

POSTERIOR, vel Adductor Indicis,

Origin: From the contiguous sides of the Fore Toe, and second of the small Toes.

Action: To pull this 'I oe outware'

Insertion: Into the outside of the root of the first Bone of the Fore Toe.

Action: To pull the Fore Toe outwards.

Posterior, vel Adductor Med Digiti.

Origin: From the contiguous sides of the Metatarsal Bones of the second and third of the small Toes.

Insertion: Into the outside of the root of the first
Bone of the second of the small Toes.

Action: To pull this Toe outwards.

Posterior, vel Adductor Tertii Digiti.

Origin: From the contiguous sides of the Metatarsal Bones of the third and fourth of the small Toes.

Insertion: Into the outside of the root of the first Bone of the third of the small Toes.

Action: To pull this Toe outwards.

#### TABLE XXXIII.

Represents the Aponeuroses or Tendinous Membranes, which appear upon removing the Common Integuments, and which cover the Muscles of the Extremities.

#### FIG. 1.

Crives a View of the Aponeurosis which covers the Mus-CLES on the Fore Part of the Superior Extremity.

- A, The deltoid muscle.
- B, The apoucurosis sent off from the tendons of the muscles on the shoulder to cover the flexor muscles of the fore-arm.
- C. The aponeurosis continued from the fore-side of the arm, joioed to a thicker and stronger one sent off from the tendoo of the biceps flexor cubiti, to cover the muscles on the anterior part of the fore-arm.
- D, The cootinuation of this aponeurosis, covering the tendous of the flexor muscles of the hand and fingers. which, on account of its thinness, are seen shining
- P., The aponeurosis palmaris, which is connected above, chiefly to the teodoo of the palmaris loogus, and to the anterior transverse ligament of the wrist, and below, to the roots of the four fingers by an equal number of double slips.
- F, The musculus abductor pollicis.
- G, The palmaris brevis.

### FIG. 2.

Shows the APONEUROSIS upon the Back Part of the Su-PERIOR EXTREMITY.

- 4, The deltoid muscle,
- B. An aponeurosis covering the infra-spinatus, similar to
- one which covers the supra-spinatus.

  C. The aponeurosis which covers the back part of the arm, sent down from the tendous of the muscles on the shoulder, and with the aponeurosis on the fore-side of the arm, forming a sheath, which incloses the muscles
- D, The aponeurosis oo the back part of the fore-arm, continued from that which covers the back part of the upper arm, and likewise from the tendon of the triceps extensor cubiti; many of the fibres intermixing with, and decussating each other, at the opposite sides of the
- E, A thick and strong portion of the aponeurosis on the

hack part of the fore-arm, forming the ligamentum

\_

carpi annulare posterius.

The tendiuous sheaths which cover the fingers are here hut faintly represented.

#### FIG. 3.

Gives a View of the APONEUROSIS upon the Fore Part of the INFERIOR EXTREMITY.

- A, The thick and strong aponeurosis at the fore and outer part of the thick, and down from the muscles about the pelvis, and from the under end of the external oblique muscles of the abdomen.
- B, An aponeurosis covering the muscles upon the fore and inner part of the thigh, much thinner and weaker than that farther out
- C, An attachment of the aponeurosis of the thigh to the head of the tibia.
- D, The aponeurosis of the inside of the thigh, fixed to the corresponding side of the tibia.
- E, F, The aponeurosis scut from the fascia of the thigh, and from the exteosor muscles of the leg, to cover the muscles oo the fore part of the leg. This aponeurosis, like that on the thigh, is thick and strong at the outer, and becomes gradually thinner towards the inner part of the leg
- G, H, Parts of this aponeurosis thicker and stronger than the rest, forming the superior and inferior ligaments of the tarsus.

### FIG. 4. APONEUROSIS on the Back Part of the INFERIOR

- EXTREMITY. A, The gluteus magnus.
- The aponcurosis of the back part of the thigh, arising from the tendons of the glutei, and from those of the loins, fixed to the lioea aspera of the os femoris.

  C, Continuation of this appoeurosis covering the muscles, vessels, and nerves of the ham.
  - D, That portion of the apoceurosis which covers the ge-melli. From this part, the aponeurosis is continued down, and lost upon the foot.













### TABLE XXXV.

A VIEW of the Second LAYER of MUSCLES on the Anterior Part of the Bony,

## FIG. 1. HEAD and NECK.

A, The corrugator supercilii.
a, The levator palpebrae superioris.

B, The temporalis;

b, Its tendoù passing under the zygoma. C, The masseter.

D, The levator auguli oris.

E, The buccinator.
F, The orbicularis oris.
f, The negalis labii superioris, at the upper side of which
is a portion of the depressor labii superioris alæque

G, The depressor labit inferioris. H, The sterno-cleido-mastoidens.

I, The sterno-byoideus . The trachea seen obscurely.

K, The omo-byoidcus. L, The hyo-thyroidcus, d, The os hyoides.

The levator scapulæ, F. The scalenus medius.

### TRUNK.

A, The subclavius. B, The pectoralis minor.

C, C, The serratus magnus.

g, &c. Intercostales interni, the tendinous fascia being D, D, The rectus abdominis, with the tendon of the ob-

liquus internus covering its outer edge; -on the right side it is entirely exposed.

†, h, Tendinous intersections of the rectus abdominis.

E, The pyramidalis.

F. The obliques internus. i, k, The tendon of the obliques internes. Between i and &, the tendon splits into two layers, which inclose the rectus; from k to the pubis, the whole tendon goes

before the rectus. 1, 1, A portion of the tendon of the obliques internes remaining upon the outer edge of the rectus.

G. The cremaster itstis.

A, The biceps flexor cubiti;
a, Its short head;

b, Its long head.

c, A section of the aponeurotic tendon of the biceps ;

d. Its round teudon.

B, The coraco-brachialis.
c, The subscapularis of the right side.
f, The teres major of the right side.
C, The under end of the brachialis internus.

D, The loug head of the triceps extensor cubiti.
g, That part of the triceps called Brachialis Externus.
E, Extensores carpi radiales, longior et brevior.

Upper F, Extensor ossis metacarpi pollicis.—Lower F, Extensor primi internodii.

h, Extensor secundi internodii pollicis. G, Flexor sublimis perforatus See also Tab, XXXV. Fig. 2.

## PELVIS, and INFERIOR EXTREMITY.

A, The under end of the iliacus internus. B. The under end of the psoas magnus.

C, The pectinalis. D, The cut end of the rectus femoris.

E, The anterior edge of the gluteus medius.

## FIG. 2.

A The cruralis, with its teudinous fascia.

B, The vastus internus. externus.

D. The cut tendon of the rectus fixed to the micila E, The adductor longus femoris. F, The gracilis.

G, The tendons of the gracilis and semitendinosus.

H, The teudon of the biceps flexor cruris.

a, The peroneus brevis.
K. The exteusor longus digitorum pedis.
b. The tendons of the extensor longus digitorum.

The peroncus tertius

d, The extensor proprius pollicis.
e. The teudon of the extensor proprius pollicis. f, A branch of the tendon of the extensor propries pol-

licis, not always found.

L4 The edge of the gastroenewins internus.
 M, The edge of the flexor longus digitorum pedis.
 N, The tendons of the tibialis posticus, and flexor longus

digitorum pedis. O. The flexor brevis digitorum pedis.

# TABLE XXXVI.

A VIEW of the Third LAYER of MUSCLES on the Anterior Part of the Body.

_	
FIG. 1.	o, o, p, A print of the two umbilical arteries o, o, and
Harmand Name	the urachus p, upon the peritoneum.

A, The insertion of the abductor oculi. a, The adductor oculi of the right side.

B. The insertion of the levator oculi-

C, The trochlea, and part of the tendon of the obliques D, The obliquus inferior oculi, immediately above which

is the insertion of the depressor oculi.

E. The depressor labii superioris alæque nasi.

F. The orbicularis oris.

G, The buccinator

H, The levator labii inferioris. b, Part of the pterygnideus externus.

c, Part of the pterygoideus internus. I, The sterno-thyroideus.

K, The thyro-hyoideus. d, The os hyoides.

f, The cricoid cartilage, with the two crico-thyroid muscles arising from it.

g, The trachea. h, Part of the pleura

L, The scalenus anticus. M, N, The scalenus medius.

i, A portion of the trachelo-mastoidcus. O, The rectus capitis anterior major.
k, The longus colli.

## 1. The constrictor pharyngis inferior. TRUNK.

4, A, &c. Anterior portions of the intercostales externi. B, E, &c. Anterior part of the intercostates interni.
C, The fleshy part of the transversalis abdominis;
F, Its tendon.

D, D, the cut edge of that part of the tendon of the transversalis muscle which joins the obliqui, and passes before the rectus and pyramidalis. E, E, That part of the tendou which passes behind the

rectus, and is covered by, G, G, The posterior layer of the tendon of the obliquus

internus. m, m, The remains of the tendons of the oblique muscles, forming the linea alha,

H, The unbilicus.

I, The spermatic vessels passing under the edge of the transverse muscle,

n, The peritoneum.

1/4 The penis cut across, in which are seen the corpora cavernosa penis et urethræ.

SUPERIOR EXTREMITY.

A, The subscapularis;

a, Its tendon. B, The teres The teres major of the right side ;

C, The coraco-brachialis.

D, H, The brachialis internus E, The brachialis externus. F, The extensor carpi radialis brevior.

G, The extensor carpi radialis longior. I, The flexor digitorum prafundus. K, The flexor longus policis. L, The flexor brevis pollicis. See also Tab. L. Fig. 3.

## PELVIS, and INFERIOR EXTREMITY.

A, The gluteus minimus. B, The iliacus internus. C, The psoas magnus.

D, The obturator externus.

E, The adductor brevis. F, The adductor magnus. G, The gracilis.

## FIG. 2.

A, The adductor brevis. B, C, The adductor magnus. D, The gracilis.

a, The semimembranosus; b, Its insertion into the tibia The under end of the hiceus flexor crure.

F, F, The os femoris. G, The patella.

H, The tubercle of the tibia. I, I, The edges of the semilunar cartilages.

I, The edges of the seminidar cartiages.
 K, The permous longus.
 The permous brevis.
 The thing positions.
 M, The factor longus diptorum pedis.
 M, The tendon of the thinkin positions.
 The tendon of the Besor longus digitorum pedis.
 The food digitorum accessions.

O. The extensor brevis digitorum pedis









#### TABLE XXXVII.

A VIEW of the Fourth LAYER of Muscles situated on the Anterior Part of the Body.

## FIG. I. HEAD and NECK.

A, The levator palpebræ superioris.

- The levator oculi
- B, The adductor oculi.
- D, The depressor oculi.
- E, The obliquus superior.
- G, The pterygoideus internus. H, The obliquus superior capitis. I, The scalenus medius.
- K, b, c, d, e, The longus colli,
- f, f, f, Intertransversales colli.

A, A, A, Intercostales interni-

- a, a, Intercostales externi. B, B, b, The convex part, or thoracic side of the dia- D. The adductor pollicis.
- phragm;
  b, The anterior point of its middle teodoo.
  c, d, c, f, g, k, The fleshy origins of the diaphragm, from
- the cartilago ensiformis, peritoneum, seveoth, eighth, ninth, tenth, and eleventh ribs.
- i, i, i, i, The first heads, or tendinous crura of the inferior muscle of the diaphragm;
- k, The passage for the aorta, between these heads; The second and third heads of the inferior muscle of the diaphragm are situated between the upper ends of the first heads and the psoæ muscles, but are not
- represented here. 4 The fourth head ;
- m, Another head, sometimes found connected with the quadratus lumborum ; n, n, The fleshy crura from the joining of these heads.
- o, Fibres crossing each other under,
- p, The passage for the esophagus.

- q, The middle tendon on the left side, with its fibres decussating.
- r, Origin of the diaphragm, from the twelfth rib.
- C, The psoas parvus on the right side, that on the left being removed.
- s, The tendun of the psoas parvus passing down to be fixed to the brim of the pelvis.
- D, The quadratus lumborum. E. A section of the penis.
- t, The corpus cavernosum penis of the left side.
- u, The corpus cavernosum urethræ. ", The erector penis.
- w, The accelerator uring.
  - x, The sphineter ani.
    y, The transversalis perinci.

### SUPERIOR EXTREMITY.

- A, The subscapularis.
- B, The supinator brevis. C. The flexor brevis pollicis.
- - See also Tab. L. Fig. 4.

## PELVIS. and INFERIOR EXTREMITY.

- A, The psoas magnus. 2, Its origin, chiefly from the lumbar vertebra.
- &, Its passage out of the abdomen, along with, B, The iliacus internus.
- D, The upper part of the adductor magnus.

- A, B, C, The continuation of the adductor magnus. a, The insertion of the psoas magnus and iliacus internus.
- D, The tibialis posticus, the interesseous ligament being removed : b, Its tendon.
- E, The peroneus brevis. F, The interossei externi.

## TABLE XXXVIII.

Represents the Common Integuments, some of the Muscles and Glands of the Head and NECK, with the First Layer of Muscles on the Right, and Second Layer on the Left Side of the Anterior Part of the Bony.

### FIG. 1.

A HAIR, viewed with a Microscope

A, The root.
B, The bearded body.
C, The small extremity.

FIG. 2.

The Cutiele of the Hand, with the Nails adhering to it. FIG. 3.

A Tor, with the Cuticle taken off, to shew the Villous appearance of the Exterior Surface of the Skin.

FIG. 4.

A Piece of Skin, according to Ruysen, with the Papilla Pyramidales, as they appear to the naked Eye. FIG. 5.

The Piece of Skin, Fig. 4. seen with a Microscope.

FIG. 6. The Corpus Reticulare of the Skin, seen with the naked Eve.

FIG. 7.

The Corpus Reticulare, Fig. 6. viewed with a Microscope.

FIG. 8.

The Muscles, Glands, &c. of the Left Side of the Face and Neck, after the Common Integuments and Platysma Myoides have been removed.

a, The frontal muscle. b, The temporal muscle, on which the larger branches of the temporal artery are seen. e, c, The orbicularis palpebrarum.

d, The orbicularis oris.

e, The levator labii superioris.

g, The zygomaticus major.
h, The depressor anguli oris.
i, The depressor labii inferioris.

k. The buccinator. 1. The masseter.

m, The parotid gland; n, Its duct.

o, o, The facial artery.
p, p, The facial vein.
q, The anterior heads of the digastrici.

r, The inferior maxillary gland.

t. t. The omo-hyoideus e, Continuation of the facial vein-

e, The sterno-mastoideus.

w, The trapezius.
x, The levator scapulæ.
y, The scalenus medius.
z, The scalenus anticus. s. One of the nerves of the superior extremity.

FIG. 9.

On the RIGHT SIDE, the MUSCLES immediately under the Common Integuments, on the Anterior Part of the BODT, are represented; on the LEFT Side, the Mus-CLES are seen, which come in view when the Exterior Set have been removed.

For the Explanation of these Muscles, see Tab. XXXIV. and XXXV. to which add here the First Layer of Muscles on the

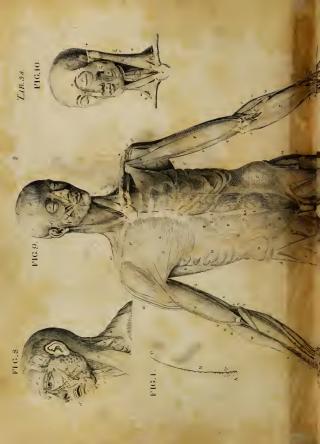
RIGHT FORE-ARM AND HAND.

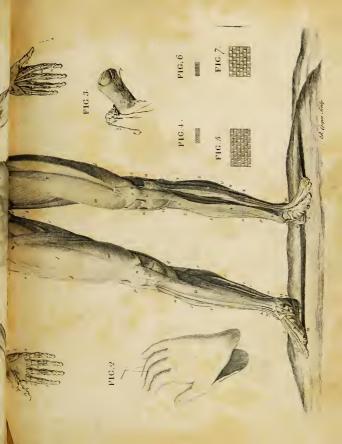
W, The supinator radii longus; X, Its tendon.

Y, The pronator radii teres. Z, The flexor carpi radialis;

s, Its tendon. \$, The palmaris longus;









### Its tendon.

- 3, 3, Parts of the flexor digitorum sublimis.
- The tendon of the flexor carpi ulnaris.
- 2. The flexor loogus pollicis :
- 1 Its tendon, inserted into the last joint of the thumb.
- 6. Part of the pronator radii quadratus. 4, Part of the extensor primi et secundi internodii pol
  - licis :
- \*, Their tendons;
- The tendinous aponeurosis of the palm.
- The transverse ligament of the wrist.
- The palmaris brevis.
- Part of the flexor primi internodii pollicis.
- The abductor pollicis;
- 1 Its tendon, forming an aponeurosis with the exten-
- Part of the flexor secundi internodii.
- The annular sheath of the tendon of the flexor longus
- pollicis. v. Part of the adductor pollicis.
- o, The tendon of the adductor indicis, and first lumbri-
- z, The abductor minimi digiti. 4, The flexor brevis minimi digiti.
- 1. 2. 3. The annular sheaths of the tendons of the flexors of the fore-finger. These ligaments are also represent-
- ed in the other fingers 4. The tendons of the lumbricales and interessei, which may also be seen on the sides of the other lingers.

## FIG. 10.

The Second LAYER of Muscles of the FACE and NECK, after the First has been removed.

## See them described Tab. XXXV.

- LEFT FORE-ARM AND HAND of Fig. 9.
- t, The extensor carpi radialis longior.
- u, Part of the extensor carpi radialis brevior. v, The supinator radii brevis.
- The cut extremity of the pronator radii teres.
- a, Part of the flexor carpi ulnaris;
- y, Its teudon. The flexor digitorum sublimis :
- A, Its tendons
- B, Part of the pronator radii quadratus.
- C, The extensors of the thumb. D. The flexor pollicis longes :
- F. Its tendon, near its insertion.
- F, The flexor ossis metacarpi pollicis-G, The flexor brevis pollicis.
- H, The flexor parvus minimi digiti.

  I, The abductor minimi digiti.
- K, K, The first and second lumbricales; the third and fourth are also in view, but unlettered.
- L, The tendons of the lumbricales and interessei, which may also be seen on the sides of the other fingers.
- M, The tendons of the flexor digitorum sublimis, divided near their insertion, for the passago of the tendons of the flexor profundus, marked N.

#### XXXIX. TABLE

Represents the Parts situated under those shewn in Fig. 9. Tab. XXXVIII. together with the EYE-LIDS, LACRYMAL GLAND and DUCTS, and MUSCLES of the EYE.

### FIG. 1.

The Muscles represented here are explained Tab. XXXVI. and XXXVII. excepting those on the right side of the Trunk, and on the under part of the Fore-arms and

### LEFT FORE-ARM AND HAND.

- S. The extensor carpi radialis longior.
- T, Part of the extensor carpi radialis brevior. U, The supinator radii brevis.
- V, The flexor digitorum profundus;
- W, Its tendons; X, X, Their insertions into the last joint of each of the
- Z, The transverse ligament of the wrist. y, y, y, y, The four lumbricales.
- s, The flexor longus pollicis;

  s, Its tendon, inserted into the last joint of the thumb.
- à, The flexor brevis pollicis.

  1, The adductor ossis metacarpi minimi digiti.

## &, The os pisiforme. RIGHT SIDE OF THE TRUNK.

- A, A, The intercostales externi.
- B, B, The intercostales interni-
- . The mammary artery and vein. i, i, i, i, The triangularis, vel sterno-costalis.
- x, x, The surface of the lungs appearing through the
- », », », The peritoneum, through which the bowels appear obscurely.—Between this and the linea alba, the
- vestige of the epigastric artery is seen.

  #, The spermatic cord, coming out hehind the peritoneum.

## RIGHT FORE-ARM AND HAND.

- c, The supinator radii brevis.
  d, The pronator radii quadratus.
  e, The flexor brevis pollicis.
  f, The sesamoid bones into which it is inserted.

g, The adductor pollicis. h, i, k, l, The seven interessei. FIG. 2.

# Described Tab. LXXII, Fig. 9.

Shews the Lacrymal Canals, the Teguments and Bones being cut away.

### FIG. 3.

Described Tab. LAXII. Fig. 8.

Represents the Palpebra inverted, to obtain a view of the Lacrymal Canals.

## FIG. 4.

The two Exe-Lids cut from each other, at the exterior

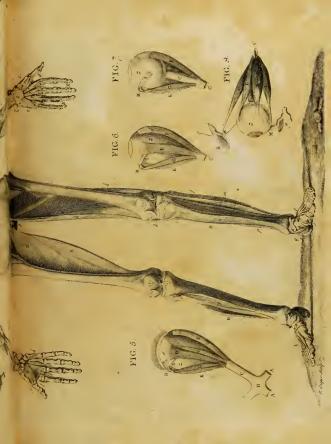
- A, A, The interior membrane of the eye-lids,
- B. The caruncula lacrymalis. C, D, The edges of the eye-lids, with the small orifices of the excretory ducts of the sebaccous glands.
- F., The puncta lacrymalia. F., F., The eye-lashes.

## FIG. 5, 6, 7, 8, and 9. Shew the Muscles of the Eye.

- A, A, The two optic nerves before they meet; B, These nerves conjoined. C, The nerve of the right eye.
- D, The attollens palpebram;
- d. Its tendon. E, The attollens oculum.
- G, The obliquus superior, vel trochleuris;
- H, I, Its tendon.
- K, The adductor.
- M, The obliques minor. Z, The ball of the eye.
- X, Part of the frontal bone
- y, Part of the maxillary bone.













### TABLE XL.

A VIEW of the First LAYER of Muscles on the Posterior Part of the Body, after the INTEGU-MENTS and APONLUROSES have been removed.

> FIG. 1. HEAD, NECK, and TRUNK.

A, The occipital part of the occipito-frontalis;

b, The tendinous part of this muscle; c, A tendinous membrane joining its two sides;

d, Part of the tendinous membrane, covering the upper

end of the temporal muscle. B, The attollens aurem.

C, The anterior auris. D, A small part of the retrahentes aurem. E, The back part of the orbicularis palpebrarum.

F. The zygomatieus major. G, The masseter.

e, The pterygoideus internus. f, The platysma myoides.

H, The sterno-eleido-mastoideus. I, I, I, The trapezius.

g, h, Its insertion into the spine of the scapula and outer end of the clavicle.

i, i, Its tendinous portion, in the nape of the neck, called a, The adductor magnus femoris.

Ligamentum Nuchae.

C, C, The gracilis.

K, K, K, The latissimus dorsi; k, k, Its tendon.

L, Part of the obliques externus abdominis. . m, Part of the insertion of the rhomboides.

n, Part of the sacro-lumbalis,

SUPERIOR EXTREMITY.

A, The deltoides;

/, Its insertion into the os humeri.

B, The infra-spinatus. C, The teres minor. D, The teres major.

E, The triceps extensor cubiti. o, The long,

p, The short head of the triceps.

q, The third head, called Brachialis Externus. r, The common tendon of these three heads.

s, The brachialis internus.

F, The anconeus.
G, The supinator radii longus.
H, The extensor carpi radialis longior.
I, The extensor carpi radialis brevior.

K, The extensor digitorum communis.

L. The extensor ossis metacarpi pollicis.

M, The extensor primi internodii pollicis. N, The extensor proper to the little finger.

O, The extensor carp ulnaris.
P, The palmaris longus.
t, The flexor sublimis perforatus.

Q, The flexor carpi ulnaris. R, u, Part of the flexor profundus perforans.

v, The ligamentum carpi annulare posterius. See the Muscles on the Hand, Tab. L. Fig. 5.

PELVIS. and INFERIOR EXTREMITY.

A, The gluteus maximus,

B, Part of the glutcus medius. C, The edge of the tensor vaginæ femoris.

FIG. 2.

A, The under part of the gluteus maximus.

B. The vastus externus.

b, Part of the sartorius. D, The long head of the biceps flexor cruris ;

E, Its short head.
c, The insertion of the biceps into the fibula.

F, The semitendinosus.
G, H, The semimembranosus.
I, The edge of the vastus internus.

d, Part of the plantaris.

K, K, The gastrocnemius externus. L, L, L, The edge of the gastrocnemius internus.

M, The tendo ACHILLIS.
e, The tendon of the plantaris.

c. The tendon of the plantaris.
N. The personau longus.
O. The personau brevis.
P. The factor foregaps pollicis pedis.
Q. The tendon of the personau brevis.
The tendon of the personau longus passing into the sole.
H. The tendon of the extensor longus digitarum.
St. The tendon of the extensor longus digitarum.
St. The tendon of the pedificial certain.

S, The abductor minimi digitih, The ligament common to the long and short peronei

i, The ligament proper to each of these two muscles. k, The ligamentum tarsi annulare.

### TABLE XLI.

VIEW of the Second LAYER of MUSCLES on the Posterior Part of the Body.

FIG. L

A, The temporalis exposed, by removing its tendinous

a, The tendon of the temporalis, passing under the zygoma.
h, The pterygoideus internus.

B, The masseter.

c. The mylo-hyoideus.

A, d, The levator scapulæ.

C, The splenius capitis et colli-D, The upper end of the complexus-

1, e, The rhomboides major. B, The rhomboides minor.

C, The serratus posticus superior of the left side. D, f, The serratus posticus inferior.—f, The part from I, The gracilis. which the latissimus dorsi was cut.

E, The under part of the serratus magnus. F, Part of the sacro-lumbalis.

G, Part of the longissimus dorsi.

H, Part of the spinalis dorsi. I, I, The broad tendon common to the latissimus dorsi

and serratus posticus inferior. and servatis position internal statements abdominis.

L. L. The intercostales externi.

M. The cocygeus.

N. The levator ani.

O, The sphincter ani.

## SUPERIOR EXTREMITY.

B, The supra-spinatus, C, The infra-spinatus. D, The teres minor.

E, The teres major. F, The triceps extensor euhiti;

g, Its long head;

G, G, Part of the third head, named Brachialis Exter-

(ii), The common tendon of the triceps, inserted into the P, The tendon of the personeus brevis.

(ii), The common tendon of the personeus brevis.

(iii) The catendon of the personeus tertius.

I. The anconeus.

K, The extensor carpi radialis longior.

A. The extensor carp radials longior.

L. The extensor early radials hereior.

M. The supinator radii brevis.

N. The extensor ossis metacarpi pollicis.

O. The extensor primi intermodii pollicis.

P. The extensor secundi intermodii pollicis.

Q. The indicator.

R. The flexor profundus.

The flexor profundus.

The flexor carpi ulnaris. S, The flexor carpi unitari.
T, A small share of the flexor sublimis. See also Tab. L. Fig. 6.

## PELVIS, and INFERIOR EXTREMITY.

A, The gluteus medius.

B, The pyriformis. C, The gemini. D, The tendon of the obturator internus, passing between

the gemini. E, The quadratus femoris.

F, The vastns externus. G, G, The adductor magnus femories.

H, The semitendinosus.

## FIG. 2.

a, a, The continuation of the adductor maguus femori-

and of,
A, A, The vastus externus.
B, The biceps flexor cruris;
b, Its long head;

c, c, Its short head.
d, The common tendon of the two heads.

C, A small portion of the vastus internus D, Continuation of the gracilis, and of,

E, The semitendinosus. F, F, The semimembranosus. The cut heads of the gastrocnemius externus.

G, The poplities,
H, H, The solcus.
L, f, The plantaris;—f, Its tendon.
K, The cut tendon of the gustroenemius externus.
L, The tendo Achillis, with that of the plantaris adhe-

ring to it, lixed to the os caleis.

M, The peroneus longus passing to the sole.
N, The peroneus brevis. O. The tendons of the extensor digitorum longus.

Q. The flexor brevis digitarum.









### TABLE XLII.

A VIEW of the Third LAYER of MUSCLES on the Posterior Part of the Bony.

## FIG. 1.

# HEAD and NECE.

A. The hack part of the huceinator.
a. The pterygoidcus internus.
b. The mylo-hyoideus.

B, B, c, d, The complexus, -d, A fleshy slip from the spinous process of the first dorsal vertehra.

The trachelo-mastoideus. D. The scalenus medius.

E. The scalenus posticus. F. The semi-spinalis colli-

C, G, The interspinales colli.

H, The obliques capitis superior. I, I, The transversalis colli

K, The upper end of the longissimus dorsi, joining the trachelo-mastoideus aud cervicalis descendens.

L, The fleshy slip from the sacro-lumbalis, called Cervicalis Descendens.

## TRUNK.

A, E, E, The spinalis dorsi .- Between the spinous processes of the dorsal and lumbar vertebrae, the interspinales muscles appear.

a, b, Part of the semi-spinalis dorsi.

B, The longissimus dorsi. C. The tendons of the sacro-lumbalis.

c, A tendon covering, and partly giving origin to, the common head of the longissimus dorsi and sacro-lum-

D, Part of this tendon running across the longissimus dorsi. F, The transversalis abdomini

G, The innerlayer of the aponeurosis common to the serra-

tus posticus inferior, and obliquus internus abdominis. H, H, H, The intercostales externi. I, I, Portions of the intercostales externi, called by AL-BINUS Levatores Costarum.

## SUPERIOR EXTREMITY.

A, The teres major.

q, Part of the subscapularis.

B. Part of the coraco-hrachialis

C, Part of the brachialis internus D, The hrachialis externus, or third head of the triceps

extensor cubiti-

E, The extensor carpi radialis longior. F. The extensor carpi radialis brevior-

G, The flexor profundus.

H. The supinator radii brevis. I, Part of the flexor longus pollicis.

K, The pronator radii quadratus. See also Tab. L. Fig. 7.

## PELVIS, and INFERIOR EXTREMITY.

A, The gluteus minimus. B, The ohturator internus

C, The tendon of the obturator externus.

a, The insertion of the iliacus internus and proas magnus.

D, The upper end of the gracilis. E, The semimembranesus.

F. F. The adductor magnus femoris.

## FIG. 2.

A, A, A continuation of the gracilis, B, B, \_\_\_\_\_ of the adductor magous femoris, and,

C, of the semimembranosus.

D. The short head of the biceps flexor cruris. The letter is placed over the part from which the long head was cut. E, E, The cut heads of the gastrocnemius externus.

F, The origin of the plantaris.

G. The popliteus. H. The tibialis posticus. I, The flexor lougus digitorum pedis.

K. The flexor longus pollicis pedis.

L, The peroneus longus. a, The tendon of the tibialis posticus. b, The teudon of the peroneus lougns passing to the sole,

M. The peroneus brevis.

N, The extensor brevis digitorum pedis.
O. Part of the flexor longus digitorum pedis.

### TABLE XLIII.

A VIEW of the Fourth LAYER of Muscles on the Posterior Part of the Body.

FIG. 1. HEAD and NECK.

A, The rectus capitis posterior minor.

C, The obliques capitis superior. inferior.

F, The scalenus medius.
F, The upper end of the multifidus spinæ.
G, G, The interspinales colli.
H, H, The intertransversales colli posteriores.

I, I, I, The semispinalis colli-

## TRUNK.

A, A, The semispinalle dorsi.
B, B, The multilidas spinz.—On the left side of the neck and trunk, the semispinalis coll and semispinalis of the semispinalis in the semispinalis of the semispinalis of the semispinalis of the semispinalis of the semispinalis in the semispinalis of the se dorsi are raised, by which a full view of this muscle is

obtained. C, C, &c. The levatores costarum breviores.

D, D, The levatores costarum longiores. E, E, &c. The intercostales externi. a, a, a, The intercostales interni of the left side. b, b, The pleura.

c, c, c, The intertransversales dorsi.
d, d, The interspinales dorsi.
F, The quadratus lumborum.
G, G, The intertransversales lumborum.
H, H, The intertransles lumborum.

SUPERIOR EXTREMITY.

A, The subscapularis.
B, The supinator radii brevis.
C, The pronator radii quadratus.

INFERIOR EXTREMITY.

A, The lifacus internus.

a, The psoas magnus.

R, The obturator externus.

C, The tendon of the lifacus internus and psoas magnus.

D, D, The adductor magnus femoris.

## FIG. 2.

A, A, The continuation of the adductor magnus femoris.—The shaded part in the middle of the muscle represents the impression made by the semimembranous.
 B, The this posticus.
 The peroneus brevis.













### TABLE XLIV.

A VIEW of the First LAYER of MUSCLES on the Right, and Second LAYER of MUSCLES on the Left Side of the Posterior Part of the Bony, and of the Muscles of the External Parts of GENERATION.

the lumbricales.

third phalanx.

### FIG. 1.

On the Left Side of the HEAD, and Right Side of the Posterior Part of the TRUNK and EXTREMITIES, the Muscles immediately under the Common Integu-MENTS are shown; on the Left Side of the Posterior Part of the Trunk and Extremities, are seen the

MUSCLES which come in View when the Exterior Set has been removed.

All the Muscles represented in this Figure are explained in Tab. XL. and XLI. excepting those on the under

RIGHT FORE-ARM and HAND.

H, The supinator radii longus.

I, The extensor carpi radialis longior. brevior.

L, Part of the anconeus.

parts of the Fore-arm, and on the Hand.

M, Part of the flexor profundus which comes from the

N, Part of the palmaris longus.
O, Part of the flexor sublimis.

P, The flexor carpi ulnaris.

Q, The extensor carpi ulnaris. R, The tendons of the extensor digitorum communis, be-

longing to the little finger. S, The extensor digitorum communis ;

, Its tendous, going to the other fingers;

U, U, Their joinings by cross tendons. V, The tendon of the indicator, going to join with the

tendon of the extensor. W, W, The tendoos of the extensor communis, joined

with those of the lumbricales and interossei; N, X, The extremities of these tendons, joined to the bones of the second phalaux.

Y, The abductor minimi digiti.

7, 7, Z, The interessei externi.

a, a, The tendons of the anterior interessei, joining with b, b, b, The tendons of the posterior interessei.
 c, The abductor indicis. d. The tendon of the extensor secundi internodii pollicis.

The annular ligament of the wrist.

f, The ligament of the extensor carpi ulnaris.

g, A ligament for the extensores ossis metacarpi, et primi internodii pollicis.

h, The extensor primi internodii pollicis.

k, The tendons of the three extensors of the thumb.

l, The adductor policis.
m, m, The tendons of the interessei and lumbricales, after joining with the tendous of the extensor digitorum communis, and receiving additions from it, fixed to the

### LEFT FORE-ARM and HAND.

L, L, The extensor carpi radialis longior.
M, M, \_\_\_\_\_\_ brevior.

N; The auconeus.

O, The supinator radii brevis.
P. The extensor ossis metacarpi pollicis.

Q, \_\_\_\_\_ primi internodii pollicis.
R, \_\_\_\_ secundi internodii pollicis. R, \_\_\_\_\_\_ secundi intermodii policis.
S, The conjoined tendons of the extensors, fixed to the last bone of the thumb.

T, The indicator.

U, The flexor profundus perforans, V, The flexor carpi uluaris.

W. W. The tendons of the extensor communis, cut off

where they are about to join with those of the lumbricales and interessei.

X, X, The tendons of the extensor communis, fixed to the second phalanx.

Y, The abductor minimi digiti. Z, Z, Z, The tendons of the anterior interessei, joining

with those of the lumbricales. a. The tendon of the first lumbricalis.

b. b. b. The

b, b, b, The tendons of the posterior interessei.
c, c, c, The interessei.
d, The prior indicis.
e, The adductor indicis.
f, The adductor pollicis.

g, g, The tendons of the interessed and lumbricales, after a, a, A section of the thighs.
joining with the tendons of the extensor communis, b, The clitoris.

of the Intestinum Rectum of a Child.

These Muscles are described in Tab, XLVIII. Fig. 9.

FIG. S.

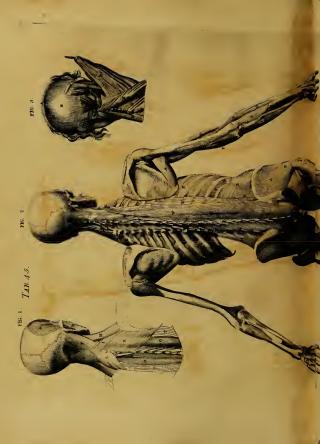
Muscles of the External Parts of Generation, &c. in the FEMALE.

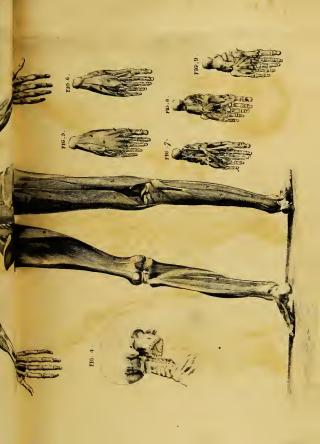
Fig. 2.

Aluscles of the Pens and Under End f. The sphineter vanic connected with the sphineter vanication of the Pens and Under End f. The sphineter varies connected with the sphineter varies. ginæ.

See also the Muscles in a Lateral View of the Female Parts of Generation, Vol. II.









#### TABLE XLV.

Represents the Second LAYER of Muscles upon the HEAD, NECK, and Upper Part of the TRUNK ;-the Third LAYER of MUSCLES on the Right, and Fourth LAYER of MUSCLES on the Left Side of the Posterior Part of the Body, with the Muscles on the Sole of the Foot.

## FIG. I.

Muscles upon the HEAD and NECK, and Upper Part of the TRUNK, deeper seated than those represented in Fig. 1. of the former Table.

Explained in Tab. XLI.

#### FIG. 2.

The Third LAYER of Muscles on the Right, and Fourth LAYER of MUSCLES on the Left Side of the Posterior Part of the Bony.

See Tab. XLII, and XLIII .- To which add here, the Muscles on the Fore-arms and Hands,

# RIGHT FORE-ARM and HAND.

# F, The extensor carpi radialis longior.

G, hrev H, The flexor profundus perforans-I, The supinator radii brevis.

K, The flexor longus policis.
L, The pronator radii quadratus.
M, M, The tendons of the extensors cut off. N, The flexor brevis pollicis.

O, The adductor pollicis.

P, The prior indicis.

Q, The posterior indicis. R, The prior medii digiti.

S, The posterior medii digiti.

T, The prior annularis.
U, The posterior annularis.
V, The prior auricularis.

#### LEFT FORE-ARM and HAND.

B, The supinator radii brevis. C, The pronator radii quadratus.

D, The flexor brevis pollicis. E. E. The adductor pollicis.

#### FIG. 3.

View of the Muscles woon the Under and Back Part of the HEAD, and on the Back Part of the NECK.

See Tab. XL.-XLIII. where the Muscles of these parts are more properly represented.

Muscles, and other Parts deeply seated, on the Side and Back Part of the HEAD and NECK.

a, a, The rectus capitis posticus minor, on each side.

b. The rectus capitis lateralis

e, The ligament between the first and second cervical vertebræ.

d, d, The interspinales colli.
ε, ε, The intertransversales colli.

f, The palate, covered with its glandular membrane.

g, The glands, appearing after the uvula is cut off.
h, The septum narium next the fauces.

## FIG. 5, 6, 7, 8, 9,

The Aponeurosis, and different Laters of Muscles. with some of the LIGAMENTS on the Sole, after temoving the Common Integuments.

For the explanation of which, see Tab. L. Fig. S .- 12.

#### TABLE XLVI.

The Muscles seated about the Throat; with a View of the First Layer of Muscles upon the Lateral Parts of the Bopy.

FIG. 1 .-- 17.

Explained in Tab. XLVII.

FIG. 18. A View of the First LAYER of Muscles on the Lateral Parts of the Body.

HEAD and TRUNK.

# A, The occipito-frontalis;

A, The occumination of the two sides of this muscle:
C, The attollens surem.
D, The autorior aurie.
E, The retraducte aurem.
a, The helicis major.

b, minor.

c, The tragicus.

d, The anti-tragicus.

F, The orbicularis palpebrarum.

G, The zygomaticus major. H, The buccinator. H, The buccinal

1. The massecer.

1. The massecer.

1. The procygoideus internus.

M. The platysma myoides.

N. The sterno-cleido-mastoideus.

O. The complexus.

P, The splenius.
Q, The scalenus medius.
R, The levator scapulæ.

S, S, T, The trapezius.

U, The teres minor.

X, X, Y, The latissimus dorsi.

Z, The pectoralis minor.
a, a, b, The pectoralis major.
c, c, c, The serratus magnus.

d, d, e, e, The obliques externes abdominis ;-d, d, The

fleshy; e, e, The tendinous parts.

LEFT SUPERIOR EXTREMITY.

A, The deltoides. B, The biceps flexor cubiti.

D, The triceps extensor cubiti.

E, The flexor carpi ulnaris.
F, The supinator radii longus.
G, The flexor carpi radialis.

H, H, The extensor carpi radialis longior.

I, K, The extensor carpi ulnaris.

L. The extensor digitorum communis; M, Its tendon.

N, The extensor ossis metacarpi pollicis;

O, Its tendon.
P, The extensor primi internodii pollicis;
Q, Its tendon.

R, The tendo secundi internodii.
S, The ligamentum carpi annulare posterius.
T, The ligament confining the tendons of the extensor

ossis metacarpi, and extensor primi internodii pollicis.

W, The adductor pollicis. X, The opponens pollicis.

# RIGHT SUPERIOR EXTREMITY.

A, B, The triceps extensor cubiti ;-A, The part called Extensor Longue ;-B, The part called Extensor Brevis.

C, The brachialis internus D, The biceps flexor cubiti.

F. The supinator longus.
F. The pronator teres.
G. The lexor carpi radialis.
H. The palmaris longus.
J. The flexor sublimis perforatus.

K, The flexor carpi ulnaris. L. The extensor carpi ulnaris.

M, The flexor brevis pollicis.
N, The tendon of the flexor longus, with its retaining

ligaments. O, The palmaris brevis, and, on the outside of it, the

abductor minimi digiti. P, The tendons of the extensor digitorum communis;

The aponeuroses of these tendons, stretched over the back of the four fingers.

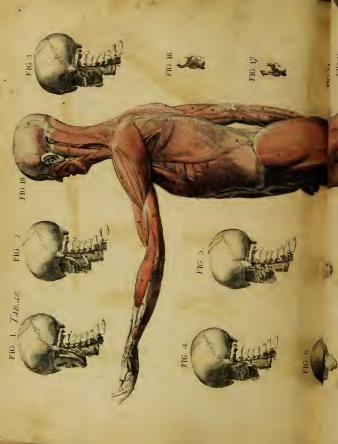
## LEFT INFERIOR EXTREMITY.

A, The adductor longus femoris.

B, The pectinalis and psous magnus.

C, The









C. The sartorius.

D. The tensor vagina femoris.

E, The gluteus medius.

F, \_\_\_\_ maximus, G, The semitendinosus.

H, The baceps flexor cruris. I, The vastus externus.

K, The rectus.

L, The vastus internus.

M, The ligament connecting the patella to the tibia.

N. The outer head of the gastrocucmius externus, O, O, The gastrocnemius internus.

P, The tendo ACHILLIS.
Q, The peroneus longus.
R, The peroneus brevis.

S, Ligaments binding the tendons of the peronei. T, The extensor longus digitorum, inseparably connected

U, The peroneus tertius.

V. The tendon of the peroneus tertins, inserted into the

metatarsal bone of the little toe. W, The tenden of the extensor longus, splitting into four

smaller tendons : X, X, Their insertions into the toes.

Y, The extensor proprius pollicis; Z, Its tendon.

a, a, The tihialis anticus. b, The upper and under portions of the ligamentum tarsi

c, The extensor hrevis digitorum pedis; its tendons are inserted into all the toes, excepting the smallest.

d, d, Part of the interessei pedis externi.

e, The abductor minimi digiti pedis;

f. Its tendon. E. R. The flexor brevis minimi digiti pedis.

RIGHT INFERIOR EXTREMITY.

A. The rectus : B, Its insertiou into the patella.

C, The ligament which fixes the patella to the tibia.

D, The vastus internus. E, The sartorius;

F, Its tendon, fixed to the tihia. G, The graculis.

H. The semimembranosus. I, I, The semitendinosus. K, The gastroenemius externus;

L, Its tendon.

M, The gastrocnemins internus. N, The tendo ACHILLIS

O, The tendon of the plantaris. P, The flexor proprius pollicis pedis.

Q. The ligament binding the tendon of the flexor longue. R, The flexor longus digitorum pedis.

S, The tendou of the tibialis posticus. T, The ligament covering the tendon of the flexor longus digitorum pedis, and tibialis posticus.

U, The ligament which retains the tibialis posticus.
V. The tibialis anticus;

V, The tibialis anticus;
W, Its tendou.
X, X, The upper and under portions of the ligamentum

Y, The tendon of the extensor proprius pollicis pedis; Z. An aponeurosis joining this tendon, a, The abductor pollicis pedis.

b, The flexor digitorum accessorius,

## TABLE XLVII.

#### MUSCLES seated about the THROAT.

#### FIG. 1.

Presents a Lateral View of the Muscles seated under the Head, and before the Vertebræ of the Neck.

- a, The pterygoideus externus.
- b, The mylo-hyoideus. internus.
- d, The stylo-hyoidens.

- e, f, The digastricus.
  g, h, The hyo-glossus.
  i, The os hyoides.
  k, The thyro-hyoideus.
- 1, The thyroid cartilage.
- m, The crico-thyroideus.
- o, A section of the esoplagus.
  p, p, The constrictor pharyngis inferior.
- superior.

# FIG. 2.

Represents the Muscles under those shewn in the preceding Figure, which, together with the Right Side of the Lower JAW, are here removed.

- a, The upper jaw.
  b, A section of the lower jaw.
- c, The tongue.
- d, The stylo-glossus.
- f, The genio-glossus.
- h, h, The constrictor pharyngis superior \_\_\_ nicding. - inferior.
- /, The thyroid cartilage.
- m, The cricoid cartilage.
- n, A section of the esophagus.

# FIG. 3.

Represents the next Order of Muscles, the outermost of those in the preceding Figure being removed.

a, The under half of the style-glossus, the upper half h, The epiglottis. being removed.

- h, c, The genio-glossus, d, The constrictor pharyngis superior.
- medius, inferior.

- k. A section of the esophagus.
- g, The os hyoides.
  h, The thyroid cartilage.
  i, The cricoid cartilage.

# FIG. 4.

Represents the next Order of Muscles, after the outermost of Fig. 3. are removed.

- a, The circumflexus palati, immediately hehind which is the levator palati.
  b, The stylo-pharyngeus.
- c, c, The palato-pharyngeus, covering a part of the mem-brane of the pharynx.

- d, The constrictor isthmi faucium.
  e, The topsil.
  f, The stylo-glossus, where it joins the tongue. g, A section of the hyo-glossus.
  - h, The lingualis. i, k, The genio-hyo-glossus ;-i, Its origin from the lower
  - 7, The os hyoides.
  - m, The ligament which joins the cornu of the os hyoides and thyroid cartilage.
- n, The body of the thyroid cartilage.
  o, The cricoid cartilage.
- p, The ligament by which the thyroid and cricoid cartslages are joined together. q. A section of the esophagus.

# FIG. 5.

- In this Figure, some of the Outer Muscles shewn in the Fourth are removed, the Pharrinx is laid open longi-tudinally, and the Right Part of it cut of, to shew its Cavity, with the Root of the Tongue and Fri-GLOTTIS.
- a, The circumflexus palati-
- b. The levator palati.
- c, The tonsil. d, The constrictor isthmi faucium.
- e, The tongue.
- f, The under part of the lingualist
- i, The os hyoides.
- k, The thyroid cartilage.
- m, The pharynx laid open.
  n, The upper part of the coophagus.





#### FIG. 6.

Presents a Posterior View of the PHARYNX, and the Under Part of the Bones of the HEAD, to which the PHARYNE is connected.

a, The upper point of the constrictor pharyogis inferior on each side.

b. The under end of the pharynx ;-the letter points also at the inner transverse fibres of the œsophagus, which are laid bare.

c. c. The outer fibres of the esophagus descending ohliquely hackwards on each side,

d, A section of the asophagus.

e, e, A section of the trachea.

f, f, The ends of the cornua of the os hyoides. g, g, The ligaments which join the upper processes of the thyroid cartilage to the ends of the cornua of the os

hyoides.

by order. A, h, The constrictor medius pharyngis, on each side. h, h, The constrictor superior pharyngis, on each side. h, i, i, the constrictor superior pharyngis, on each side. h, h, the saylo-pharyngus so each side. h, h, the saylo-pharyngus so each side. h, h, The proper side processes of the temporal bones. h, h, The pterygoid processes of the sphenoid hone h, h, The pterygoid processes of the sphenoid hone h, h, the constant h is the side h in the side h is the side h in the side h is the side h in on each side.

#### FIG. 7.

Presents the next View, after the removal of the Lower CONSTRICTORS of the PHARYNX. The BONES of the HEAD are not added; but the STYLOID PROCESSES are left, to shew the Origin of the STYLO-PHARYNGES.

a, b, k, The constrictor pharyngis medius.

c, The upper constrictor of the pharynx, cut off from the

huccinator. d, The naked membrane of the pharynx.

e, The styloid process of the temporal bone, cut off at its

f, The stylo-pharyngeus, arising, tendinous, from the sty-

loid process. g, The common end of the stylo-pharyngeus and palato-

h, Part of the stylo-pharyngeus and palato-pharyngeus, fixed to the edge of the thyroid cartilage

i, The naked membrane of the lower part of the pharyus, continued to the esophagus.

4. The comu of the os hyoides.
4. The superior corno of the thyroid eartilage.

m, The posterior edge of the thyroid cartilage;

14 Its inferior cornu.

o, The tubercle on the outer side, at the root of the superior cornu-

The cricoid cartilage.

9, A section of the trachen,

FIG. 8.

The next View of the Muscles, after the Middle Con-STRICTORS of the PHARYNX are removed.

a, c, b, d, The constrictores pharyngis superiores.

e, The levator palati. f. The circumflexus palati.

g, The tendinous origin of the stylo-pharyngeus, where it is cut off from the styloid process.

h, That part of the stylo-pharyngeus which forms two fasciculi, passing separately under the fibres of the up-

per constrictor.

The under and larger part of the stylo-pharyngeus.

k, Part of the common end of the stylo-pharyngeus and palato-pharyngeus, fixed to the thyroid cartilage.

1, Part of the common end of the stylo-pharyngeus joined to its fellow on the back of the pharynx.

#### FIG. 9.

Represents the next Order of Muscles, after the Upner CONSTRUCTORS of the PHARYNX are removed.

a, The naked membrane of the pharyex. b, The small book of the pterygoid process.

c, The palato-pharyngeus.
d, e, Part of the common end of the stylo-pharyngeus and palato-pharyngeus.

## FIG. 10.

Represents the Inner and Fore Part of the PHARYNE, the whole Posterior Part being removed.

a, The Eustachian tube; -its orifice opening laterally into the posterior foramen of the nostril.

b, The septum narium.

c, The cavity of the nostril, with the lower os spongiasum, covered with the mucous membrane.

d, d, The palatum molle. f. The posterior arch, which descends laterally from the

soft palate through the side of the pharynx.

g, The tonsil. The epiglottis.

The membranous side of the glottis.

/, The rima, or slit of the glottis-

m, The back part of the tube of the larynx, projecting within the pharynx.

## F1G. 11.

Represents the Muscles lying immediately under the MEMBRANE of the PHARYNE, which, with the CEso-FHAGUS and TRACHEA, are removed.

a. The levator palati.

b. The azygos uvular.

c, The palato-pharyngeus; d, The part which afterwards passes under the levator

palati. e, Part of the palato-pharyngeus, called by Albinus, Sal-

pingo-Pharyngeus f. Part of the common end of the palato-pharyngens and

stylo-pharyngeus. g, The posterior edge of the velum palati.

A, The uvula.

i, The tonsil, projecting before the palato-pharyngeus. k, The tongue.

7, The epiglottis.

m, The point of the arytenoid cartilage.
n, The arytenoideus obliquus.

- transversus. p, The crico-arytenoideus posticus.

q. The cricoid cartilage.

#### FIG. 12.

Represents the Muscles deeper seated than those shewn in the former Figure.

a, The Eustachian tube opening laterally into the poste-

rior foramen of the nostril. b, The os spongiosum inferius, covered with the mucous membrane

c, The levator palati.

d, The circumflexus.

The small hook of the pterygoid process.

f, Part of the palato-pharyngeus, which passes through the soft palate, under the end of the levator.

g, Part of the common end of the stylo-pharyngeus and palato-pharyngeus, produced more particularly from

the stylo-pharyngeus. h, h, The arytenoid cartilage.

## FIG. 13.

Represents the Muscles which appear upon the Removal of the LEVATURES PALATI, the ANNULAR and ARY-TENOID CARTILAGES, and their Appendages.

a, The circumflexus palati.
b, The aponeurosis of the circumflexi.
c, The hook-like process of the pterygoid plate.

d, The palato-pharyngeus.

e, Part of the stylo-pharyngeus inserted into the thyroid cartilage.

f, The thyroid cartilage.

g, A prominence upon the inner side of the thyroid ear-

h, The under end of the epiglottis, fixed to the thyroid cartilage.

FIG. 14.

Muscles of the Palate, viewed on the Under Side.

a, The levator palati.

b, c, The circumflexus palati ;-c, Its tendon, passing over the hook-like process of the pter; goid plate. d. The membrane of the palate.

e, The EUSTACHIAN tube.

f, f, f, The circumference, from which the membrane of the palate is cut off.

#### FIG. 15.

The Mouth and Fauces open, to shew the Muscles of the PALATUM MOLLE, on the Under and Fore Side : the investing MEMBRANE being removed.

a, The posterior arch, and, b, The anterior arch of the palate. Between this and the posterior arch a, is the seat of the amygdala.

c, The edge of the soft palate.
d, The uvula,
e, The tonguo.

f, f, The fauces.

g, The constrictor isthmi faucium. h, The palato-pharyngeus.

#### FIG. 16.

Shews the LARYNX, with its Posterior MUSCLES, and those at the Side of the THYROID CARTILAGE, the Right Part of which is removed.

a, The crien-arytenoideus postiens.

c, c, f, The thyro-epiglottidens. d, g, The thyro-aryteuoideus.

h. The arytenoideus transversus.

nhliquus, with its continuation to the epiglottis.

## FIG. 17.

Represents the same VIEW of the CARTILAGES of the LARYNX with the preceding F gure, but wholly freed from the Muscles and MEMBRANES.

a, b, c, The inside of the left half of the thyroid eartilage. d, The superior corns of the thyroid cartilage.

g, The right arytenoid cartilage.

h, The left arytenoid cartilage. i, k, The epiglottis ;-k, Its concave part.





#### TABLE XLVIIA.

This Plate contains the Anatomy of the PARTS about the GROIN in both Sexes, or of the Parts concerned in INGUINAL and CRURAL HERNIA .- All the Figures, excepting the Third, belong to the Left Side of the Body -Fig. 2. 5. 6. are taken by the AUTHOR from Nature .- Fig. 1. 3. 4. 7. 8. are Sketches from the highly finished Work of MR Cooper, on Hernia,

#### FIG. I.

Shews the Formation of the Abdominal Rings in the Male, the Course of the Spermatic Cord through these, and the Form and Situation of some of the Fascia.

e, The external abdominal ring.

b, The upper column of the tendon which assists in the formation of this ring.

The under column of this tendon, extending from,

d, The crural arch, or ligament of Pourant, to be fixed to the pubis.

The ilial, and,

f. The pubal portion of the fascia lata femoris. g, The vena saphæna perforating the fascia lata, to ter-

minate in the femoral vein. A, The tendon of the external oblique muscle, cut and

reflected, to shew parts deeper scated. i, The lower edge of the internal oblique muscle, cut

from the crural arch, and also reflected. I, The transversalis, the lower edge of which is cut and

turned un. 4 The transverse fascia, rnuning up from the crural arch to line the back part of the transverse muscle and its

tendon, thereby preventing crural hernia from happening between the external iliac blood-vessels and the superior-anterior spinous process of the os ilium.

", The epigastric blood-vessels, passing first at the inner-side of, and then behind the spermatic cord. o, The spermatic cord, descending through the abdominal

rings, shewing at the same time the leugth of the inguinal canal, and the course the howels take in inguinal

p, The spermatic cord, in its descent to the testicle.

## FIG. 2.

Exhibits a Portion of the Tendinous Fascia about the Groin, in the Female.

external oblique muscle of the abdomen, cut from the ligament of POUPART, and turned up.

That part of the superficial fascla, which covers the fascia lata femoris at the upper part of the thigh, cut

and turned outwards. c, The under end of the tendon of the external oblique muscle, forming the ligament of POUPART.

d, The round ligament of the nterus, passing through the external abdominal ring.

c, The fascia lata femoris, descending from the under edge of Pourant's ligament.

f. The crescentic or falciform edge of this fascia.

g, The vena saphæna, passing through a notch in the fascis, to terminate in the femoral vein. h, A vein descending from the integuments of the abdo-

men, also to terminate in this vein. i, i, Some lymphatic glands situated in the notch at the

# side of the vena saphæna, where crural herniæ happen.

FIG. 3. Represents the External Abdominal Ring, and the Falciform Ligament, or Semilunar Edge of the Fascia

Lata Femoris, in the Female. a, The symphysis of the pubis.

b. The external abdominal ring, with the upper and under columns by which it is formed. c, The crural arch.

d, c, The fascia lata of the thigh; d, The ilial, and,

c, the pubal portion of this fascia.
f, f
The semilunar or falciform edge of the fascia.
g, The crural sheath.

g, The crural sheath.

i. The place where the bowels protrude in femoral hemia.

# FIG. 4.

Shews the Insertions of the Tendon of the External Oblique Muscle into the Os Pubis; the Iliac Fascia, and the Orifice of the Crural Sheath, in the Female.

a, The superficial fascia, which covers the tendon of the a, The puhis.

- b, The external abdominal ring, with two orifices in it, g, h, i, The round ligament of the aterus; h, the place which happens occasionally.
- c, The anterior surface of the crural arch: above the letter is seen the direction of the fibres of the tendon nf the external oblique muscle, and curved tendinous lines decussating that tendon.
- d, The third insertion of the tendon of the external oblique muscle, or that part of the tendon which is fixed
- to the upper part and spine of the pubis.
  c, The ligament covering the os pubis, into which the third iosertion of this tendon is fixed.
- f, A portion of the fascia transversalis, and tendon of the rectus, passing behind the insertion of the external oblique muscle,
- g, The fascia iliaca, passing from the crural arch over the internal iliac muscle.

#### h, The orifice of the crural sheath, for the passage of the femoral blood-vessels and absorbents.

#### FIG. 5.

Gives a View of the Inner Side of the Crural Arch, and of the Passage of the Blood-Vessels which go under it, in the Male

- a, a, The abdominal muscles reflected.
- b, c, d, The posterior, or inner part of the crural arch;
  d, A portion of this arch, forming the third insertion
- of the external oblique muscle, and which is broader than in the female.
- The iliac fascia, covering the internal iliac muscle.
- f. Part of the large psoas muscle.
- g, The external iliac artery, sending off,
- h, The internal circumflex aftery of the os ilium, and, i, The epigastric artery.
- k, The external iliac vein, receiving the circumflex and epigastric veins .- The circumflex artery and vein are seen in the place where the iliac joins the transverse
- 1, The crural ring, where femoral hernia occurs.
- The spermatic blood-vessels.
- m, The spermatic blood-vessels.
  n. The was deferens, departing from the blood-vessels, to get into the pelvis.

## FIG. 6.

- View of the Inner Side of the Crural Arch in the Female, and Parts somewhat corresponding with those seen in the former Figure.
- a, The symphysis of the puhis.
- b. The brim of the pelvis.
- c, d, The crural arch, or ligament of Pourart. The letter d is placed on that part of the ligament that is recommended by GIMBERNAT to be cut in crural hernia.
- ε, The iliac fascia covering the internal iliac muscle.
  f, The large psoas muscle, with a branch of the lumbar
- nerves running along it to the thigh

- where it passes through the fascia transversalis; 2, the ligament descending towards the groin.
- The external ibac artery.
- 4 The epigastric artery
- m, The circumflex artery of the os ilium.
  n, The obturator artery, in this subject arising from the external iliac
- o, The external iliac vein, receiving branches corresponding with those sent off from the iliac artery.
- The crural ring. q, The third insertion of Phurant's ligament.

## FIG. 7.

- Sketch of the Inner Side of that Part of the Parietes of the Abdomen, which separates this Cavity from the Thigh, and of the Iliac Blood-vessels passing through the Crural Ring, in the Female
- a, a, The symphysis of the pubis,
- b, The rectus abdominis, inscited into the symphysis of the pubis. c, The fascia iliaca.
- d, e, The fascia transversalis; e, that part of it which passes from the pubis to join the tendon of the rectus. The round ligament of the uterns, passing through the
- fascia transversalis to get into the inguinal canal. g, The iliac artery.
  - h, The beginning of the epigastric artery, with its associate vein.
  - The circumflex artery.

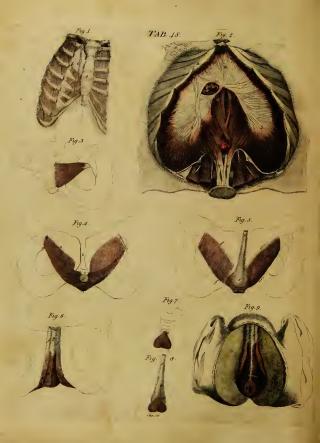
descend.

The iliac vein The crural space or ring, through which femoral hernize

#### FIG. 8.

- The Semicircular Insertion of Pourart's Ligament into the Pubis, forming a Portion of the Crural Ring, in the Male.
- a, That part of Pourart's ligament which forms the crural ring.
- b, The tendon of the transversalis inserted into the puhis behind the external abdominal ring, and preventing that opening from being seen.
- c, c, The fascia transversalis, which here separates, to form the internal abdominal ring.
- d, The fascis iliaca.
- e, The place where the two fascise meet, and shut up the under end of the abdomen.
- The external iliac artery.
- g, The epigastric artery, with the corresponding vein-
- i, The spermatic artery and vein. A. The vas deferens.





#### TABLE XLVIII.

VIEWS of various Muscles, some of which are not sufficiently shewn in the former Figures.

## FIG. I.

The Sterno-Costalis. See Tah. XXXIX. Right Side of the Trunk.

#### FIG. 2.

A View of the CAVITY of the DIAPHRAGM, or of the Side next the ABDOMEN.

# The cartilago ensiformis

- B, The cartilage of the seventh rib.
- C, The point of the twelfth rib.
  D, E, F, The first, second, and third lumbar vertebra. G, A section of the aorta.
- H. The mouth of the coliac artery. I, The superior mesenteric artery, and, on each side of
- it, the renal arteries. K, A section of the vena cava.
- L, A section of the esophagus. M, The psoas magnus. N, The quadratus lumborum.
- O, The great intercostal nerve. P, The last of the dorsal nerves
- Q, Q, The interior arch, or fleshy boundary of the dia-
- phragm, to which the peritoneum adheres. R, S, S, The cordiform tendon of the diaphragm.
- T, T, The fleshy parts of the diaphragm which come from the ribs.
- U, U, The fleshy pillars of the diaphragm. V, V, The tendinous craux, or long heads of the diaphragm. W, W, Fleshy columns on each side, where the osopha-

# FIG. 3.

# The Fore Part of the Coccyceus.

- a, The tendinous origin of the coccygeus, from the spi- a. The fibres which meet from each side, forming angles
  - nous process of the os ischium.
- b, Insertion of part of the coccygeus into the os sacrum... the os coccygis.

# FIG. 4.

A Posterior View of the LEVATORES, and SPRINCTER INTERNUS ANI.

- a, The anterior portion of the levator ani, viewed on its inner side within the pelvis;
- b, Its tendinous origin, from the inner side of the os pubis; from the spinous process of the os
- d, The posterior and outer part of the muscle.
- Its iosertion into the under part of the os coccygis;
- f. The teudioous end meeting its fellow below the coccyx. g, The muscular coat of the rectum, called by ALBINUS,
- Sphincter Internus Ani.
- b, The anus.

gus passes.

Anterior View of the LEVATORES, with the SPHINCTER INTERNUS ANI.

- c. The bulb of the urethra.
- d, A section of the urethra and corpus spongiosum.
- e, The sphineter internus ani.
  f, f, f, f, The place from whence a portion of the os pubis is cut out, to obtain a view of the levatores which lie
- g, The levator ani, arising from the innerside of the os pubis. The thin portion which comes out from the angle where the crus peuis joins the corpus spongiosum urethræ.

## FIG. 6.

The Acceleratores URINE, TRANSVERSI PERINEL and ERECTORES PENIS.

- a, The accelerator uriox, investing the hulh of the urethra,
- b, The transversus perinei.
- d, c, The erector peois.
- f, The corpus cavernosum penis.

## F1G. 7. The Back Part of the SPHINCTER EXTERNUS ANI.

- a, The point by which it adheres to the extremity of the os coccygis.
- b. The anus, from which to a the fibres of the opposite sides meet in angles which point upwards, and become more acute as they ascend

# FIG. 8

The Fore Part of the Sphineter Externus Ani.

- pointing upwards, and which, as in the former Figure, become more acute as they ascend.
- b, The termination of the sphincter ani in the perineum. The corpus spongiosum wrethræ.
- d. The bulb of the urethra.

# FIG. 9.

Muscles about the Root of the Penis, and Under End of the Intestinum Rectum in a Child.

- a, a, The sphincter ani. b, The levator ani.
  c, The traosversalis perinci.
- d, The crector penis.
  e, The accelerator mine.
- f, The corpus cavernosum penis.
- g, The corpus spongiosum urcthre.
  h, The scrotum turned up.
- i. Part of the thigh. k. The cut edge of the integrments,

#### TABLE XLIX.

Represents the Salivary Glands, Parts about the Throat, and certain deep-seated Moscles. in the Interior Part of the Bopy, not sufficiently shewn in former Figures.

FIG. 1.	PIG. 4.
Part of the Muscles of the Os Hyotdes, together with the Submaxillary Gland.	The Inferior Surface of the Tongue, with its Muscle dissected.
e, Part of the masseter.  8, The posterior head of the digastricus;  c, Its asterior head.  4, The style-hysider head.  4, The style-hysider,  e, c, The sternohysidei.  f, The one-hysides.  g, The pharyax.  g, The sharyay.	<ul> <li>a, a. The gesio-byo-glossus;</li> <li>b, the origin, cut from the inner part of the lower jaw.</li> <li>c, c, c, be hyp-glossus.</li> <li>d, the style-glossus.</li> <li>d, the style-glossus.</li> <li>d, the try of the tougue pianed out, at each side of which the papills appear.</li> <li>f, f. The basis, or root of the tougue,</li> <li>from the tougue to the epiglottis.</li> </ul>

## FIG. 2.

Muscles deeper seated than the former, and the SUB-MAXILLARY GLAND raised.

a, a, The mylo-hyoidei. b, The hyo-glossus. d, The thyro-hyoideus. e, The submaxillary gland raised from its place behind the angle of the lower jaw. f, The stylo-glossus. g, The stylo-pharyngeus. FIG. 3. Muscles deeper seated than the former.

a. The genio-hyoidens.

b, The genio-hyo-glossus. c, The stylo-glossus. d, The stylo-pharyngeus. e, The submaxillary gland raised, by which its duct is seen in its passage under the tongue, to its termination at the side of the franum lingua. f, The sublingual gland.

The os hyoides. h, The thyroid cartilage. i, The cricoid cartilage, with the crico-thyroidei. A, The thyroid gland.

1, The trachea. m, The pharyna.

FIG. 5. Shows the Tongue, Os Hyoides, and Larthe, separated from the Left Side of the Head, and turned over upon the Right,-the HEAD being inverted.

a, The inner side of the lower jaw. b, Part of the glandulæ palatinæ c, The uvula, with its muscle hanging over the openings into the back part of the nose.

d. The right side of the pharynx remaining entire. t, The tongue, at the anterior edges of which the papillar are seen.

f, The salivary glands of the tongue. g, One of the anygdalæ.

A, The os hyoides, with its left cornu joined to the left superior cornu of the thyroid cartilage. i, The thyroid cartilage The thyron cartilage.
 The back part of the cricoid cartilages.
 The arytenoid cartilages.
 The cartilages of the trachea.

o, The membranous part of the trachea.

FIG. 6. The Back Part of the PHARYNX, and its Connections with the LARYNX.

A, The cartilages of the traches, B, The membranous back part of the trachea. C, C, That part of the pharynx which arises from the pte-rygoid processes, levatores palati, and os occipitis. D. D.









	101
D, D, Parts of the pharynx which arise from the lower	T. The second of
jaw.  E. E. Fibres of the pharynx, from the root of the tougue;	G, medius.
F, from the os hyoides;	
	I, I, &c. The intercostales externi,
G,, from the thyroid cartilage;	K, K, &cinterni.
	L, L, &c. Portions of the internal intercostals, called
I, The os hyoides.	Depressores Proprii Cowperii.
K. The thyroid eartilage.	M, The transversus abdominis,
L, L, The styloid processes.	N, The quadratus lumborum.
M, M, The ligaments from the styloid processes, fixed to	O, The psoas parvus.
the appendices of the os hyoides.	P, magnus.
N, N, The stylo-hyoidei.	Q, A portion of the psoas magnus; the upper part which
O, O, The stylo-pharyngei.	lay over the quadratus lumborum is eut off.  R, The iliacus internus.
P, The back part of the esophagus;	
	S, The pyriformis.
Q, Q, Its external surface. R, The sterno-thyroideus.	T, The obturator externus.
S. The thyro-hyoideus.	U, The adductor brevis femoris.
S, The thyro-hyordens.	
FIG. 7.	F I G. 9.
	Explained in Tab. XXXVII.
A View of the Right and Back Part of the LARYEX.	Explanated in Table SEASE(11)
a, The cricoid eartilage.	FIG. 10.
b, The epiglottis;	
	The Abdomen opened, and its Contents removed, to shew
c, Its root cut from the base of the tongue, where many	The Abdomen opened, and its Contents removed, to shew the Diaphragm and Muscles of the Loins.
c, Its root cut from the base of the tongue, where many small glands appear.	the DIAPHRAGM and Muscles of the Loins.
c, Its root cut from the base of the tongue, where many	the DIAPHRAGM and Muscles of the Loins.  A, A, The containing parts of the abdomen cut and
c, Its root cut from the base of the tongue, where many small glands appear. d, The tips of the arytenoid cartilage freed from their membrane.	the DIAPHRAGM and MUSCLES of the LOINS.  A, A, The containing parts of the abdomen cut and turned back.
c; Its roof cut from the base of the tongue, where many small glands appear. d, The tips of the arytenoid cartilage freed from their membrane. c, The concave surface of the thyroid cartilage, and its	the DIAPHRAGM and MUSCLES of the LOINS.  A, A, The containing parts of the abdomen cut and turned back.  B, B, The cut ends of the ribs.
c, Its root cut from the base of the tongue, where many small glands appear. d, The tips of the arytenoid cartilage freed from their membrane.	the Diatrika Out and Muscuss of the Loins.  A, A, The containing parts of the abdomen cut and turned back.  B, B, The cut ends of the ribs.  C, The origin of the superior, or greater muscle of the
c, Its roof cut from the base of the tongue, where many small glands appear. d, The tips of the arytenoid cartilage freed from their membrane. e, The concave surface of the thyroid cartilage, and its superior cornua: The right half of the cartilage is tarned back.	the DIATHRAGM and MUSCLES of the LOINS.  A, A, The containing parts of the abdomen cut and turned back.  B, B, The cut ends of the ribs.  C, The origin of the superior, or greater muscle of the diaphragm, from the cartilago ensiformis.
6, Its root cut from the base of the tongue, where many small glands appear. d. The tips of the arytenoid cartilage freed from their membrane. e. The concave surface of the thyroid cartilage, and its superior cornua: The right half of the earliage is turned back. f. The inferior cornu of the thyroid, cut from,	the DIATHRAGU and MUSCLES of the LOIDS.  A, A, The containing parts of the abdomen cut and turned back.  B, B, The cut ends of the ribs.  C, The origin of the superior, or greater muscle of the diaphragm, from the cartilage ensiformis.  D, D, Origins from the ribs.
c, Its roof cut from the base of the tongue, where many small glands appear. d, The tips of the arytenoid cartilage freed from their membrane. e, The concave surface of the thyroid cartilage, and its superior corman. The right half of the cartilage is first interior corns of the thyroid, cut from for the cartilage. f, The instrinct on the crivical cartilage.	the Diarmanu and Murkers of the Loris.  A, A, The containing parts of the abdonen cut and turned back.  Containing parts of the ribs.  G, The origin of the superion, or greater murcle of the diaphragm, from the cartillo
c, Its roof cut from the base of the tongue, where many small glands appear. d, The tips of the arytenoid cartilage freed from their membrane. e, The concave surface of the thyroid cartilage, and its superior corman. The right half of the cartilage is first interior corns of the thyroid, cut from for the cartilage. f, The instrinct on the crivical cartilage.	the Diarmagu and Musilis of the Loiss.  A, A, The containing parts of the abdomen cut and turned back.  B, B, The cut ends of the ribs.  C, The origin of the superior, or greater muscle of the diaphragm, from the cartilage ensiformis.  D, D, Origins from the ribs.  E, E, E, The condiform tendon of the diaphragm.  F, The perforation in that tendon, for the passage of the
c, Its root cut from the base of the tongue, where many small glands appear. d, The tips of the arytenoid cartilage freed from their membrane. e, The concave surface of the thyroid cartilage, and its superior coronas. The right half of the cartilage is fine fine from the right half of the cartilage is fine fine from the coronal cartilage. f, The connection to the criciod cartilage. h, The crico-arytenoideus postueus. f, etc. connection of the crico-arytenoideus postueus.	the Diarmanu and Musicis of the Loris.  A, A, The containing parts of the abdomen cut and turned back.  B, B, The cut code of the ribs.  Gaphragm, from the cartilgo ensignmis.  D, D, Origins from the circles ensignmis.  P, E, E, The condiform tendon of the diaphragm.  F, The perforation in that tendon, for the passage of the vena cava inferior.
G. Its roof cut from the base of the tongue, where many small glands appear.  d. The tups of the arytenoid cartilage freed from their control of the state of the	the Diarmanu and Murkers of the Loris.  A. A. The containing parts of the abdomen cut and turned back.  B. B. The cut ends of the ribs.  C, The origin of the superior, or greater murcle of the diaphragen, from the cartilage custamins.  D, D. Origins from the ribs.  F. B. T. The conditions tends of the diaphragen.  F. M. T. The conditions tends of the diaphragen.  Ven. cava inferior.  C, G, The loop cruns of the inferior, or lesser mucle of
G. Its root cut from the base of the tongue, where many small glands appear.  d. The tips of the arytenoid cartilage, freed from their membrane.  e. The concave surface of the thyroid cartilage, and its superior cornan. The right half of the cartilage is superior cornan. The right half of the cartilage is the concave of the thyroid, cut from for the corn of the thyroid, cut from for the corner of the thyroid, cut from for the concave of the thyroid, cut from for the concave of the	the Diarmagu and Musicis of the Loris.  A, A, The containing parts of the abdomen cut and turned back.  B, B, The cut ends of the ribs.  C, The origin of the superior, or greater nuscle of the superior of the superior of the superior.  D, D, Origins from the ribs.  E, E, E, The condiform tendon of the displaym.  F, The perforation in that tendon, for the passage of the vena cava inferior.  G, C, The long crura of the inferior, or lesser muscle of the displayment.
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# TABLE

The different Orders of Muscles on the Under Part of the Fore-ARM and HAND, and on the Sole of the Foot.

#### FIG. 1.

The First Order of Muscles on the Under and Anterior Part of the FORE-ARM and on the PALM.

a, The tendon of the supinator longue, b, \_\_\_\_\_ flexor carpi radialis,

c, \_\_\_\_\_ palmaris longus,
d, \_\_\_\_\_ flexor sublimis, and,

flexor carpi uluaris. fa The flexor longus pollicis.

g, The ligament under which the extensores ossis meta-

carpi et primi internodii pollicis pass.

carp et prim internous poincis pass.

§, The flow ossis metacarpi policis.

§, The abductor policis.

﴿, The tandon of the extensor primi internodii policis.

﴿, Part of the flexor brevis policis.

m, The tendon of the flexor longue pollicis bound by ligaments.
The aponeurosis palmaris, slightly distinguished into

four portions, the extremities of which afterwards become more distinct, and are strengthened by transverse tendinous fibres.

o, The palmaris brevis.
p, The abductor minimi digiti.

q. The adductor metacarpi minimi digiti.

s, t, u, Three small annular ligaments, which retain the a, The flexor tendons of the sublimis and profundus in their places b, Its tendon. on the fore-finger.

v, w, x, The tendou of the flexor sublimis, with the tendon of the flexor profundus passing through it.

ur, The insertion of the tendon of the flexor profundus into the third bone of the mid-finger .- The same parts with those marked s, t, u, v, w, x, are seen on the other

#### FIG. 2.

The Second Order of Muscles on the Under and Fore Part of the FORE-ARM and on the PALM.

The tendon of the flexor carpi ulnaris.

b, b, A portion of the flexor digitorum sublimis : c, c, d, The tendons of that muscle passing helind the

anterior annular ligament of the wrist.

e, The flexor pollicis longus ;

f, Its tendon.

g, h, The extensor ossis metacarpi pollicis.

primi internodii pollicis. k, The ligamentum carpi annulure anterius.

1, The flexor ossis metacarpi pollicis.

m, n, The anterior and posterior portions of the flexor hrevis policis, with the tendon of the flexor longus politicis between them.

o, The adductor pollicis.

p, The abductor indicis

q, q, &c. The lumbricales.
r, The tendon of the flexor sublimis, perforated by that of the flexor profundus, and inserted into the second

hone of the fore-finger.

s, The tendon of the flexor profundus.

The insertion of the flexor profundus into the third-bone of the fore-finger. The tendons of the flexor sub-limis and profundus are seen on the other fingers also.

e, The flexor parvus minimi digiti.

## FIG. 3.

The Third Order of MUSCLES on the Under and Fore Part of the FORE-ARM and on the PALM.

a, The flexor longus pollicis;

c, d, e, The flexor profundus. The tendon of the flexor profundus to the fore-finger.

A tendon of that muscle is also sent to each of the other fingers g, The ligamentum carpi annulare.

h, The adductor metacarpi minimi digiti. The flexor brevis pollicis. 1. The adductor pollicis

m, m, &c. The lumbricales. n, The prior indicis.

#### FIG. 4.

The Fourth Order of Muscles on the Under and Fore Part of the FORE-ARM and on the PALM.

a, a, The pronator radii quadratus.





- b, c, The flexor brevis pollicis, with the ossa sesamoidea i, The abductor indicis. into which it is inserted. d, The adductor pollicis
  - Interossei interni et externi.
- e, The prior indicis, f, The posterior indicis. g, The prior medii digiti.
  h, The posterior medii digiti.
  - i, The prior annularis. k, The posterior annularis, 4 The interesseus auricularis.

#### FIG. 5.

The First Order of Muscles on the Under and Back Part of the FORE-ARM and on the Back of the HAND.

- a, The extensor ossis metacarpi pollicis.
- b, \_\_\_\_\_ primi internodii pollicis c, The tendon of the extensor primi internodii pollicis.
  d, secundi internodii pollicis.
- e, f, The extensor digitorum communis,
- g, \_\_\_\_\_ carpi ulnaris.
  h, The flexor carpi ulnaris.
  i, The ligament which confines the two first extensors of
- the thumh. k, The ligamentum carpi annulare posterius.
- t, \_\_\_\_\_ extensoris carpi ulnaris.

  m, The tendons of the extensor digitorum communis, divided by longitudinal fissures upon the hack of the
- n, The tendon of the indicator.
- o, Aponeurotic slips joining the tendons of the extensor
- digitorum to each other. p, Part of the abductor minimi digiti.
- q, The adductor pollicis.
  r, Tendinous expansions continued from the tendons of the extensor digitorum communis, and of the interossei nd lumbricales, adhering closely to the bone
- s, The division of these expansions continued from the tendons of the extensor digitorum communis, and of the interessei and lumbricales,-for the readier motion of the joints;
- t, Their termination at the last joint of the fingers.

#### FIG. 6.

The Second Order of Muscles on the Under and Back Part of the FORE-ARM and on the Back of the HAND.

- a, The extensor ossis metacarpi pollicis.
- The tendon common to the two muscles.
- d, The extensor secundi internodii pollicis;
- e, Its tendon. f. The tendon of the indicator.
- g, The flexor carpi ulnaris. h, The cut tendon of the extensor digitorum communis.
- Sections of the tendons of this muscle are also seen upon the ring and little fingers.

- The prior medii digiti.
- k, The prior mean digiti.

  I, The posterior medii digiti.

# FIG. 7.

- The Third Order of Muscles on the Under and Back Part of the FORE-ARM and on the Back of the HAND -One of the Heads of each External INTEROSSEOUS MUSCLE is removed, to obtain a View of the Internal.
- a, The tendon of the extensor carpi radialis longior.
- The cut tendon of the extensor digitorum communis.
- d, The adductor pollicis. D, The flexor brevis pollicis.
- e, The prior indicis.
  f, The posterior indicis.
- g, Part of the prior medii digiti.
- h, Part of the posterior medii digiti. The prior annularis.
  - k, Part of the posterior annularis. 1, The interesseus auricularis.

## FIG. 8.

- Shows the Aponeurosis, and Part of the First Order of Muscles and LIGAMENTS of the Sole, after removing the Common INTEGUMENTS.
- a, b, c, The aponeurosis plantaris, connected behind to
  - the os calcis, and before to the first joint of all the toes.—a, The middle part divided into five elips, which split at the roots of the toes, and embrace the tendons of the flexor muscles.—b, The portion which covers the abductor minimi digiti.—c, The portion which
- covers a part of the abductor pollicis.

  d, The abductor pollicis.
- Part of the flexor hrevis pollicis. The common tendinous ends of the abductor, and short flexor of the great toe.
- g, Part of the transversalis pedis. A, The abductor minimi digiti pedis .- A small part of the lumbricales, the abductor minimi digiti, the short flexors, the tendons of the long and short flexors, with the ligaments which confine them, are seen upon the other toes,-nearly as in the hand.

#### FIG. 9.

- The First Order of Muscles on the Sole, after the A-PONEUROSIS, and most of the LIGAMENTS shewn in the former Figure, are removed.
- a, The flexor brevis digitorum, sending tendons to the
- second phalanx of the four small toes.

  b, The tendon of the flexor longus pollicis. c. The abductor pollicis.
  - d, e, The

- e', c, The abductor minimi digiti, composed of two parts, b, The tendon of the peroneus longus, and fixed by a common tendon to the first bone of the c, The insertion of the tibialis positious.
- f. The flexor brevis minimi digiti.

# FIG. 10.

The Second Order of Muscles in the Sole.

- e, The tendon of the flexor longus digitorum.
- b, c, d, The flexor digitorum pedis accessorius ;-b, c, Its two heads arising from the os calcis ;-d, Its insertion into the tendon of the flexor longus digitorum pedis.
- e, The connection between the tendons of the flexor longus digitorum and flexor longus pollicis.
- gitorum into the last bone of the small toes.
- g, h, i, k, The lumbricales. /. The tendon of the flexor longus pollicis.
- m, The insertion of the flexor longue pollicis into the last joint of the great toe.
- u, The insertion of the tibialis posticus.
- anticus.
- p, q, The two parts of the flexor brevis pollicis.
- r, The insertion of the peroneus brevis.
  s, The tendon of the peroneus longus passing to the sole.
  t, u, The ligaments connecting the bones at this part of
  - the sole, and giving origin to muscles.

## FIG. 11.

The Third Order of Muscles in the Sole.

e, The insertion of the peroneus brevis.

- d, e, A ligament binding the os cuboides to the os calcia,
- and giving origin to muscles.
- f. The flexor brevis minimi digiti.
- g, h, The adductor pollicis. i, k, m, The flexor brevis pollicis pedis; -k, Its tendi-nous origin from the os calcis and os cuneiforme externum ;-i, Its connection with the adductor pollicis ;-
- m, Its connection with that part from which the abductor pollicis was cut. 1, The transversalis pedis.

## FIG. 12.

The Fourth Order of Muscles in the Sole.

- a, The insertion of the peroneus brevis.
- The tendon of the peroneus longus joined to the meta-tarsal bone of the great tree, and sending tendons to the os cunciforme interunm.
- e, The insertion of the tibialis anticus.
- d-i, The interessei.
  d, The abductor, and,
- The adductor indicis pedis.
- f. The abductor and adductor medii digiti-
- The abductor, and,
- The adductor tertii digiti. ----- minimi digiti.

END OF PART SECOND.

# PART III.

OF THE

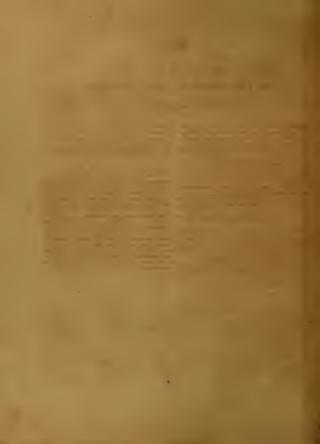
BURSE MUCOSÆ;

AND OF THE

LIGAMENTS

AND

OTHER PARTS OF THE JOINTS.



# OF THE BURSÆ MUCOSÆ IN GENERAL.

THE BURSÆ MUCOSÆ belong chiefly to the Extremities, though a few also exist in some other parts of the Body. They are found between parts exposed to friction, as between Tendons and Bones, where these play upon each other, as at the insertion of the Biceps Plesor Cubit i;

Or between Tendon and Cartilage, as where the Peroneus Longus crosses the Sole:
Or completely surrounding the Tendons, and lining their Sheaths, as around the Tendons of the Flexores

Digitorum :

Ör where Tendons rub on each other, as between those of the Extensores Carpi Radisles and Extensores Pollicis;
Or between Tendons and External Parts, as over the Tendons of the Flexores Digitorum, in the Palm of the Hand:

Or between Tendons and Ligaments of the Joints, as between the Tendons of the Flexores Digitorum and Li-

between the Tendons of the Flexores Digitorum and Ligamentum Carpi Capsulare.

They are found in a few places where Processes of Bone play upon Ligaments, as between the Accomion

Scapulæ and Capsular Ligament of the Humerus:
Or where the Bones play on each other, as between
the Clavicic and Coracoid Process of the Scapula.

Some of the Burse of contiguous Tendons communi- of the Joints, viz. to lessen Friction, and preve cate with each other; as between the Extensor Carpi consequences which would otherwise result from it. Radiatis and Extensor Secundi Internodii Policies.

Others communicate, not only in Adults, but often also in Children, with the Cavity of the Joints; as behind the Tendon of the Extensors of the Leg; though this is more frequently the case in advanced age.

The Bursæ in general are either of a roundish or oval form, from which they have been arranged under two classes, viz. the Spherical and Vaginal.

Their structure is the same with that of the inner Layer of the Capsular Ligament of the Joints,

Like that, they are formed of a thin Pellucid Serous Membrane, possessing little sensibility, and joined to the surrounding parts by Cellular Substance, which, in many places, is intermixed with Fat.

Like the Capsule of the Joint, they have commonly a thin Layer of Cartilage, or of tough Membrane, between

them and the Bone.

Like it, they have reddish-coloured Masses of Fat
projecting into their Cavities, from the edges of which
Fringes are sent off; as behind the Ligament of the Patella, or at the insertion of the Tendo ACHILLIS.

Like it also, the inside of the Busse is remarkably smooth, being lubricated with the same kind of Gelatinous Fluid which is found in the Cartites of the Joints, and which serves the same general purpose with that of the Joints, viz. to lessen Friction, and prevent the consequences which would otherwise result from it.

deus.

#### BURSÆ MUCOSÆ OF THE HEAD AND NECK

THE Burse of the Head and Neck are small when compared with those of the Extremities. The following have lately been described by Anthors, viz.

A Bursa between the tendon of the Superior Oblique Muscle of the Eve and its Trochlea.

A Buysa belonging to the Tendon of the Digastric Muscle, where it is fixed to the Os Hyoides.

A Bursa belonging to the Tendon of the Circumflexus Palati, where it plays upon the inner Plate of the Ptery-goid Process of the Sphenoid Bone.

A Bursa under the Masseter.

A Bursa under the upper end of the Sterno-hyoi-

### BURSÆ MUCOSÆ OF THE SUPERIOR EXTREMITIES

BURSE about the JOINT of the SHOULDER.

A Bursa under the Clavicle, where it plays upon the

Coracoid Process of the Scapula. A large Bursa between the Acromion Scapulæ and Ligament, joining it to the Coracoid Process, and the Cap-

sular Ligament of the Humerus. A small Bursa, sometimes absent, between the point

of the Coracoid Process and Capsular Ligament of the A Bursa between the Tendoo of the Subscapularis

Muscle and Capsular Ligament of the Joint of the Humerus, which frequently communicates with the Cavity of the Joint.

A Bursa, not constant, between the Origin of the Coraco-brachialis and short Head of the Biceps Muscles and Capsular Ligament of the Humerus A Bursa between the Tendon of the Teres Major and

the Os Humeri, and upper part of the Tendon of the Latissimus Dorsi. A small Bursa Letween the Tendon of the Latissimus

A Bursa between the Tendon of the long Head of the Biceps Flexor Cubiti and Body of the Humerus.

#### BURSE about the JOINT of the ELBOW.

A Bursa, with a Peloton or Mass of Fat, between the Teudou of the Biceps and a Cartilage which incrusts the A small Bursa between the Tendon common to the

Extensor Carpi Rudialis Brevior, Extensor Digitorum Communis, and round Head of the Radius. A small Buysa, not very constant, between the Tendon

of the Triceps Extensor Cubiti and Olecranon.

BURSE upon the Under Part of the Fore-ARM and the HAND.

A very large Bursa surrounding the Tendon of the

Four long Burez lining the Sheaths which inclose the

Tendons of the Flexors upon the Fingers.

Four short Bursæ ou the fore part of the Tendons of the Flexor Digitorum Sublimis in the Palm of the Hand-A large Bursa between the Tendon of the Flexor Pol-

licis Longus, the fore part of the Radius, and Capsular Ligament of the Wrist and Os Trapezium. A large Bursa between the Tendons of the Flexor Di-

gitorum Profundus, and the fore part of the end of the Radius and Capsular Ligament of the Wrist. These two last-mentioned Bursæ are sometimes found

A Bursa between the Tendon of the Flexor Carpi Radialis and Os Trapezium.

An inconstant Bursa between the Tendon of the Flexor Carpi Ulnaris and Os Pisiforme. A Bursa between the Tendon of the Extensor Ossis

Metscarpi Pollicis and Radius A large Bursa common to the Extensores Carpi Radiales, where they cross behind the Extensor Ossis Metacarpi Pollieis

Another Bursa common to the Extensores Carpi Radiales, where they cross behind the Extensor Secundi Internodii Pollicis.

A third Bursa at the insertion of the Tendon of the Extensor Carpi Radialis Brevior. A Bursa for the Tendon of the Extensor Secundi In-

ternodii Pollicis, which communicates with the second Bursa common to the Extensores Carpi Radiales Another Bursa between the Tendon of the Extensor

Secundi Internodii Pollicis and Metacarpal Bone of the A Bursa between the Tendons of the Extensor of the

Fore, Middle, and Ring Fingers, and Ligament of the A Bursa for the Tendons of the Extensor of the Little

Finger. A Bursa between the Tendon of the Extensor Carpi Ulnaris and Ligament of the Wrist.

# BURSÆ MUCOSÆ OF THE INFERIOR EXTREMITIES.

### BURSE upon the PELVIS and Upper Part of the THIGH.

A very large Bursa between the Iliacus Internus and Psoas Magnus, and Capsular Ligament of the Thighbone. This is sometimes found communicating with the Cavity of the Joint, especially in an old person.

A Bursa between the Tendon of the Pectinalis and Thigh-bone.

A small Bursa between the Gluteus Medius and Trochanter Major, and before the insertion of the Tendon of the Pyriformis.

A Bursa between the Tendon of the Gluteus Minimus and Trochanter Major.

A Bursa between the Gluteus Maximus and Vastus Externus.

A Bursa between the Gluteus Medius and Pyriformis.

A Bursa between the Obturator Internus and Os Ischium.

An oblong Bursa cootinued a considerable way between

the Obturator Internus and Gemini, and Capsular Ligament of the Thigh-bone.

A small Bursa at the Head of the Semimembranosus

and Biceps Flexor Cruris.

A small Bursa between the Origin of the Semitendino-

As small bursa between the Origin of the Semitendinosus and that of the two former Muscles.

A large Bursa between the Tendon of the Gluteus Maximus and root of the Trochanter Major. Two small Bursae between the Teodon of the Gluteus Maximus and Thigh-bone.

### BURSE about the JOINT of the KNEE.

A large Bursa behind the Tendon of the Extensors of the Leg. This, in young Subject, is separated from the Cavity of the Joint by a thin Partition, consisting of the Capsular Ligament and the Bursa intimately connected; but in old people, it very frequently communicates with the Joint by a large Opening.

A Bursa behind the Ligament which joins the Patella to the Tibia, in the upper part of the Cavity of which a Fatty Substance projects.

Fatty Substance projects.

A large Bursa between the Tendons of the Sartorius,
Gracilis, Semitendinosus, and Tibia.

A Bursa between the Tendons of the Seminembranosand Gastroenemius Externus, and Ligament of the Knee. This Bursa contains a small one within it, from which there is a passage leading into the Cavity of the Joint of the Knee.

A Bursa between the Tendon of the Semimembranosus and the internal Lateral Ligament of the Knee, from which also there is a passage leading into the Joint.

A Bursa under the Popliteus, likewise communicating with the Cavity of the Knee-joint.

#### BURSE about the ANKLE.

- A Bursa between the Tendon of the Tibialis Anticus and under part of the Tibia and Ligament of the Ankle. A Bursa between the Tendon of the Extensor Propries
- A Bursa between the Tendon of the Extensor Propries
  Pullicis Pedis and the Tibia and Capsular Ligament of
  the Ankle.
  A Bursa between the Tendons of the Extensor Digito-
- rum Longus and Ligament of the Ankle.

  A large Bursa common to the Tendons of the Peronei
- A large Bursa common to the Tendons of the Peronei Muscles.

  A Bursa proper to the Tendon of the Peraneus Brevis.
- A Bursa between the Tendo ACHILLIS and Os Calcis, into the Cavity of which a Peloton of Fat projects,
- A Bursa between the Os Calcis and Flexor Pollicis Longus.

  A Bursa between the Flexor Digitorum Longus and
- the Tibia and Os Calcis.

  A Bursa between the Tendon of the Tibialis Posticus and the Tibia and Astragalus.

### BURSE in the Sole of the Foot,

- A second Bursa for the Tendon of the Peroueus Longus, with an oblong Peloton of Fat within it.
- A Bursa common to the Tendon of the Flexor Policis Longus, and that of the Flexor Digitorum Profundus, at the upper end of which a Fatty Substance projects. A Bursa for the Tendon of the Tibialis Posticus.
- A Bursa for the Tendon of the Tibialis Posticus.

  A Bursa lining the Sheath of each of the Tendons of the Elexors upon the Toes.

#### TABLE LI.

Represents the Bursæ Mucosæ of the Superior Extremities.

The Bunsa Mucosa of this and the succeeding Table are all represented as slit open, and several of them inflated.

#### FIG. 1.

The BURSE MUCOSE on the Fore Part of the Right SUPERIOR EXTREMITY.

A, The clavicle.

B, The acromion scapulæ. C, The fore part of the scapula.

D, The ligament of the semilunar notch of the scapula. E, The coracoid process of the scapula.
F, F, Two ligaments which tie the clavicle to the cora-

coid process.

G. The bead of the os huneri.

H, The body of that bone.

I, A bursa under the clavicle, where it plays upon the

coracoid process of the scapula.

J, A strong ligament which joins the acromion to the coracoid process.

K, A large bursa hetween the acromion and ligament J,

and the capsular ligament of the humerus.

L, A small bursa, sometimes absent, between the point of the coracoid process and capsular ligament of the

M, The tendon of the subscapularis.
N, A bursa between it and the capsular ligament of the humerus, which frequently communicates with the cavity of that joint.

O, A bursa, not constant, between the origin of the co-raco-brachialis and short head of the biceps, and cap-

sular ligament of the humerus. P, The tendon of the teres major turned outwards.
Q, A bursa between the tendon of the teres major and the os humeri, and upper part of the tendon of the la-

tissimus dorsi. R, The tendon of the latissimus dorsi turned outwards. S, A small bursa between the tendon of the latissimus

dorsi and os bumeri. T, A bursa between the tendon of the long head of the biceps flexor cubiti and the body of the humcrus.

U, The radius. V, The uina.

W, The tendon of the biceps flexor cubiti turned ir-

X, A bursa, with a peloton of fat, between the tendon of the biceps and tubercle of the radius. Y. The origin of the extensor carpi radialis longior. Z, A small bursa, between the tendon common to the

2.7 A small bursa, between the tenoon common to the extense capitralialiab brevior, extense or digitorum consumation, and the sound head of the radius.

2.7 The sheath of the flexor tongues politics, slit open.

3.8 — Rexors of the fore-fanger, entires.

5.9 — Rexors of the fore-fanger, entires.

6.7 The thick part of the sheath of the tendons of the

flexors of the middle finger. d, The sheath of the tendons of the flexors of the ring-

finger, slit open.
c. The sheath of the tendons of the flexors of the little finger, slit open, and the tendons drawn forwards, to shew them fully. Each of the sheaths of the flexors

of the fingers is lined with a bursa.

f. A very large bursa surrounding the tendon of the flexor

pollicis longus.
g, h, i, k, Four short bursæ on the fore part of the tendons of the flexor sublimis digitorum in the palm.

I, A probe introduced into a large bursa between the tendon of the flexor pollicis longus, and the fore par-of the radius, and between the capsular ligament of the wrist and the os trapczium.

m, A probe put into a large bursa behind the tendons of the flexor digitorum profundus, and on the fore parts of the end of the radius, and capsular ligament of the

n, A bursa between the tendon of the flexor carpi radialis and os trapezium.

o, A hursa between the tendon of the flexor carpi ulnaris

#### FIG. 2.

The BURSE MUCOSE on the Back Part of the Right SUPERIOR EXTREMITY.

A, The dorsum scapulæ.

and os pisiforme,

B, The cervix scapulæ. C, The acromion.

D. The capsular bigament of the humerus.









- F., The tendon of the infra-spinatus turned outwards.
- F, The tendon of the teres minor turned outwards.

  I, The os humeri. J. The external, and,
  K. The internal condyle of the humerus.
  L. The radius.

- M, The ulna. N, The olecranon.
- O, The tendon of the triceps extensor cuhiti turned down.
- P. A small bursa hetween it and the olecranon.
- Q. A bursa between the tendon of the extensor ossis metacarpi pollicis and the radius.
- R. R. A large bursa common to the extensores carpi radiales, where they cross behind the extensor ossis
- metacarpi pollicis. S, S, Another bursa common to the extensores carpi ra-

- diales, where they cross helind the extensor secundi internodii poliicis.
  T, A third bursa at the insertion of the tendon of the
- extensor carpi radialis brevior.
- U, A bursa for the tendon of the extensor secundi internodii pollicis, which communicates with the bursa
- S, S. V, Another bursa between the tendon of the extensor secundi internodii pollicis and metacarpal bone of the
  - W, The tendons of the extensor of the fore, mid, and ring fingers.
  - X, A bursa between these tendons and the ligament of the wrist.
  - Y. Another bursa for the extensor of the little finger.
  - Z, A bursa between the tendon of the extensor carpi ninaris and ligament of the wrist-

#### TABLE LII.

### Represents the Burs. Mucos. of the Inferior Extremities.

#### FIG. I.

- . The Buns. Mucos & on the Fore Part of the Right INFERIOR EXTREMITY.
- A, The spine of the os ilium.
  B, The inner side of the os ilium.
  C, The os pubis.
- D, The neck of the thigh-bone, E, The root of the great trochanter.
- F, The thigh-bone.
- G, The iliacus internus. H, The psoas magnus.
- into the trochanter minor K, A very large bursa mucosa, between these two mus-
- eles and the capsular ligament of the thigh-hone. L, The pectineus
- M, A bursa between the tendon of the pectineus and thigh-bone.
- N, The adductor brevis femoris.
- O, The gluteus minimus.
- P, The tendinous part of the gluteus medius.
  Q, A small bursa between the gluteus medius and tro-
- chauter major. Behind it the tendon of the pyriformis is inserted. R, A bursa between the tendon of the gluteus minimus
- aud trochanter major.
- S, Part of the gluteus maximus, which is joined to the gluteus mediu
- T, Part of the vastus externns. U, A bursa between the gluteus maximus and vastus ex-
- V, The patella. W, The capsular bigament of the knee.
- X, The tendon of the extensors of the leg, cut and turned up.
- Y, A large bursa behind the tendon of the extensors of the leg.
- Z, A communication frequently found hetween this bursa and the cavity of the knee-joint.
- a, a, The ligament which joins the patella to the tihia, cut and turned outwards :
- b, A bursa hehind it.

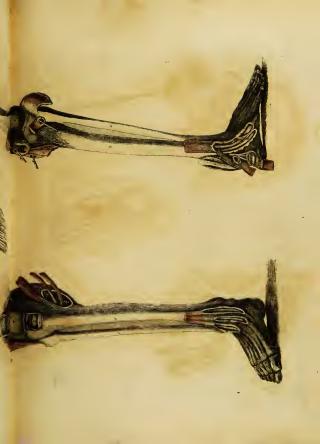
- c. A fatty peloton projecting into the cavity of the bursa.
- d, The tibia
- e, The libula.

  f, The back part of the insertion of the sartorius, turned
  - forwards. g, The tendon of the gracilis.
- semitendinosos. i, A large bursa between the tendons of the sartorius,
- gracibs, semitendinosus, and tibia.
- k. The internal lateral ligament of the knee. I, A bursa between the tendon of the tibialis anticus, and
- under part of the tibia and ligament of the ankle. I, The insertion of the iliacus internus and psoas magnus. m, A bursa between the tendon of the extensor proprius
  - politicis pedis, and the tibia and capsular ligament of the ankle. n, A hursa between the tendons of the extensor digitorum
    - longus, and ligament of the ankle.

- The BURSE MUCOSE on the Back Part of the Right INFERIOR EXTREMITY.
  - A, The dorsnm of the os ilium.
- B, The os sacrum. C, The os coccygis. D, The tuber of the os ischium-
- E, The large trochanter. F, The middle of the thigh-hone.
- G. The gluteus minimus. II, The pyriformis.
- I, A bursa mucosa between the gluteus medius and pyri-
- K, K, The obturator internus cut across.
  L, L, The gemini.
  M, A hursa between the obturator internus and os ischium.
- N, A probe put into a bursa, which is continued to a dotted line between the obturator internus, gemini, and
- capsular ligament of the thigh-hone.

  O, The quadratus femoris. P, The origin of the semimemhranosus, and long head of
- the biceps flexor cruris.
- Q, A small bursa mucosa. R, The origin of the semitendinosus turned back.







- S. A small bursa mucosa.
- T, The tendon of the gluteus maximus.
- U. A large bursa between the tendon of the gluteus maxi-
- mus and root of the trochanter major. V. V. Two small bursæ between the tendon of the glu-
- teus maximus and os femoris. W, The back part of a large bursa, between the tendi-
- nous part of the gluteus maximus and vastus externus. 1, The external condyle of the thigh-bone.
  Z. The tibia.

- a, The fibula.
  b. The biceps flexor cruris turned downwards.
- d. The inner head of the gastrocnemius externus turucd up. The semimembranosus turned down.
- f. A bursa between the tendons of the semimembranosus and gastroenemius, and the ligament of the kneeg, A probe passed into a small bursa within the bursa
- from which there is a passage into the cavity of the joint of the knee. h, A probe passed into a bursa between the tendon of the semimembranosus and the internal lateral ligament of
- the knee, from which there is a passage communicating with the joint of the knee. i, A small portion of the popliteus.
- 1, A bursa under it, communicating with the cavity of the
- joint of the knee n, The teodon of the peroneus longus.
- hrevis p, A large bursa common to the tendons of the peronei. q. A bursa proper to the tendon of the peroneus brevis.
- r, A ligament which ties the fibula to the os calcis.
- 8. The tendo ACHILLIS turned down. t, A bursa between the tendo ACHILLIS and os calcis.

- u, A peloton, or mass of fat, which projects into the cavity of that bursa
- v, The tendon of the plantaris.
- u, A bursa between the os calcis and flexor pollicis longus.
- x, The flexor digitorum longus. y, A bursa between that flexor and the tibia and os calcis.
- z, The tendon of the tibialis postrcus. &, A bursa between this tendon and the tibia and astragalus,

# FIG. 3.

A View of the BURSE MUCOSE in the Sole of the RIGHT FOOT.

- A. The os calcis.
- B, The tendo ACHILLIS.
- C, C, The abductor minimi digiti cut across. D, The tendon of the peroneus longus.
- E. A second bursa for that tendon.
- F, An oblong peloton of fat within this bursa. G. The fleshy.
- H. The tendinous part of the flexor longus pollicis pedis. 1, A bursa common to this tendon, and the tendon of the
- flexor digitorum profundus. K. A fatty peloton at the upper end of this bursa. L, An imperfect septum between the two last-named
- tendons, containing some fat. M. The tendon of the tibialis postions in its bursa.
- N. The place at which the flexor digitorum sublimis is cut off.
- O, The massa carnea JACOBI SYLVII, or flexor tertius.
- P, The abductor pollicis pedis cut off from the os calcis-Q, R, S, T, U, The burse mucose of the flexor tendons
- slit open nearly their whole length,

### OF THE LIGAMENTS, &c. OF THE JOINTS.

LIGAMENTS are white, strong, flexible sonstances, of in intermediate firmness between Cartilage and common Membrane.

They are composed of Fibres variously disposed; the greater part of them, however, running in a longitudinal lirection.

The Ligaments of moveable Joints arise, for the most part, at the junction of the Bodies of the Bones with their Epiphyses, from the Cerviz, and beyond the edges, of the articulating Cartiloge of one Bone, and are fixed, in a similar manner, into the corresponding parts of the

Bone adjoining.

The Ligaments thus fixed are called Copsular, from their forming a Purse or Bag, which includes the Joint. Where variety of motion is allowed, the Capsular Li-gament is nearly of equal strength round the whole circumference of the Joint; hut, where the Juint is of the nature of a Hinge, the Ligament is strongest at the sides of that Hinge, or is there strengthened by the addition of Ligamentous Slips, termed Lateral Ligaments, which as-sist in regulating the motion of the Joints:

The outer part of the Capsolar Ligament is formed if a continuation of the Periosteum, which is connected to the surrounding parts by Cellular Substance; while the inner Layer,-remarkably thin and dense, is reflected over the Bones and Cartilages which the Ligament includes; one part of it thus forming Periosteum, and the other Perichondrium.

Iu certain parts of the Body, there are, hesides the Ligaments mentioned above, others for the firm connection of the Bones, or for confining the motion to one particular side; as the Round Ligament of the Thigh, or Crucial, or Lateral Ligaments of the Knee, already

Wherever the Ligaments are few, long, and weak, the motions are more extensive; and, on the contrary, where the Ligaments are namerous, short, and strong, the motions are more limited.

Ligaments have numerous Blood-ressels, which can be

readily injected. Upon the inner Surface of the Capsular Ligaments, their Arteries secrete a liquor which assists in the Inbrivation of the Joints.

The Nerves of Ligaments are very minute, but in some parts can be easily traced upon their Surface. The Sensibility of Ligameots, in the sound state, is inconsiderable; when in a state of inflammation, how-

ever, they are found to occasion extreme pain.

contain, and prevent the other parts in the Joint from heing pinched The other Ligaments join Bones together, and preserve

them in their proper situation.

In many parts, the Ligaments give attachment to Ten-

doos, and in some they supply the place of Bone, and give origin to Muscles, as in the Foramina Thyroidea of the Pelvis, and hetween the Bones of the Fore-arms and Legs In some parts, they assist in connecting immoveable Bones, as at the Os Sacrum and Os Innominatum: In

others, they form a Socket in which moveable Bones play, as where part of the Astragalus moves on the Li-gament stretched between the Os Calcis and Os Scaphoides.

#### SYNOVIAL ORGANS. Commonly called GLANDS of the JOINTS.

These are Masses of Fat found in the greater num ber of the Joints, covered with a continuation of the ner of the Joints, covered with a continuation of the inner Layer of the Capaular Ligament, and projecting in such a manner as to be gently pressed, but not braised, by the motions of the Joint; and, in proportion as these motions are more or less frequent, the liquor which they secrete is discharged in a greater or smaller quantity.

In some Joints, they have the same appearance with the common Fat of the Body; in others, they are of a redder colour, from the numerous Blood-vessels dispersed

upon them.

They have heen generally considered as Glands lodged within Masses of Fat; but, upon a minute inspection, no knotty or Glandular Bodies are to be found in them; nor have they the appearance of Glands, farther than in being Secreting Substances; which circumstance alone assimilates them to the nature of Glands,

From the edges of these Fatty Bodies, Fimbria hang loose, and convey a lubricating Liquor, called Synovia,

into the Cavity of the Joints.

From the extremities of these Fringes, the Liquor can be readily squeezed ont by pressure; but their Cavities and Orifices are so minute, or are otherwise of such a nature, as to have hitherto eluded discovery. The Fimbriae have heen generally considered as Es-

cretory Ducts of Glands within the Joints. Dr MONRO, however, in his Work upon the Bursz Mucosz, supposes them to be of the nature of the Follicles of the Liethra. which prepare a Mucilagionus Liquor, without the assistance of any knotty or Glandular Organ.

Use: The Capsular Ligaments connect Bones togeThe Arteries which supply these Bodies with Blood
ther, assist in the secretion of the Synovia which they for their Secretion, and the Veins which return the

Blood after the Secretion has been performed, can be readily seen; but no Nerves can be traced into them; nor does it appear that they possess a higher degree of Sensibility than the other parts of the Joints already desoribed, although, when they inflame and suppurate, they have in some instances been observed to occasion the most excruciating pain.

The Synovia, which is a thin Mucilaginous Liquor, resembling the glair of an egg, appears to be furnished, not only by the Substances already incutioned, but also by the extremities of Arteries on the inner Surface of the Capsular Ligaments in general, and serves for the lubrication of the Joints; for which purpose it is well adapt-

ed, being remarkably slippery to the touch. Synovia is found to be composed of Water, mixed with a small proportion of Gelatine, Mucilage, Albumen, and common Salt.

### LIGAMENTS OF THE HEAD AND TRUNK. LICAMENTS OF the LOWER JAW.

The Capsular Ligament on each side, which arises from the whole Margin of the Articular Cavity of the Temporal Bone, and is inserted, first into the edge of the Interarticular Cartilage, formerly taken notice of, and afterwards round the Cervix of the Lower Jaw. This Ligament, like others which belong to Joints of the hinge kind, is thickest and strongest at the sides of the Joint, to confine the lateral motion of the Jaw. Tab. LIII. Fig. I. f. Fig. 2. d, d .- Tab. XXX. Fig. 17. r,

By it the Jaw is allowed to move upwards, downwards, or a little forwards or backwards, or to either side, and the motions are rendered easier by the intervention of the Interarticular Cartilage, which follows the

Condyle in its different motions.

The Suspensory Ligament of the Stylo-glossus, which is attached by one end to the Styloid Process, and to a Ligament running from that Process to the Os Hyoides, and by the other end to the Angle of the Lower Jaw ;serving to support the Stylo-glossus, and to give origin to part of it. Tab. LIII. Fig. 1. k.

The Lateral Ligament, which arises from the Margin of the Articular Cavity of the Temporal Bone, and is inserted into the inner Surface of the Angle of the Lower Jaw, near its posterior Foramen ;-assisting to keep the Jaw in situ, and to prevent the inferior Maxillary Vessels and Nerve from being injured by the action of the. Pterygoid Muscle. Tab. LIII. Fig. 1. g.

LIGAMENTS connecting the HEAD with the First and Second VERTEBRE of the NECK, and these two VER-YEBRE with each other.

The two Capsular Ligaments, which arise from the margin of the superior articulating Processes of the Atlas, and are inserted into the Base of the Coodyles of the Occipital Bonc, where the Head has its flexion and extension without rotation. Tab, LIII. Fig. 3. e, f.

The Circular Ligament, which arises from the edge of the Spinal Hole of the first Vertebra, is connected with the Capsular Ligaments of the superior articulating Processes of the Atlas, and is inserted into the edge of the Foramen Magnum of the Occipital Bone. Tab. LIII.

Fig. 3. d.

The two Capsular Ligaments, which fix the inferior oblique Processes of the Atlas to the superior oblique of the Vertebra Dentata, and admit of the rotation of the Head, with a small degree of flexion to either side. Tab. LIII. Fig. 3. n, n.

The Perpendicular Ligament, which fixes the Processus Dentatus of the second Vertebra to the edge of the anterior part of the Foramen Magnum, between the Condyloid Processes, and which is twisted in the rotation of the Head. Tab. XXXI. Fig. 6. q.

The two Lateral, or Moderator Ligaments, which arise each from the side of the Processus Dentatus, and run outwards and upwards, to be fixed to the inner part of ran odtwarts supporting to the fact of the Fora-men Magnum, at the fore part of the Condyles. Tab, XXXI. Fig. 6. p. p. They are short, but of great strength, and prevent the Head from turning too far

The Transverse Ligament, which arises from the inner side of the Atlas, and, going across behind the Pro-cessus Dentatus, is fixed to the opposite side of the Atlas.

Tab. XXXI. Fig. 6. o. The edges of this Ligament extend upwards and down-

wards, and form two Processes, called its Appendices, which are fixed to the Foramen Magnum and Processus Dentatus. The middle of the Ligament is remarkably firm where that Process plays upon it. It keeps the Processus Dentatus in its place, and prevents it from in-juring the Spinal Marrow in the different motions of the Head,

In persons who suffer death from Suspension by the Neck, this Ligament, and some of the others near it, are sometimes so much ruptured, as to allow a partial dislocation to take place, or the Processus Dentatus to be thrust back upon the Spinal Marrow; but this is not a common occurrence.

#### LIGAMENTS of the other VERTEBRE.

The Anterior Common Ligament of the Vertebra, which is a strong Tendinous Baud, extending along the convex or outer part of the Vertebra, from the upper to the under region of the Spine. Tab. LIII. Fig. 4. a, b. It begins at the second Cervical Vertebra, and descends as far as the Os Sacrum, where it spreads out, becomes thinner, and vanishes about the under part of this Bone.

It is much thicker upon the fore part than on the sides of the Vertebra, by which the Bones are more firmly united anteriorly, and is thinnest in the Neck and Loine, where the mutions of the Spine are greatest. Internally, it is blended with the Periostcum, and, through its whole course, it sends off small Processes to be fixed to the Bodies of the Vertebre, by which their connection is made more secure. While it assists in binding the Vertebræ together, it prevents the Spine from being stretched too much backwards. The Crucial Intervertebral Ligaments, which are nu-

merous and short, but strong, situated behind the Ligamentum Commune Anterius, crossing each other obliquely. They join the Bodies of the Vertebræ together, upon the outer edges of the Intervertebral Substances, to which also they firmly adhere. Tab. LIII. Fig. 5. c. d.

The Intervertebral Substances, (already described slong with the Bones), which join the Bodies of the

Vertebræ together, and allow an yielding motion in all

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These Substances are so compressible as to yield to the weight of the upper part of the Body; so that, after having been in an erect posture through the course of the day, the height of a person of middle stature, and in the prime of life, is diminished from half an inch to an inch in the evening, but, after a night's rest in the usual attitude, it is found to be restored.

The Ligaments which run from the edge of the Bony Arch and Spinous Process of one Vertebra to that of the next, so as to assist in filling up the Interstices, and in

fixing the Vertebræ together A Ligamentous Cord which fixes the points of the

Epinous Processes together. Tab. LIII. Fig. 9. f, f.
The Cervical Ligament, termed Ligamentum Nucha, vel Colli, which arises from the perpendicular Spine of the Occipital Bone, and descends on the back part of the Neck, adhering to the Spinous Processes of the Cervical

Vertebræ, and giving origin to part of the Trapezius. Ligaments between the Transverse Processes of the Vertebræ of the Back, fixing these Processes to each

other. Tab. XLIII. c, c. The Capsular Ligaments, which join the articulating

Processes to each other.

The Posterior or Internal Common Ligament of the Vertebræ, somewhat similar to the anterior one. Tab. LIII. Fig. 6, 7,

It begins at the anterior edge of the Foramen Magnum, and passes along the inner or concave part of the Bodies of the Vertebræ, becoming broader over each of the Intervertebral Substances. It adheres firmly to their upper and under edges, and terminates at the lower part of the Os Sacrum. It prevents the Spine from being too much bent forwards.

#### LIGAMENTS of the RIBS.

The Capsular Ligaments of the Heads of the Ribs, which arise from these Heads, and are fixed to the Cirenmference of the Pits in the sides of the Bodies of the Vertebræ and Intervertebral Cartilages. The outer part of each Ligament sends off, or is connected with, radiated Fibres which are spread out upon the sides of the Vertebrze. Tab. LIII. Fig. 8. c, c

The Capsular Ligaments of the Tubercles of the Ribs.

which arise round the Articular Pits on the points of the Transverse Processes of the Vertebre of the Back, and are fixed round the Tubercles of the Ribs.

The Internal Ligaments of the back of the Ribs, called Ligamenta Transversaria Interna, which arise from the inferior Surfaces of the Transverse Processes, and are fixed to the superior Margins of the Necks of the nearest Ribs. Tab. LIH. Fig. 8. d, d.

The External Ligaments of the Necks of the Ribs. called Ligamenta Transversaria Externa. They arise from the points of the Transverse Processes externally, and are fixed to the back part of the Necks of the Ribs.

Tab. LIH. Fig. 9. c, c

Ligamenta Cervicis Costarum Externa, or External Ligaments of the Necks of the Ribs, which arise from the External Margins of the inferior oblique Processes, and descend obliquely outwards, to be fixed to the upper and outer part of the Necks of all the Ribs. Tab. LIII.

Fig. 9, c, c.
The Ligaments at this and of the Ribs, together with the situation of the Transverse Processes, admit of their motion upwards and downwards, but prevent them from

moving in any other direction

Short Ligamentous Fibres, which run from the Margins of the anterior extremities of the Ribs to the Margins of their corresponding Cartilages; the Cartilages and Ribs being joined by a union of Substance. Tab. LIII. Fig. 13. a

Radiated Ligaments, which go from the anterior Surfaces of the Capsular Ligaments over the external Surface of the Sternum. Tab. LIII. Fig. 12. d. Fig. 13. e.

Many of the Fibres of these Ligaments intermix with

their fellows on the opposite side. The Capsular Ligaments of the Cartilages of the Ribs, which arise from the Margins of the Articular Cavities of the Sternum, and are fixed round the extremities of

the seven True Ribs. Tab. LIII. Fig. 13. Membrane proper to the Sternum, which is a firm Expansion, composed of Tendinous Fibres running in different directions, but chiefly in a longitudinal one, and covering the anterior and posterior Surfaces of the Bone,

covering the anterior and posterior surface of the Bans, the Hembran itself being confounded with the Perioseum. Tab. L111. Fig. 12.  $a_b$   $b_c$  and  $b_c$   $b_c$  from the under and fore part of the second Bone of the Sternum, and from the Cartilages of the seventh pair of Ribs, to be fixed to the Cartilago Ensiformis .- The Ligaments covering the Sternum serve considerably to strengthen it.

Thin Tendinous Expansions, which run over the Intercostales at the fore part of the Thorax, and connect the Cartilages of the Ribs to each other. They are chiefly scated in the spaces unoccupied by the Intercostoles Externi. Tab. LIH. Fig. 12. for

### LIGAMENTS OF THE BONES OF THE PELVIS

The two Transverse Ligaments of the Pelvis, which arise from the posterior part of the Spine of the Os flium, and run transversely. 'The one is superior, and is fixed to the Transverse Process of the last Vertebra of the Loins; the other inferior, and is connected to the first Transverse Process of the Os Sacrum. Tab. LIII.

Fig. 4. p, q.

The Hio-sacral Ligaments, which arise from the posterior Spinous Process of the Os Iliun, descend obliquely, and are fixed to the first, third, and fourth spurious Transverse Processes of the Os Sacrum. Tah. LIII.

Fig. 10. f, g, k.

These, with the twn Transverse Ligaments, assist in binding the Bones together to which they are connected. The Capsular Ligament of the Symphysis of the Os Hium and Sacrum, which variounds the Joint, and as-

sists in connecting the two Bones to each other. A very thin Cartilage within this Joint, which cements

the twn Bones strongly together, and which constantly adheres to the Os Sacrum, when the Joint is opened.

Tah, LIII. Fig. 11. f.

A Ligamentous and Cellular Substance, containing Mucus, which forms the back part of this Joint, also assisting to fix the two Bones to each other, in such a manner as to allow nn motion; the Joint, however, along with its fellows and that between the Ossa Pubis, being useful in diminishing the effects which might result from Concussion. Tab. LIH. Fig. 11. g.

The two Sacro-ischiatic Ligaments, situated in the under and back part of the Pelvis. They arise in common from the Transverse Processes of the Os Sacrum, from the under and lateral part of that Bone, and from the

upper part of the Os Coccygis.

The first of these Ligaments, called the Large, External, or Posterior Sacro-ischiatic Ligament, descends obliquely to be fixed to the Tuberosity of the Os Ischium. Tah. LIII. Fig. 10. k. The other, called the Small, buternal, or Anterior Sacro-ischiatic Ligament, runs transversely to he fixed to the Spinons Process of the Os Tah. LIII. Fig. 10. m.

These two Ligaments assist in hinding the Bones of the Pelvis, in supporting its contents, and in giving Ori-gia to part of its Muscles. By the External, the Notch of the Ilium is formed into a Hole for the passage of the Pyriform Muscle, the Sciatic Nerve, and the Blood-vessels which belong to the outside of the Pelvis. Between the two Sacro-sciatic Ligaments, an Opening is left for

the passage of the Obturator Internus.

The two Membranous Productions which are connect. Pubis, which joins the twn Bones to each other extered with the large Sacro-ischiatic Ligament, termed by WEITBRECHT the Superior and Inferior Appendices of the large Sacro-ischiatic Ligament.

The Superior Appendix, which is Tendinous, arises from the back part of the Spine of the Os Hium, and is fixed along the outer edge of the Ligament, which it in-

need along the outer edge of the Engagement which is en-creases in breadth. Tab. Lill. Fig. 10. f. The Inferior or Falciform Appendix is situated within the Cavity of the Pelvis; the hack part of it is connect-ed with the middle of the large External Lagament, and the remainder is extended round the Curvature of the Os Ischium. Tab. LIII. Fig. II. n, n.

These two Productions assist the large Sacro-ischiatic Ligament in furnishing a more commodious situation forand attachment to, part of the Gluteus Maximus and Obturator Internus Muscles.

Besides the Ilio-sacral and Sacro-ischiatic Ligaments, coveral other Slips are observed upon the back of the Os Sacrum, which descend in an irregular manner, and strengthen the connection between that Bone and the

Ossa Ilia. Tab. LIII. Fig. 10. i, i.

The large Holes upon the back part of the Os Sacrum are also surrounded with various Ligamentous Expansions projecting from one Tubercle to another, and giving Origin to Muscular Fibres, and protection to small Vessels and Nerves which creep under them. Tab. LIII.

A General Covering sent down from the Ligaments of A General Covering sent down from the Laguenets of the Ds Sacrum, which spreads over and connects the different pieces of the O Coccygis together, allowing considerable motion, as already mentioned in the descrp-tion of this Bone. Tab. LIII. Fig. 10. Langitudinal Ligaments of the Oo Coccygis, which de-scend from those upon the Dorsum of the OS Sacrum, to be fixed; to the back part of the O5 Coccygis. Tab.

LIII. Fig. 10. n. The Ligaments of this Bone prevent it from being pulled too much forwards by the action of the Coccygeus, and they restore the Bone to its natural situation, after that Muscle has ceased to act.

The Inguinal, or PRUPART'S, or FALLOPIUS'S Ligament, or Crural Arch, which runs transversely from the anterior-superior Spinons Process of the Os Ilium to the Crest or Angle of the Os Pubis. It has been already described as the inferior Margin of the Tendon of th External Oblique Muscle of the Abdomen. Tab. XXXIV. Trunk, q.

A strong Ligamentous Tendon covering the upper part of the Os Puhis, projecting above the Linea Ilio-pectinea, and having part of the Ligament of Pourant fixed to it.

The Capsular Ligament of the Symphysis of the Ossa

nally.
The Ligamentous Cartilage, Tab. LIII. Fig. II. u, which unites the two Ossa Pubis so firmly together as to admit of no motion, excepting in the state of Pregnancy, when it is frequently found to be so much thick-ened, as to be capable of yielding a little in the time of

The Obturator Membrane, or Ligament of the Fora-men Thyraideum, Tah. LIII. Fig. II. r. Tab. LIII. Fig. 1. q, r, s, u, r, which adheres to the Margin of the

Foramen Thyroideam, and fills the whole of that Opening, excepting the Oblique Notch at its upper part for the passage of the Obturator Vessels and Nerve. It assists in supporting the contents of the Pelvis, and in giv-ing origin to the Obturatores. By yielding a little in tho time of Labour, it contributes in a small degree to an easier Delivery.

### LIGAMENTS OF THE SUPERIOR EXTREMITIES.

#### LIGAMENTS of the CLAVICLE.

THE Radiated Ligaments, which wrise from the outer Surface of the inner end of the Clavicle, and are fixed round the edge of the corresponding Articular Cavity of the Sternum. Tab. LIV. Fig. 1. f.

The Capsular Ligament, which lies within the former.

Tab. LIV. Fig. 2. i.

The Interarticular Cartilage, which divides the Joint into two distinct Cavities, and accommodates the articulating Surfaces of the Clavicle and Sternum. Tah. LIV. Fig. I. f.
The Interclavicular Ligament, joining the Clavicles

together behind the top of the Sternum, and partly formed by a continuation of the Radiated Ligaments, Tab. LIV. Fig. 1. b. Tah. XXXII. Fig. 1. d.

By the Ligaments of this Joint, with the assistance of the intervening Cartilage, the Shoulder is allowed to

move in different directions, as upon a centre. The Ligamentum Rhomboideum, which arises from the inferior rough Surface at the anterior extremity of the Clavicle, and is fixed to the Cartilage of the first Rib.

Tab. LIV. Fig. I. g.

The Ligaments which join the posterior extremity of the Clavicle to the Acromion, having a Cansular Ligament within, and sometimes an Interarticular Cartilage.

Tab. LIII. Fig. 5. h. The Ligamentum Conoideum, which arises from the root of the Coracoid Process, and is fixed to the Tubercle

at the outer end of the Clavicle. The Ligamentum Trapezoideum, which arises from the point of the Coracoid Process, and is fixed to the

under edge of the Clavicle. Tab. LIV. Fig. 5. g.

A thin Ligamentous Slip which comes from the Tendon of the Subclavius, or from the Clavicle, and joins the Trapezoid Ligament. 'Fab. LIV. Fig. 3. o.

The Ligaments fixing the Clavicle to the Scapula are of such strength, as to allow only a small degree of motion, and that chiefly of a rolling or twisting nature,

### LIGAMENTS proper to the SCAPULA.

The Proper Anterior Triangular Ligament of the Scapula, which arises broad from the External Surface of the Coracoid Process, and becomes narrower where it is fixed to the posterior Margin of the Acromion. Tab. LIV. Fig. 5. f.

This Ligament forms one continued Surface. It is thickest, however, on each side, and these thicker parts are united by a thin intermediate Ligamentous Membrane, which, when removed, gives to the Ligament the appearance of being double. Tab. XXXII, Fig. 2. n. It. confines the Tendon of the Supra-spinatus, and assists in protecting the upper and inner part of the Joint of the Humerus.

The Proper Posterior Ligament of the Scapula, which is sometimes double, and is stretched across the Semilunar Notch of the Scapula, forming that Notch into one or two Holes for the passage of the superior-posterior Scapulary Vessels and Nerve. Tab. LIV. Fig. 3. g.

### LIGAMENTS, &c. of the JOINT of the SHOULDER.

The Capsular Ligament, which arises from the Cervix of the Scapula, behind the Margin of the Glenoid Cavity, and is, fixed round the Neck of the Os Humeri, loosely inclosing the Ball of that Bone. Tab. LIV. Fig. 3. i.

A small Fimbriated Organ within the Capsular Ligament, for the Secretion of the Synovia. Tab. LIV. Fig.

A Sheath sent down from the fore part of the Capsu-lar Ligament, between the Tuberosities of the Os Humeri, which incloses the Tendon of the long Head of the mers, which incloses the Lendon of the long Head of the Biceps Fixor Cubiti, and prevents it from starting out of its place. Tab. LIV. Fig. 5. r. Additional Ligamentons Bands of the Capsular Liga-ment, which adhere to its anterior Surface. Tab. LIV.

Fig. 5. m. What gives most strength to this Joint, as

well as to several other Joints of the Body, is the cover-

ing from the surrounding Muscles.

From the shallowness of the Glenoid Cavity, from the extent and looseness of the Capsular Ligament, and from the Structure of the other parts of the Joint, more extensive motion is allowed to the Os Ilumeri than to any other Bone of the Body; as it can not only move freely to every side, but also possesses a considerable degree of motion upon its own axis.

### LIGAMENTS, &c. of the Joint of the Elbow.

The Capsular Ligament, which arises round the Mare gin of the Articular Surface, at the lower end of the Os Humeri, and is fixed about the edge of the Articular Surface of the Ulna, and also to the Coronary Ligament of the Radius. Tah. LIV. Fig. 8. I, I. Tab. XXXII.

The sides of the Elbow-joint are strengthened by two Ligamentous Bands, which adhere so firmly to the outer Surface of the Capsular Ligament, that they appear to be part of its Substance, viz.

be part of its constance, viz.

The Brackho-Ulnar, or Internal Lateral Ligament, which arises from the fore part of the inner Condyle of the Os Humeri, and spreads out, in a radiated manner, to he fixed to the inside of the Coronoid Process of the Ulna. Tab. LIV. Fig. 8. m. And,

The Brachio-Radial, or External Lateral Ligament, which is like the former, but larger, Tah. LIV. Fig. 9. b. It arises from the External Condyle of the Os Humeri, and is expanded upon the Coronary Ligament, into

which it is inserted.

The Coronary, Annular, or Orbicular Ligament of the Radius, which approaches to the firmness of Cartilage. It arises from one side of the small Semilunar Cavity of the Ulna, and, after surrounding the Neck of the Radius, is fixed to the other side of that Cavity. The upper edge of it is incorporated with, and may be considered as a part of, the Capsular Ligament, while its under edge is fixed round the Neck of the Radius, allowing that Bone to move freely round its own axis, upon the Articular Surface of the Os Humeri, and in the small Semilunar Cavity of the Ulna, Tab. LIV. Fig.

Besides the Ligaments already described, there are others which run in various directions upon the fore and back parts of the Joint, contributing to its strength, and having the names of Anterior and Posterior Accessory Ligaments. Tab. LIV. Fig. 8. o, p. Fig. 9. l.
There are also two Tendinous Substances, termed

Intermuscular Ligaments of the Os Humeri, which extend along the under mid lateral parts of this Bone, giving origin to part of the Muscles situated at this part of the Arm.

The Ligaments and Bones of the Joint of the Elbow form a complete Hinge, which allows the Fore-arm to Fig. 10. c. have free flexion and extension upon the Os Humeri, The Two Lateral Ligaments, one of which arises from the

but no rotation when the Arm is in the extended state, though a small degree of it is perceptible when the Joint is moderately bent, and the Ligaments thereby re-

Within the Capsular Ligament, and chiefly in the upper part of the Pit of the Os Humeri in which the Olecrauon plays, the Fatty Substance is lodged for the luhrication of the Joint. Tab. LI.

A similar Substance, but much smaller in quantity, is also found in the Depression in which the Coronoid Process of the Ulna moves.

LIGAMENTS between the Bodies, and between the Under Ends of the RADIUS and ULNA.

The Interesseous Ligament, which extends between the sharp Ridges of the Radius and Ulna, filling up the greater part of the space between these two Bones. It is broadest in the middle, in consequence of the Bones here being largest at their extremities, and is composed of small Fasciculi, which run obliquely downwards and inwards. Two or three of these Slips, however, go in the opposite direction ; and one of them, termed Oblique Ligament, and Chorda Transversalis Cubiti, is stretched between the Tubercle of the Ulna and under part of the Tubercle of the Radius.

In different parts of the Interesseous Ligament, there are Perforations for the passage of Blood-vessels from the fore to the hack part of the Fore-arm, and a large Opening is found at the upper edge of it, which is occupied by Muscles. Tab. LIV, Fig. 8. r.

This Ligament assists in binding the Ulna and Radius together, prevents the Radius from rolling too much outwards, and furnishes a commodious attachment for Muscles.

The Capsular, or Sacciform Ligament, which arises from the edges of the Semilunar Cavity at the under end of the Radius, and surrounds the Head of the Ulna, allowing the Radius to turn upon the Ulna, in performing the different motions of Pronation and Supination of the Hand. Tab. LIII. Fig. 10. c.

# LIDAMENTS, &c. between the FORE-ARM and WRIST.

The Capsular Ligament, which arises from the Margin of the Glenoid or Navicular Cavity of the Radius, and from the edge of the moveable Cartilage at the Head of the Ulna, and is fixed to the Cartilaginous edges of the three first Bones of the Carpus. Tah. LIV. Fig.

The Interarticular Cartilage, placed between the Head of the Ulna and Os Cunciforme, and which is a continuation of the Cartilage covering the end of the Radius. It is concave above and below, and is connected loosely to the end of the Styloid Process. Tab. LIV.

is fixed to the Os Naviculare; and the other from the Styloid Process of the Ulna, and is fixed to the Cunciform and Pisiform Bones.

The Ligaments of this Joint allow extensive motion forwards and backwards, and a considerable degree of it to either side.

The Mucous Ligament, which lies within the Joint, Tab. LIV. Fig. 11. o, and extends from the Groove between the two first Bones of the Carpus, to the corresponding part of the Radius. It is supposed to regulate the Mucous Organ connected with it.

#### LIGAMENTS of the CARPUS.

The Anterior, Annular, or Transverse Ligament, which is stretched across from the projecting Points of the Ossa Pisiforme and Unciforme, to the Scaphoides and Trapezium, and forms an Arch which covers and preserves in their places the Tendons of the Flexor Muscles of the Fingers. Tab. XXXII. Fig. 6. 4. of the Fingers.

The Capsular Ligament, which arises from the Cartilaginous Edge of the upper Row of the Carpus, and is fixed in a similar manner to that of the under Row, chiefly admitting of flexion and extension, and that in a smaller degree than in the former Joint. Tah. LIII. Fig. 15. k.

degree than in the former Joint. Tab. LHII. Fig. 15. & The Boll Ligaments of the Bones of the Carpus, "The Boll Ligaments of the Bones of the Carpus, "Green the Bones of the Carpus," and the Carpus, "Green the Carpus, "Green the Bones of the Carpus, "Green the Green Bones of the Carpus, "Tab. LIV. Fig. 12. 13. 14. They are termed Obligue, Tomater, Carpus," and Proper Ligaments of the Bones of the Wrist, and admit only of a small degree of yielding hetween the different Bones in the same Row.

# LIGAMENTS between the CARPAL and METACARPAL

The Articular Ligaments, which arise from the Margins of the second Row of the Carpal Bones, and are fixed to the Margins of the adjoining Bones of the Metacarpus, Tab. LIV. Fig. 12. 16. Other Ligaments run in a radiated manner from the Carpal to the Metacarpal Bones; the whole getting the names of Articular, Lateral, Straight, Perpendicular, &c. according to their different

From the flatness of the Articular Surfaces, and strength of the Connecting Ligaments, very little motion is allowed between the Carpus and Metacarpus.

#### LIGAMENTS between the Extremities of the METACAR-FAL BONES.

The Interesseous Ligaments at the Bases of the Metacarpal Bones, Tab. LIV. Fig. 12. 14. They are short Slips, which run transversely, and join these Bones to each other, obtaining the names of Dorsal, Lateral, or Palmar, according to their different situations.

tacarpal Bones, which run transversely in the Palm, and connect the Heads of these Bones to each other. Tab. LIV. Fig. 12. t. Tab. XXXII. Fig. 6. A.

[PART III.

#### LIGAMENTS at the Base of the METACAREAL BONE of the THUMB, and at the First JOINT of the FINGERS

These consist of the Capsular Ligaments which inclose the Joints, and the Lateral Ligaments which are situated at the sides of the Joints, adhering to and strengthening them; the whole admitting of flexion, extension, and la-teral motion. Tah. XXXII. Fig. 6.

#### LIGAMENTS of the First and Second JOINTS of the THUMB. and Second and Third JOINTS of the FINGERS.

The Capsular Ligaments inclosing the Joints. Tah. LIV. Fig. 17. Tab. XXXII. Fig. 6.

The Lateral Ligaments placed as the sides of the Joints, and adhering to the Capsular Ligaments, confining

the motion to flexion and extension. Tah. LIV. Fig. 17. e.

#### LIGAMENTS retaining the TENDONS of the Muscles of the HAND and FINGERS, in situ.

The Anterior, Transverse, of Annular Ligament of the Wrist,-already described.

The Vaginal Ligaments of the Flexor Tendons, which are fine Membranons Webs connecting the Tendons of the Suhlimis, first to each other, then to those of the Profundus, and forming, at the same time, Bursz Mucosz, which surround these Tendons. Tab. LI. Fig. 1. g.—k. The Vaginal or Crucial Ligaments of the Phalanges,

The Pagnits of Crucial Engineers of the Pananger, which arise from the Ridges on the concave side of the Phalanges, and run over the Tendons of the Flexor Muscles of the Fingers, Tah. L. Fig. 1. s, t, u. Tab. Lf. Fig. 1. b, c, d. Upon the Body of the Phalanges, they are thick and strong, to hind down the Tendons while their Muscles are in action; but over the Joints they are thin, and have, in some parts, a Crucial appearance, to allow the ready motion of the Joints.

The Accessory Ligaments of the Flexor Tendons of the Fingers, which are small Tendinous Frana, axising from the first and second Phalanges of the Fingers. They run obliquely forwards within the Vaginal Ligaments, terminate in the Tendons of the Two Flexor Muscles of the Fingers, and assist in keeping them in their places. Tah-LIV. Fig. 18. f, g, h.
The External Transverse, or Posterior Annular Li-

gament of the Wrist, which is part of the Aponeurosis of the Fore-arm, extending across the back of the Wrist, from the inner side of the extremity of the Ulna and Os Pisiforme to the outer side of the extremity of the Radius. Tab. XXXIII. Fig. 2. E. It is connected with the small Annular Ligaments which tie down the Tendons of the Extensores Ossis Metacarpi et Primi Internodii Pollicis, and the Extensor Carpi Ulnaris. Tab. L. Fig. 5.

Ligaments, and serve as Sheaths and Bursz Mucosz to the Metacarpal Bones, and retaining the Tendons in their the Extensor Tendons of the Hand and Fingers. Tab. places. Tab. L. Fig 5. o. LI. Fig. 2.

The Transverse Ligaments of the Extensor Tendons, which are Aponeurotic Slips running between the Tendons The Vaginal Ligaments, which adhere to the former of the Extensor Digitorum Communis, near the Heads of

## LIGAMENTS OF THE INFERIOR EXTREMITIES.

LIGAMENTS, &c. connecting the Os Femoris with the OS INNOMINATUM.

The Capsular Ligament, the largest and strongest of the Articular Ligaments. It arises round the outside of the Brim of the Acetabulum, embraces the Head of the Thigh-bone, and incloses the whole of its Cervix as far as the root or outer extremity, round which it is firmly connected. Tab. XXXI. Fig. 18. E.

The outer part of the Capsular Ligament is extended farther down than the timer, which is reflected back upon the Neck of the Bone, and in certain parts forms Retinacula. Tab. LV. Fig. 1. 2.

It is not every where of the same strength. It is thickest at its anterior and outer part; thinner where it is covered by the Iliacus Internus; and thinnest poste-

riorly, where the adjacent Quadratus is opposed to it.

It is strengthened on its outer Surface by various Accessory or Additional Slips, which run down from the Fascia Lata and surrounding Muscles; but the strongest of these Slips arises with diverging Fibres from the inferior-anterior Spinous Process of the Os Ilium. Tab. LV.

Fig. 1. m, n, ô.

The Capsular Ligament allows the Thigh-bone to be moved to every side; and when its Body is moved forwards or backwards, a small degree of rotation is per-

formed round the Cervix of the Bone

The Internal, commonly called the Round Ligament, which arises by a broad flat beginning from the under and inner part of the Cavity of the Acetabulum, and is connected with the Substance termed Gland of the Joint. From this it runs backwards and a little upwards, becoming gradually narrower and rounder, to be fixed to the Pit upon the inner Surface of the Ball of the Os Fenioris. Tab. LV. Fig. 2. g-k.

The Round Ligament prevents the Bone from being dislocated upwards or inwards, and assists in agitating the

Mucous Substance within the Joint.

A Cartilaginous Ligament surrounding the Brim of the Acetabulum, and thereby increasing the depth of that Cavity for the reception of the Head of the Thigh-hone.

Tab. LV. Fig. 2. c. A Double Cartilaginous Ligament, Tab. LV. Fig. 3. d, stretched from one and of the Breach in the under and

Gland of the Joint, and for the passage of the Vessels of that Substance. This Ligament allows the Thigh-bone to be moved in-

Hole behind it for containing part of the Substance called wards, and the Glandular-looking Substance to be agitated

fore part of the Acetabulum to the other, but leaving a

The Substance called Gland of the Joint, covered with a Vascular Membrana, and lodged in a Depression in the under and inner part of the Acetabulum. Tab. LV. Fig.

At the edges of this Substance Fringes are sent out, which furnish part of the Synovia for the lubrication of the Joint.

The edges of this Substance are fixed to those of the Pit in the Acetabulum, by small Ligamentous Bridles, termed Ligamenta Mucosa, vel Ligamentula Massæ Adiposo-glandulosa.

LIGAMENTS, &c. of the JOINT of the KNEE.

The Lateral Ligaments which lie at the sides of the Joint, and adhere to the outer Surface of the Capsular Ligament.

The Internal Lateral Ligament, which is of considerable breadth, arising from the upper part and Tuberele of the internal Condyle of the Os Femoris, and inserted into the upper and inner part of the Tibia; the Fibres passing obliquely forwards, till they have reached a little below the Head of the Bone. Tab. LV. Fig. 4, k.

The Long External Lateral Ligament, which is uarrower, but thicker and stronger than the former, arising from the Tubercle above the external Condyle of the Os Femoris, and fixed to the Fibula, a little below its Head. Tab. LV. Fig. 5. f. Tab. XXXII, Fig. 8. l. Behind the long external Lateral Ligament, there is

an Expansion attached nearly in the same manner as this Ligament, which has been termed the External Short Lateral Ligament. Tab. LV. Fig. 5. g.

These Ligaments prevent the lateral and rotatory motions of the Leg in the extended state, but admit of a small degree of both when the Limb is bent

The Posterior Ligament of Winstow, Tab. LV. Fig. 5, h, formed of irregular Bands which arise from the

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upper and hack part of the external Condyle of the Os Femoris, and descend obliquely over the Capsular Ligament, to be fixed to the Tibia under the inner and hack part of its Head. It prevents the Leg from being pulled farther forwards than to a straight line with the Thigh, and also furnishes a convenient situation for the beginnings of the Gastrocnemius and Plantaris Muscles.

When this Ligament is wanting, which is sometimes the case, its place is supplied by a Membranous Expansion.

The Ligament of the Patella, which arises from a Depression behind the Apex of that Bone, and is fixed to

the Tuberosity of the upper and fore part of the Tibia.

Tab. XXXIV. Leg. b. Tab. XXXII. Fig. 9. i. By
the intervention of this Ligament, the Muscles inserted into the Patella are enabled to extend the Leg.

The Capsular Ligament, which arises from the whole Circumference of the under end of the Thigh-bone, some way above the Margin of the Articulating Cartilage, and above the posterior part of the great Notch between the Condyles. From this it descends to be fix-ed round the Head of the Tibia, and into the whole Margin of the Articulating Surface of the Patella, in such a manner that the Patella forms part of the Cap-

sule of the Joint. Tab. LV. Fig. 6. 7 The Capsular Ligament is of itself remarkably thin, but so covered by the Ligaments already mentioned, by the general Apeneurosis of the Limb, and by the Ten dons of Muscles which surround the Joint, as to acquire

a considerable degree of strength.

The Capsular Ligament, along with the other Ligaments of this Joint, admits of the flexion and extension of the Leg, but of no lateral nor rotatory motion in the extended state, though of a small degree of each when the Limb is fully bent.

The Ligamentum Alare, Majus et Minus, which are Folds of the Capsular Ligament, running like Wings at the sides of the Patella, to which, and to the Fatty Substance of the Joint, they are attached. Tab. LV. Fig. 6. e, d.

The Ligamentum Mucosum, continued from the joining of the Ligamenta Alaria to the Os Femoris, immediately above the Anterior Crucial Ligament. It preserves the Synovial Substance in its proper place, during the various motions of the Joint. Tab. LV. Fig. 6. c.

The two Crucial or Internal Ligaments, which arise from the Semilunar Notch between the Condyles of the Os Femoris, and decussate each other within the Cavity of the Joint. Tab. XXXII. Fig. 9. f. f.

The Anterior Crucial Ligament runs downwards and forwards, to be fixed to a Pit before the rough Protuherance in the middle of the Articulating Surface of the

The Posterior Crucial Ligament descends to be fixed to a Pit behind the above-mentioned rough Protuberance. Tab. LV. Fig. 8. f. Tab. XXXII. Fig. 8. k.

Head of the Tibia. Tab. LV, Fig. 8. e.

These Ligaments, in the extended state of the Leg, prevent it from going forwards beyond a straight line

with the Thigh. When the Knee is heat, they allow the Foot to be turned outwards, but not in a contrary

The two Interarticular Cartilages, called Semilunar, from their shape like a Crescent, placed upon the top of the Tibis. Tab. LV. Fig. 9. c. d. Tab. XXXII.

The outer convex edge of each of these Cartilages is thick, while the inner concave edge becomes thin and sharp like a knife or sickle; and being concave above,

the Sockets for the Condyles of the Os Femoris are rendered deeper, and this Bone and the Tibia are more accurately adapted to each other Each of these Cartilages is broad in the middle, their

extremities becoming narrower and thinner as they ap-proach one another. Tach covers about two thirds of the Superficial Cavity of the top of the Tibia, leaving one third bare in the middle. The extremities are termed Cornua, and are fixed by Ligaments to the Protuberance of the Tibis. The anterior Cornua are joined to each other by a Transverse Ligament. Tab. Lv. Fig. 9. k. The convex edge of these Cartilages is fixed to the

Capsular and other Ligaments, in such a manner as to be allowed to play a little upon the Cartilaginous Surface of the Tibia, by which the motions of that Bone upon the Condyles of the Os Femoris are facilitated

The Mucous or Fatty Substances of this Joint, which are the largest of any in the Body, are situated in the different interstices of the Joint, but chiefly round the edges of the Patella. Tab. LV. Fig. 13. b, b, b. They are covered by a fine Membrane reflected from the inner Surface of the Capsular Ligament.

Fimbria project from the edges of these Fatty Substances, which discharge Synovia for the lubrication of the Joint. Tab. LV. Fig. 13. c, e.

### LIGAMENTS connecting the FIBULA to the TIBIA.

The Capsular Ligament of the superior extremity of the Fibula, which ties it to the outer part of the Head of the Tihia, and which is strengthened by the external Lateral Ligament of the Knee, and by the Tendon of the Biceps which is fixed to the Fibula. Tab. LV. Fig. i. Fig. 8. o.
The Interosseous Ligament, one edge of which is fixed

to the Ridge or Angle at the outer and back part of the Tibia, the other to the corresponding Ridge at the inner side of the Fibula. It fills the space between the libia and Fibula, like the Interosseous Ligament of the Fore-arm, and is of a similar structure, being formed of oblique Fibres, and perforated in various places for the passage of Vessels and Nerves.

At its upper part there is a large Opening, where the Muscles of the opposite sides are in contact, and where Blood-wesselp pass to the fore part of the Leg. It serves chiefly for the Origin of part of the Muscles

which belong to the Foot, and thereby supplies the place

The Ligaments of the inferior extremity of the Fibula, which are called Anterior-superior, and Posterior-superior, according to their situations, arising from the edges of the Semilunar Cavity of the Tibia, and fixed to the Malleolus Externus of the Fibula. Tab. LV. Fig. 10. h. Fig. 11. e.

The Ligaments between the ends of the Tihia and Fihula join the two Bones so firmly together, as to admit

of no sensible motion.

LICAMENTS connecting the Bones of the Tarsus with

those of the LEG.

The Anterior Ligament of the Fibula, which arises from the anterior part of the Malleolus Externus, and passes obliquely forwards, to be fixed to the upper and outer part of the Astragalus. Tab. LV. Fig. 10. k. The Middle, or Perpendicular Ligament of the Fi-

hula, which arises from the point of the Malloolus Externus, and descends almost perpendicularly, to be inserted into the outside of the Os Calcis. Tab. LV. Fig. 10. i.

The Posterior Ligament of the Fibula, which arises from the under and back part of the Mallcolus Externus, and runs backwards, to be joined to the outer and posterior part of the Astragalus. Tab. LV. Fig. 11. h.

The Ligamentum Deltoides of the Tibia, which arises

from the Malleolus Internus, and descends in a radiated form, to be attached to the Astragalus, Os Calcis, and Os Naviculare. Tab. LV. Fig. 11. f.

The Capsular Ligament, which lies within the former Ligaments, and is remarkably thin, especially before and behind, for the readier motion of the Joint, It arises and Fibula, and is fixed round the edge of the Articular tacarpus. Tah, LV, Fig. 10, Fig. 12. Surface of the Astragalus.

The Ligaments and the other constituent parts of the Ankle-joint form it into a complete Hinge, which allows flexion and extension, but no rotation nor lateral motion, in the bended state of the Foot, though a small degree of each when it is fully extended.

#### LIGAMENTS of the TARSUS.

The Capsular Ligament, which joins the Articular Surface of the Os Calcis to that of the Astragulus. A number of Short Ligaments, lying in the Fossa of the Astragalus and of the Os Calcis, and forming the Ligamentous Apparatus of the Sinuous Cavity, which assists in fixing the two Bones strongly together. Tab. LV.

Fig. 10. 7, m The Capsular, the Broad Superior, and the Internal Lateral Ligaments, connecting the Astragalus to the Os Naviculare, and admitting of the lateral and rotatory motions of the Foot. Tab. LV. Fig. 10.

The Superior, the Lateral, and the Inferior Ligaments, fixing the Os Calcis to the Os Cuboides, where a small degree of motion is allowed to every side. The inferior Ligaments consist of a Long, an Oblique, and a Rhomboid Ligament, which are the longest and strongest of the Sole. Tab. LV. Fig. 12.

The Superior Superficial, the Interesseous, and the Inferior Transverse Ligaments, which fix the Os Naviculare and Os Cuboides to each other. Tab. LV. Fig.

10. Fig. 12.

The Superior Lateral, and the Plantar Ligaments, which fix the Os Naviculare to the Os Cuneiforme. Tab. LV. Fig. 10. Fig. 12.

The Superior Superficial, and the Plantar Ligaments, which connect the Os Cuboides to the Os Cunciformo Externum. Tab. LV. Fig. 10. Fig. 12

The Dorsal and the Plantar Ligaments, which unite the Ossa Cuneiformia to each other. Tab. LV. Fig. 10. Fig. 12.

Besides the Capsular Ligaments of the Tarsus already mentioned, each of the other Joints of these Bones is furnished with its proper Capsular Ligament.

From the strength of the Ligaments which unite these Bones to each other, and from the plainness of their Articulating Surfaces, no more motion is allowed than to prevent the effects of concussion in walking, leaping, &c.

### LIGAMENTS between the TARSUS and METATARSUS.

The Bones of the Metatarsus are fixed to those of the Tarsus by Capsular, and numerous other Ligaments, which are called Dorsal, Plantar, Lateral, according to their situations ;-and Straight, Oblique, or Transverse, according to their directions. The nature of this from the Margin of the Articular Cavity of the Tibia Joint is the same with that between the Carpus and Me-

> LIGAMENTS connecting the METATARSAL BONES to each other.

The Dorsal, Plantar, and Lateral Ligaments, which connect the Bases of the Metatarsal Boues with each other. Tab. LV. Fig. 10. Fig. 12. The Transverse Ligaments, which join the Heads of

these Bones together.

LIGAMENTS of the PHALANGES of the Toes.

The Capsular and Lateral Ligaments ;-resembling those of the Fingers.

LIGAMENTS and SHEATIS retaining the TENDONS of the Muscles of the Foot and Toes, in situ.

The Annular Ligament of the Tarsus, which is a thickened

shickened part of the Aponeuroals of the Leg, splitting ioto superior and inferior portions, which hind down the Tendons of the Extensors of the Toes, upon the fore part of the Ankle. Tah. XXXIV. Fig. 2. N, N.

part of the Antace and A. A. Fig. 5. 78, The Figure 1. The Figure Ligament of the Tendous of the Perones, which, helmad the Ankle, is common to both, but at the enter part of the Foot forms Sheath for each Tendou, Tab. Lill. Fig. 2, p. q.; preserving it in its proper place, and forming the Bursa of that Tendou.

The Laciniated Ligament, which arises from the inner The Lacindarea angument, which arises from an inner Ankle, and spreads in a radiated manner, to be fixed partly in the Cellular Substance and Fat, and partly to the Os Caleis, at the inner side of the Heel. Tab. XXXIV. Fig. 2. k. It incloses the Tihialis Posticus and Flexor Digitorum Longus.

The Vaginal Ligament of the Tendon of the Extensor

Proprine Pollicis, which runs in a Crucial direction.

Tab. XXXVIII. Right Foot, C.

The Vaginal Ligament of the Tendon of the Flexor
Longue Pollicis, which surrounds this Tendon in the
hollow of the Os Calcis. Tab. LIV. Fig. 3, H.

The Vaginal and Crucial Ligaments of the Tendons of the Flerors of the Toes, which inclose these Tendons on the Surfaces of the Phalanges, and form their Bursas Mucosa. Tah. LIV. Fig. 3. Q, R, S, T, U.—Tah. L.

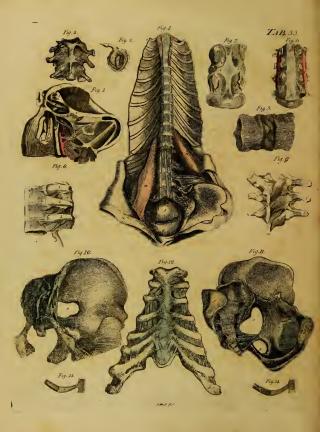
Fig. 8.

The Accessory Ligaments of the Flexor Tendons of the Tees, which, as in the Fingers, arise from the Phalanges, and are included in the Sheaths of the Tendons in which they terminate.

The Transverse Ligaments of the Extensor Tendons, which run between these Tendons, and preserve them in

their places behind the roots of the Toes.





#### TABLE LIII.

LIGAMENTS of the BONES of the HEAD and TRUNK.

#### FIG. 1.

LICAMENTS of the LOWER JAW, and adjacent Parts. viewed on the Right Side.

- a, The angle of the lower jaw ;
- b, Its condyloid process.
  c, The edge of the zygomatic process of the temporal
- d, A section of the ear.
- The styloid process.
- f, The capsular ligament of the lower jaw
- The lateral ligament h. The connection of the suspensory ligaments of the
  - os hyoides, and of the stylo-glossus, to the styloid process.
    The suspensory ligament of the os hyoides.
  - stylo-glossus.
- k, The masseter.
- m, The stylo-glossus.
  n, The stylo-hyoideus. n, The stylo-hyoideus.
  o, The stylo-pharyngeus, upon which
- p. A small nerve rests in its way to the pharvnx.
- q, A section of the digastricus.
- s. The lingual nerve.

# FIG. 2.

The CAPSULAR LIGAMENT of the Lower Jaw, and Part of the TEMPORAL BONE.

- a, The zygomatic process of the temporal hone.
  b, The tubercle of that process.
- c, The glonoid or articular cavity.
- d, d, The capsular ligament surrounding the whole margin of the glenoid cavity.

#### FIG. 3.

- An Anterior V'eu of the Connection of the Os Occi-PITIS with the First and Second VERTEBRA.
- a, A portion of the os occipitis.
- b, b, The transverse processes of the first vertebra;

- c, c, Those of the second.
- d, The capsular membrane of the last joint of the occipital bone.
- e, The membrane of the right joint cut open, to obtain a view of the joint, and,
- f, The distance of the origin of the membrane.
  g, The membrane which fills up the anterior opening hetween the occiput and first vertebra.
- h, A slip inserted into the middle of this membrane. i, The origin of this slip in the occipital hone.
- k, Its termination in the tubercle of the first vertebra. I The slip which unites the first and second vertehra.
- m, The ligament proper to the first vertebra. The ligament of the articulation of the first vertehra with the second.

#### FIG. 4

LIGAMENTS on the Fore Part of the SPINE, and Upper and Fore Part of the Inner Side of the Bones of the

- a, b, The bodies of the dorsal vertebrae.
- lumbar vertebra.
- e, f, A section of the ribs. g, h, The anterior common ligament of the bodies of the vertebræ
- i, i, The crura of the diaphragm.
- k, k, Part of the longi colli.
  l, l, Two of the transverse processes of the lumbar vertehræ.

- m, The psoas magnus.
  n, The quadratus lumborum.
  o, The os litum.
  p, The superior transverse ligament of the pelvis, of a triangular form
- q, The inferior transverse ligament, of a round form,
- r, The longitudinal ligamentous fibres, belonging to, s, The symphysis of the ilium with the os sacrum.
- f. The intestinum rectum. u, The vesica nrinaria.
- e, A ligament which forms a sort of sac hetween the sides of the bladder and rectum.

#### FIG. 5.

The CRUCIAL INTERVERTEBRAL LIGAMENTS of two of the LUMBAR VERTEBRE, seen Anteriorly.

a, The first,

b, The second lumbar vertebra.

ferent strata.

#### FIG. 6.

The Posterior, or Internal Common LIGAMENT of the VERTEBRE, seen in the NECK and beginning of the BACK. The CRURA of the SPINOUS PROCESSES are

a, a, &c. The transverse processes of the vertebræ.

b, b, The vertebral arteries.

c, c, &c. Sections of the crura of the spinous processes. d, d, The whole breadth of the posterior or internal

## common ligament of the vertebræ. FIG. 7.

The CONTINUATION of the Posterior Common LIGA-MENT in the Loins.

a, The first, and, b. The second lumbar vertebra.

e, c, Vestiges of the crura of the spinous processes.

d, d, The posterior, or internal common ligament of the e, e, Its expansion over the cartilaginous interstices.

### FIG. 8.

Three of the DORSAL VERTEBRE, with Portions of the three corresponding Rips and their Ligaments, seen within the THORAX.

a, a, a, The bodies of the three vertebra.

b, b, b, Portions of the three ribs.
e, c, c, The ligaments which fix the heads of the ribs to

the bodies of the vertebra.

d, d, d, The internal ligaments of the cervix of the ribs, by which they are fixed to the tuberosities of the next

superior transverse processes.

e. e. Part of the intercostal muscles. f. The spinous process.

#### FIG. 9.

The same Parts shewn in the preceding Figure, but viewed Posteriorly.

a, a, a, The crura of the spinous processes.

c, c, c, The external transverse ligaments.
d, d, The internal ligaments of the cervix of the ribs.

e, e, The external ligaments of the cervix of the ribs. f, f, A ligamentous cord between the apices of the spinous processes.

#### FIG. 10.

c, d, The crucial intervertebral ligament, formed of dif- LIGAMENTS on the Outer and Right Side of the PELVIS.

a, The os sacrum.

b, \_\_\_\_ coccygis.

d, The tuber of the os ischium.

The notch of the os ilium, which, together with the ligaments, &c. under it, form the foramen magnum.

f, The posterior long ilco-sacral ligament. g, The posterior short ileo-sacral ligament.

h, The posterior lateral ileo-sacral ligament. i, i, The ligamenta accessoria vaga, on the back of the

os sacrum

k, The large excre-ischiatic figament.

I, The appendix, or superior membranous production.

m, The small sacro-ischiatic ligament.

f, The longitudinal ligaments of the os cocygis.

mutualized from of the muscles of the thigh.

#### FIG. 11.

LIGAMENTS seen in the LEFT CAVITY of the PELVIS; the Right Os Innominatum being removed.

a, The os sacrum. b, --- coccygis.

c, \_\_\_\_ ilium.

d, \_\_\_\_ pubis. schium.

The cartilaginous surface of the os sacrum, for the articulation with the os ilium. g, A protuberance covered with ligamentous villi for the

articulation with the os iliun h, The linea alba, which marks the articulation of the

os ilium and sacrum. The spinous process of the os ischium.

k, The small internal sacro-ischiatic ligament.
L. The remains of the coccygeus.

m, A portion of the large external sacro-ischiatic ligan, n, The inferior falciform production of WINSLOW.

o, The foramen magnum, for the transmission of the pyriformis, &cc.

p, The foramen minus, for the transmission of the ohturator internus.

q, The superior oblique sinus of the foramen thyroideum.
r, The membrana obturans.
s, The trausverse ligament of the membrana obturans.
t, The tendon of the psoas magnus.

u, The cartilago-ligamentous substance of the os puhis-

#### FIG. 12.

LIGAMENTS connecting the CARTILAGES of the RIBS, and CARTILAGO ENSIFORMIS, to the Body of the STERNUM,

a, The upper end of the sternum, b, The cartilago ensiformis.

c. The cartilage of the eighth rib.

d, d, The ligaments of the cartilages of the ribs, distributed in the form of radii.

g, g, The ligaments of the cartilago ensiformis.

#### FIG. 13,

Represents the Connection of the Osseous Part of a Rin with its Cartilage, and of the Cartilage with the ed Anteriorly.

a, The osseous, b, The cartilaginous part of the rib.

c, A part of the sternum.

d, Short ligamentous fibres connecting the margin of the osseous and cartilaginous parts of the rib.

e. The capsular ligament which joins the cartilage of the

rib to the sternum; the external radiated fibres of this joint being removed.

#### FIG. 14.

c, c, The intercostal muscles.
f, f, The tendinous ligaments of the cartilages of the A Section of the Parts represented above, to shew their Internal Structure.

> a, The cancelli of the rib. b. sternum.

c, The connection of the inner part of the rib with its cartilage by a firm union of substance.

STERNUM; the INVESTING MEMBRANES being remov- d, The cavity of the joint formed between the cartilage and sternum.

#### TABLE LIV.

#### LIGAMENTS Of the Left Superior Extremity.

#### FIG. I.

LIGAMENTS of the Upper Part of the STERNUM, viewed Anteriorly.

- a, a, Part of the clavicles.
- b, The interclavicular ligament. c, c, The insertions of the steroo-mastoidei into the cla-
- d, d, The cartilages of the first ribs.
- e, A section of the sternum
- f, f, Ligaments connecting the clavicles to the interclavicular ligaments, to the sternum, and to the cartilages
- of the first ribs. g, g, The ligamentum rhomboides, on each side, connecting the clavicle to the cartilage of the first rib.

### FIG. 2.

- 1 View of the ARTICULATION between the STERNUM and CLAVICLES.
- a, A section of the sternum.
- b, The cartilage of the first rih.
  c, The head of the right clavicle turned hack.
- d, The interclavicular ligament.
- e, The articular sinus of the sternum. f, f, The interarticular cartilage covering the articular
- sinus and head of the clavicle s, The part to which the head of the clavicle is fixed.
- h, The prolongation of the interarticular cartilage. i, i, The capsular ligament.

#### FIG. 3.

An Anterior View of the LIGAMENTS between the CLA-VICLE, SCAPULA, and Os HUMERI.

- The upper part of the scapula.
- b, The point of the acromion
- coracoid process. d, A portion of the clavicle.
- os humeri. f. The edge of the anterior proper ligament of the scapula.
- g, g, The posterior proper ligament of the scapula.
  h, A portion of the common conoid ligament.
  i, i, The capsular ligament of the head of the os humeri.
- i, i, The capsular ligament of the head of the os humeri.
  k, The accessory membrane of the capsular ligament.
  l, l, The edge of the oval hole in the capsular membrane.
- for the passage of, m, The tendon of the subscapularis, which fills the hole, and makes part of the capsule.

- n, The outer edge of the fleshy portion of this muscle. o, A ligament which arises from the sheath of the sub-
- p, The remains of the tendon of the pectoralis. q, The tendon of the biceps.

#### FIG. 4.

A Posterior View of the LAGAMENTS between the CLA-VICLE, SCAPULA, and Os HUMERI.

- The dorsum :
- b, The spine ; The upper edge ;
- d, The cervix, and e, The acromion of the scapula.
- f, A section of the clavicle. os humeri.
- h, Ligaments connecting the clavicle with the acromion i, i, The posterior proper ligament of the scapula.
  - 1, 1, The capsular ligament inclosing the head of the os humeri.

#### FIG. 5.

- LIGAMENTS between the SCAPULA, CLAVICLE, and Os HUMERI, viewed Anteriorly .- Some of the Parts are twisted to one Side
- a, The upper edge of the scapula, twisted to one side.
- b. The point of the acromion. - coracoid process.
- d, A section of the clavicle.
- os humeri. f, The anterior proper triangular ligament of the scapula
- g, The common trapezoid ligament of the scapula.
  h, Ligaments connecting the clavicle with the acromion.
  l, The capsular ligament of the head of the os humeri;
- m, Its appendix.

  n, The edge of the oval hole, for the transmission of,
  o, The tendon of the subscapularis.

  p, The remains of the tendon of the supra-spinatus.
- q, The tendou of the biceps.

### FIG. 6.

- Gires a Fiew of the GLENOID CAVITY of the SCAPULA, with the ORIGIN of the CAPSULAR LIGAMENT of this JOINT.
- a, The glenoid cavity.
- b, b, The cartilaginous hrim of the cavity.





c, The origin of the long head of the hiceps. d, d, The inner surface of the capsular ligament. e, The edge of the oval hole.

#### FIG. 7.

The HEAD of the Os Hument, with a Portion of the CAPSULAR LIGAMENT which incloses it.

a, The head of the os humeri. b, The tendon of the long head of the hiceps continued

through its sheath. c. The retinaculum in the heginning of the sheath of the tendon of the hiceps.

d, d, The inner surface of the capsular ligament.

e, A fimbriated organ for the secretion of synovia, situated immediately under the ball of the os humeri, within

# the capsular ligament.

FIG. 8. The Connection of the Os Humeri and Bones of the FORE-ARM, and of the latter with each other; viewed Anteriorly.

a, A portion of the os humeri.

b, The inner,

c, The outer round process of articulation. d, The inner acute prominent process of articulation he-

tween the os humeri and hones of the fore-arm.

e, The ulna. f, The olecranon of the ulna.

g, The coronoid process.

h, The inferior head of the ulna.

i, The radius.

k, The inferior extremity of the radius. l, l, The capsular ligament.
m, The internal lateral ligament.

n, The coronary, annular, or orbicular ligament of the

radius. o, The accessory ring.

p, The posterior accessory ligament.

q, The chorda transversalis cubiti.

r, r, The interesseous membrane or ligament of the fores, An opening left by this membrane, and filled with muscles.

FIG. 9.

The Connection of the Os Humert with the Bones of the FORE-ARM, viewed Posteriorly.

a, A portion of the os humeri;

b. Its external condyle. c, The outer round process of articulation.

d, A portion of the ulna. e, The olecranon.

f, The lateral surface of the olecranon, covered by the anconcus.

g, A portion of the radius.

h, The external lateral ligament. i, The orbicular bgament of the radius.

k, The accessory ring.

### FIG. 10.

The CONNECTION of the Under End of the RADIUS with that of the ULNA.

a, The extremity of the radius. b, b, The double glenoid cavity of the radius.

c, The intermediate triangular cartilage between the ulna

and os cuneiforme d, The extremity of the nina.

e, The ligament called Sacciform Capsular Membrane. f, f, The cut edge of the capsular ligament between the fore-arm and wrist.

g, The mucous ligament within the joint.

#### FIG. II

A View of the CAVITY of the JOINT between the FORE-ARM and WRIST; the CAPSULAR LAGAMENT being out Posteriorly, and the Bones of the Carrus turned back.

a, The extremity of the radius.

c. Part of the glenoid cavity of the radius, receiving.

d, The first hone of the carpus. e, The other portion of the glenoid eavity of the radius,

f, The intermediate triangular cartilage, receiving,

g, The second, and, h. The third bone of the carpus.

i, The capsular ligament between the bones of the forearm and wrist.

k, The palmar slip intermixed with this membrane. 

I, The palmar accessory ligament from the radius. m, That from the fourth, and,

n, That from the third bone of the carpus.

o. The mucous ligament p, The ligament by which the first and second bone of the carpus are attached.

#### FIG. 12.

Shews certain LIGAMENTS on the PALM-Side of the HAND, after the INTEGUMENTS and TENDONS of the Extensors have been removed.

a, The extremity of the radius.

ulua. c, The os pisiforme, with the teudou of the flexor carpi

ulnaris fixed to it.

d, The os trapezium, placed at the root of the thumb.
c, The sharp process of the unciform bone.
f, The metacarpol bone of the thumb.

g. g. The

g, g, The metacarpal bones of the fingers.
h, h, The first phalanx of the fingers.
i, The teodoo of the flexor carpi radialis.
k, The tendoo of one of the extensors of the thumb.

I. I. The internal interosseous muscles.
 m. The ligaments between the uloa and os pisiforme.
 n. 5, p. q. The capsular ligament investing the extremities of the boses of the fore-arm and bones of the wrist,

intermixed with numerous accessory slips.

r, s, Ligaments between the carpal and metacarpal bones. t, Ligaments joining the bases of the metacarpal bones to each other.

u, u, u, Ligaments connecting the heads of the metacarpal bones to each other.

#### F1G. 13.

A View of the LIGAMENTOUS BANDS which assist in form ing the CAPSULAR LIGAMENT on the Bock Part of the WRIST.

u, The extremity of the radius.

b,
c, The first,
d, The third, and,
c, The fifth bone of the carpus.
c, the fifth bone of the seventh car
tuber of the seventh car f, The tuber of the seventh carpal bone.
g, The two tendons of the extensores carpi radiales.

h, The tendoo of the extensor carpi ulnaris.
i, The ligamentum rhomboides.

k, A ligamentous cord, which extends from the styloid

process of the ulna to the third bone of the carpus.

1, The common oblique slip.

11, The ligament between the third and eighth carpal bones.

n, A section of the metacarpal bones.

#### FIG. 14.

The Anterior LIGAMENTS which bind the BONES of the FORE-ARM to the Bones of the CARPUS, these to each other, and also to the Bones of the METACARPUS.

a, The extremity of the radius.

--- ulna.

c, c, The booes of the carpus. d, d, d, d, The booes of the metacarpus

e, The capsular ligament of the wrist, with its accessory

f. The anterior annular ligament of the carpus. Besides the annular ligament, numerous ligamentous slips are seen running in various directioos, which unite the bones of the carpus to each other, and likewise to those of the metacarpus.

g, h, Two of the interesseous ligaments, which connect the bases of the last-mentioned bones.

#### FIG. 15.

The CAVITY of the JOINT in the middle of the CARPUS; the CAPSULAR LIGAMENT being divided in the Back of the HAND, and the two Rows of CARPAL BONES separated from each other.

a, b, c, d, The first row, and, c, f, g, h, The second row of the carpal bones, i, The inside of the palmar part of the capsular liga-

k, The inside of the dorsal part of that ligament.

l, A ligament joining the first and second carpal bones

together, where they are articulated with the end of the radius. m, A ligament connecting the third and seventh carpal bones to each other.

n, The ligamentum mucosum connected with the second carpal bone.

o. A small framum of the capsular ligament.

## FIG. 16.

LIGAMENTS between the Inferior Row of the CARPAL Bones and those of the METACARPUS, on the Back of the HAND.

o, b, c, d, The four bones of the second row of the car-

e. The metscarpal bone of the thumb. f. f. The metacarpal bones of the fingers.

The ligaments which unite these bones are seen running in various directions.

# FIG. 17.

The LIGAMENTS of the Joints of one of the Fingers.

, The metacarpal bone,

b, c, d, The first, second, and third bones of the fingers. c, e, e, The lateral ligaments of the joints of the fingers. f, Part of the capsular ligament.

### FIG. 18.

The MIDDLE FINGER, with the Accessory LIGAMENTS which bind the TENDONS of the PERFORANS and PER-FORATUS.

a, A section of the vaginal ligaments.

b, The tendon of the perforatus.

c, The end of this tendon inserted into the second bone of the finger. d, Decussating branches of the tendon of the perforatus.

e, The tendon of the perforans. f, The short accessory ligament of the perforans.

g, h, Long accessory ligaments of the tendon of the per-

The tendon of the perforator has accessory ligaments similar to those of the performs, but they could not be represented in this view.





#### TABLE LV.

# LIGAMENTS of the LEFT INFERIOR EXTREMITY.

#### FIG. 1.

- A View of the CAPSULAR LIGAMENT of the HEAD of the Os FEMORIS, and of the LIGAMENTS filling the FORA-MEN THYROIDEUM.
- a, The spine of the right os ilium;
- b, Its inferior spinous process.
- d, The os pubis. e, The trochanter major.
- minor.
- The place of the insertion of the pectineus. The seat of the under end of the iliacus internus.
- The seat of the gluteus minimus 1. The upper end of the rectus femoris cut and turned
- The space between m and k is occupied by the capsular ligament, which arises from the acetabulun
- m, n, o, The accessory slips of the capsular ligament,
- placed between the surrounding muscles, and strengthening the general capsule. p, The oblique termination of the capsular ligament be-
- tween the two trochanters. q, r, s, u, x, The membrane which shuts up the foramen thyroideum.
- r, s. The external and internal ligamentous slips of this
- membrane, which form sulci. 1, The place where the obturator externus adheres to the
- capsular ligament. 44, An opening in the upper part of the obturator liga-ment, for the passage of the obturator vessels and nerve.

# FIG. 2.

- The HEAD of the Os Femoris taken out of the Aceta-BULUM, and still adhering by means of the LIGAMENTUM ROTUNDUM.
- a, The ball of the os femoris.
- b, The cavity of the acetabulum. c, c, The cartilaginous brim of the acetabulum.
- d, d, d, d, The capsular ligament cut and turned back, to shew,
- c, c, Its density and thickness.
- f, Retinacula reflected about the cervix of the os femoris. g, h, i, k, The ligamentum rotundum
- 1, 1, Small ligaments which bind the fatty glandular mass m to the bottom of the acetabulum.

### FIG. 3.

- Gives a View of the ACETABULUM, with its LIGAMENTS.
  - a, The bottom of the acetabulum, with its cartilaginous surface. b, The sinus for the synovial fat.
- c, c, c, The cartilaginous brim of the acetabulum.
- d, d, The external transverse ligament.

# FIG. 4.

- A Side-View of the KNEE, shewing the Internal Lateral LICAMENT.
- a, The os femoris. b, The patella.
- The inner side of the bead of the tibia,
- d, A portion of the vastus interms.
- e, Aponeurosis of the vastus internus. The remains of the inner tendon of the gastrocne-
- The tendon of the semimembranesus,
- The tendons of the gracilis and semitendinosus, turned back.
- i, The popliteus. k, k, The broad internal lateral ligament, enlarged by, I, An accessory branch.
- m, A circular ligamentous margin adhering to the internal semilunar cartilage.

# FIG. 5.

- A Posterior View of the LIGAMENTS of the KNEE.
- a, The os femoris.
- The external condyle. The internal condyle.
- d, The tibia.
- f. The long external lateral ligament.
- g, The short external lateral ligament. h, The ligamentum posticum WinsLoit.
- i, The tendon of the semimembranosus. k, Irregular membranous expansions.

# FIG. 6.

- An Anterior View of the Joint of the Knee, the Carsu-LAR LIGAMENT being opened, and turned down along with the PATELLA.
- a. a. The condyles of the os femoris covered with cartilage.

b, The patella, with the capsular ligament at the sides of c, The external, and, it, cut from the os femoris, and turned down-

c, The ligamentum mucosum, supporting the fat at the under edge of the patella.

d, e, Folds of the inner side of the capsular ligament, called by Weitbrecht, Ligamentum Alare externum

minus, and Ligamentum Alare internum majus. f, g, The anterior edges of the semilunar cartilages.

h, Part of the posterior crucial ligament.

### FIG. 7.

A View of the CRUCIAL LIGAMENTS, as seen in the Back Part of the Joint of the KNEE; the Carsular Liga-MENT being laid open.

The os femoris.

b, c, Its condyles; above which is seen the cut edge of the capsular ligament.

d, The tibis. e, The fibula

f, The posterior crucial ligament.

g, The insertion of the anterior crucial ligament into the

os femoris. h, The edge of the external semilunar cartilage. i, Ligamentous fibres strengthening the joint at the head of the fibula.

### FIG. 8.

Anterior View of the CRUCIAL LIGAMENTS.

u, b, The condyles of the os femoris. c, The tibia.

d, The fibula.

e, The anterior crucial ligament.

f, f, The insertion of the posterior crucial ligament into he os femoris.

g, The ligament of the posterior corns of the external semilunar cartilage, connected with the posterior crucial ligament, and with it fixed to the os femoris.

h, The ligament of the interior cornu of the external semilunar cartilage. i, The ligament of the anterior cornu of the internal se-

milunar cartilage. k, The transverse ligament connecting the anterior cornua

of the semilunar cartilages to each other. I, A slip fixed to the transverse ligament, and connected

with the mucous ligament. m, The external lateral ligament of the knee-

", The inscrtion of the hiceps muscle of the thigh. o, The anterior ligament of the fibula.

#### FIG. 9

A View of the Upper Surface of the Tibia and Semi-LUNAR CARTILAGES.

s, b, The glenoid cavities for lodging the condyles of the os femoris.

The internal semilunar cartilages.

e, The adhesion of the anterior cornu of the external semilunar cartilage to the fore part of the tubeosity on the top of the tibia.

f. The superior ligament of the posterior corpu of this cartilage, connected with the posterior crucial ligament

g, The inferior adhesion of the posterior cornu of the external semilunar cartilage.

h, The adhesion of the anterior cornua of the internal semilunar cartilage to the fore part of the margin of the head of the tibia. The adhesion of the posterior corns to the back part

of the tubernsity of the bead of the tihia. k, k, The common transverse ligament of the semilunar

I, A slip fixing the transverse ligament, and intermixing with the mucous ligament

m, The posterior crucial ligament.

## FIG. 10.

An Outer and Fore View of the LIGAMENTS connecting the Bones of the Tarsus to those of the METATARSUS and LEG.

a, The extremity of the tibia.
b, The malleolus externus of the fibula.
c, The astragalus.
d, The os naviculare.

e, --- cuboides.

f, --- cuneiforme internum.

g, The metatareal bone of the great toe, and, farther out, those of the other toes. h, The anterior superior ligaments of the malleolus ex-

ternus. i, The middle perpendicular ligament of the malleolus

k. The anterior ligament between the fibula and astragalus. k, The anterior ligament between the ligamentous apparatus of the sinuous cavity of the astragalus and os ca

n, The superior ligament connecting the astragalus and os naviculare. o, p, q, Numerous ligaments joining the bones of the tar-

sus to each other, and likewise to those of the metatarsus, and obtaining the names of Perpendicular, Oblique, Lateral, Dorsal, &c. according to their different directions and situations. r, s, t, u, Ligaments which connect the bases of the me-

tatareal bones to each other.

### FIG. 11.

LIGAMENTS between the Under and Rack Part of the Bones of the LEG, and those of the FOOT.

a, A portion of the tibia.

. The os calcis.

d. The

- d, The upper part of the astragalus, upon which the tibia
- c, The posterior-superior ligament of the malleolus externus
- f, A portion of the deltoid ligament.
- g, The inferior-posterior ligament of the malleolus exh, A fibrous ligament between the fibula and astragalus.
- i, A ligamentous slip proper to the astragalus. k. A fibrons slip connected with the capsular ligament.
- 7, The frænulum of the capsular membrane, between the astragalns and os calcis.
- m, The middle perpendicular ligament of the malleolus externus.
- n. The insertion of the tendo ACHILLIS, with its frænulum.

# FIG. 12. LIGAMENTS in the Sole of the FOOT.

- a. The os calcis.
- b, \_\_\_\_ naviculare. c. \_\_\_\_ cuneiforme magnum.

- d, d, A section of the metatarsal hones.
- e, f, The ligaments between the os calcis and naviculare.
  - h, The long ligament of great strength, which connects the os calcis to the os cuhoides.
  - i, The transverse ligament between the cuhoid and external cuneiform bones.
  - k, The ligaments between the navicular and internal cuneiform bones. 1-q, The ligaments connecting the bones of the tarsus
  - to each other, and those again to the metatarsus. r, s, t, The ligaments connecting the hases of the metatarsal bones.

# FIG. 13.

- The Masses of Fat, with their FIMBRIE, which are situated round the Edges of the PATELLA.
- a, The inner side of the patella.
- b, b, b, The masses of fat. these fatty substances.

END OF VOLUME FIRST.

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