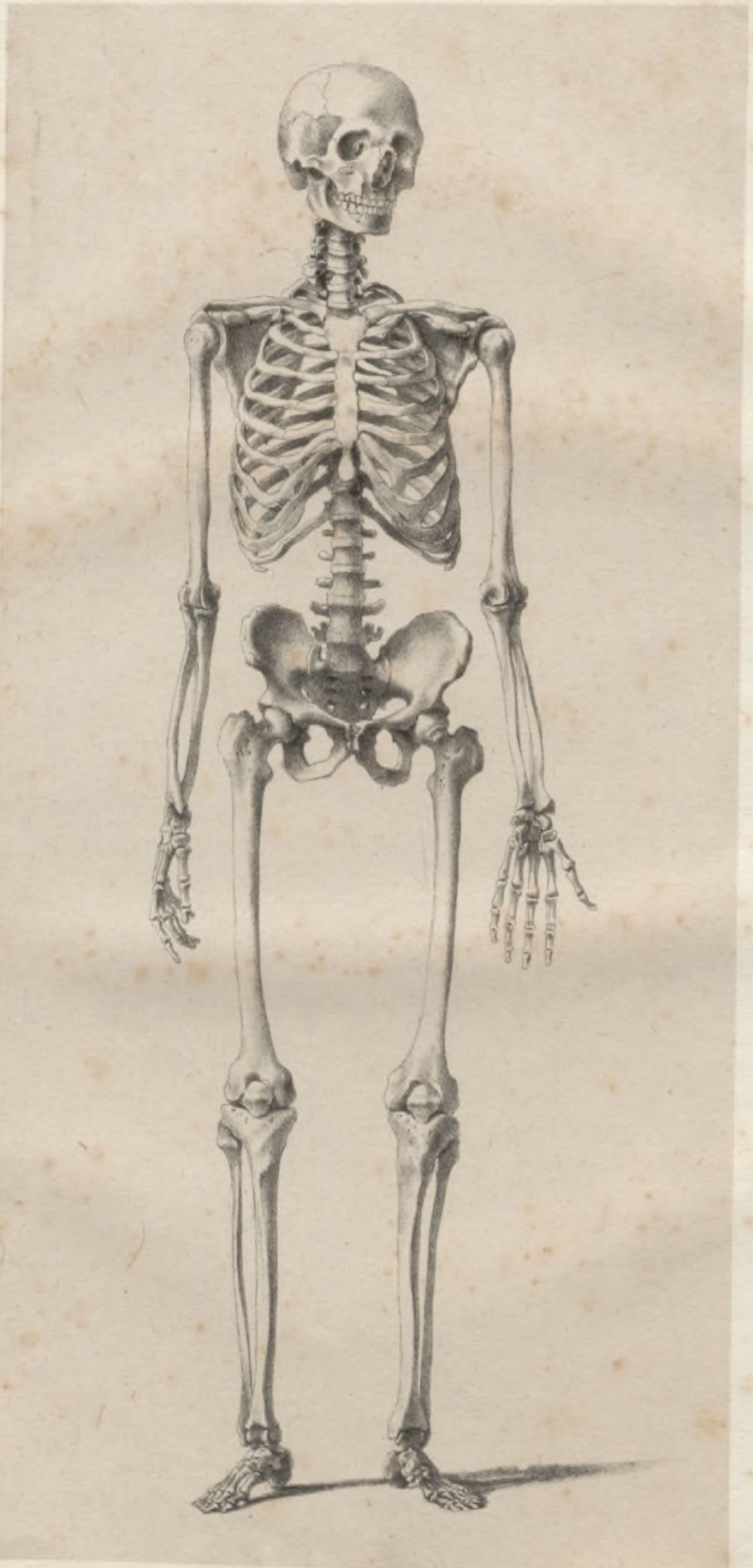
SIMPSON'S ANATOMY

Plate XIV.



Drawn on Stone by L. Hagke.

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THE

ANATOMY

OF THE

BONES AND MUSCLES,

EXHIBITING

THE PARTS AS THEY APPEAR ON DISSECTION,

AND MORE

PARTICULARLY IN THE LIVING FIGURE;

AS APPLICABLE TO THE FINE ARTS.

DESIGNED FOR

THE USE OF ARTISTS,

And Members of the Artist's Anatomical Society.

IN TWO PARTS.

BY GEORGE SIMPSON,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, LONDON; LECTURER ON ANATOMY TO THE ARTIST'S ANATOMICAL SOCIETY, &c.

ILLUSTRATED WITH

HIGHLY-FINISHED LITHOGRAPHIC IMPRESSIONS.

LONDON:

PRINTED FOR THE AUTHOR,

BY J. JOHNSON, APOLLO PRESS, BROOK STREET, HOLBORN.

1825.

Dedicated, by Permission,

TO

SIR THOMAS LAWRENCE, P.R.A.

PRINCIPAL PAINTER IN ORDINARY TO HIS MAJESTY, &c. &c.

SIR,

In being permitted to dedicate to you the following pages, I feel sensible that I am receiving a passport to the favourable sentiments of those for whom they were composed; and should the execution in any point fall short of what might be reasonably expected from such distinguished patronage, I trust the considerations which have impelled me to the undertaking, will operate in extenuation of any imperfections which unpropitiated criticism might be disposed to censure.

The Work is purely elementary, or rather descriptive of the mechanical structure of the Human Frame, and is designed to exhibit those parts of it, in a way that may assist the Student to arrange and dispose of the muscular action with grace and accuracy---one of the indispensable acquirements of that Art, in which you are so pre-eminently distinguished.

DEDICATION.

Anatomy has been, until of late years, less generally attended to by candidates for pictorial honours than it ought to have been. But now that its importance has become apparent in giving facility, and indeed the only sure means of acquiring correct Drawing of the Human Figure, I have felt anxious to devote part of my time to elucidate with clearness and perspicuity, the parts subservient to motion.

Should any efforts of mine, however humble, prove of the slightest use in the advancement of an Art which has conferred such benefits on mankind, and added many charms to life, I shall feel amply repaid; as this circumstance will justify, in some measure, the sanction you have been pleased to afford this Work.

I have the honor to remain, very respectfully,

SIR,

Your much obliged and obedient Servant,

GEORGE SIMPSON.

Carlisle Street, Soho Square,
October, 1825.

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Johnson, Typ. Brook Street, Holborn.

INTRODUCTORY PREFACE.

The Author feels it a duty to make some observations respecting the circumstances which induced him to publish the following Work, when so many elaborate Books on the Bones and Muscles are already before the Public.

He was led to publish this Treatise from the many persuasions and entreaties of his Friends, the Members of the Artist's Anatomical Society; to which, for some time past, he has had the honor of being Lecturer. His connexion with Artists, from his earliest years, having directed a great portion of his studies, to those branches more immediately requisite for their Profession; and the special opportunities which have presented themselves of acquiring a more distinct knowledge of the subject than those persons whose researches are not directed or adapted to the pursuits of Artists, will, he trusts, relieve him of any charge of presumption, for having complied with their wishes.

It is a general opinion amongst Artists, that a simple and explanatory Work on the Anatomy of the Bones, Muscles, and Joints, is *greatly wanted*, as a necessary instruction to those who seek for purity of Design.

Those Works, which of late years have appeared, are, like many other Books of Learning, of very little use from their size, and the minuteness with which the Parts are described; and which, it is submitted, not only tend to retard the progress of the Student by their prolixity, but also to perplex his ideas, and give him a dislike for that study, which is so essential to a more perfect knowledge of his Profession.

"Ever since we recollect any thing, we have been moved by the lamentations of young Artists, complaining of the want of some book, which might teach them the elements and the uses of Anatomy. The difficulty was to find a skilful Anatomist, who understood and sympathized with their wants and distresses, and who could not only detect the errors into which they were led by their ignorance, but could accommodate his instructions to their taste and

capacity, and render his lessons at once intelligible and attractive. Hitherto they have not been favoured, at least in this country, with such an instructor; and the poor Painter has been obliged, either to persuade himself that there was no use in Anatomy, or to make a desperate attempt to acquire a knowledge of it from catalogues of hideous names, and try tabular plans of Bones and Blood-vessels; relieved occasionally with Surgical and nosological observations, and remarks upon every thing but the applica- of this learning to his profession." *See No. XVI. of Edinburgh Review.*

The Author, to make this Work the most useful of its kind, has consulted the best Anatomists, eminent for their accuracy and skill. He has endeavoured, throughout the whole, to avoid a too frequent use of technical descriptions, which often give an idea of more erudition than is really possessed by many Writers; at the same time, he has consulted every part of the subject, which may impress the value and necessity of the study. Great care has, therefore, been taken in selecting the Drawings requisite to elucidate the Letter-Press; and

the whole has been studiously simplified, without being, it is hoped, thereby rendered the less instructive and interesting.[a]

The Bones described are those of Adults; and every thing connected with the details of Surgery or Physic has been carefully avoided. The Book, being elementary, is intended to allure the Student in the Fine Arts, to the study of the noblest of Sciences. A Science, which developes the secret springs of Human Organization—which expands the knowledge we have of the Great Creator of the Universe, and gives a value to our researches, by the possession of accurate and comprehensive data!

Anatomy is unquestionably the basis of the Fine Arts, and indispensable to the Painter, the Sculptor, and the Engraver. It is to these branches, what Physic is to Surgery, of no value without the aid of each other, and both together frequently perform wonders: what can be more disgusting than to see the finest drapery defaced by an Arm or a Leg too long, or ridiculously fore-shortened, and one Muscle substituted

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[a] The Original Drawings were made by a Gentleman of the name of Cooley.

for another, when the whole action of the Body is deformed and indisposed by the ignorance of the Artist.

"Singula Membra, suo Capiti conformia, fiant
Unum idemque simul Corpus cum vestibus ipsis."

To this Work are added Lithographic Impressions of the Human Bones, Joints, and Muscles, drawn from Nature, as they should distinctly appear on the Living Figure, and demonstrating with exactness, the motion of the various Joints and their respective Muscles.

The Minutiæ of the component parts of the Human Body will be omitted, not being required by those who study Anatomy for the Fine Arts.

The Author flatters himself that this Work will assist those Gentlemen who favor him with their attendance at his Lectures, by enabling them to comprehend his ideas, and manifesting the truth of his observations, and may possibly be of greater benefit, from his having some knowledge of the Painter's Art, than a more complete Work from an abler hand.

PART THE FIRST.

OSTEOLOGY;

OR,

THE ANATOMY OF THE HUMAN BONES.

THE first great object of an Artist, or of one who wishes to become learnedly conversant with the Polite Arts, is to make himself thoroughly acquainted with the various Bones composing the Human Skeleton, which is the foundation or basis on which all the other parts are built; and then proceed immediately to the study of their Processes and Articulations with each other, which are so necessary to be known by Painters.

It is impossible for the Student to understand the names, origins, and insertions of the various Muscles, together with the nature of their action, and the uses to which they are particularly appropriated, without having a thorough and complete knowledge of the Skeleton.

Bones are the hardest and most solid parts of the Human Body, serving for the support and attachment of all the softer portions. They contribute to the fixed proportions, give firmness to the Body, and are covered by a peculiar Membrane, named the Periosteum, one of the principal uses of which is, to allow the Muscles, when they contract or are extended, to move easily upon the Bones, and to afford convenient attachment to this Membrane.

It is a well known fact, that the Bones increase in size and weight until we arrive at years of maturity, when they continue nearly the same until old age commences, they then become lighter, thinner, and firmer, and are more apt to be fractured than those of young Persons, owing to an increase in the proportion of the earthy particles: the Cavities, or Articulating surfaces, are also deeper and larger.

The Protuberances, or Processes of Bones, serve for the convenient attachment of various Muscles, and render the Articulations firm and strong.

The Bones, when joined, preserved, and hung together in their proper situations, constitute the Skeleton, solid frame work, or stature of the Human Body. There are two kinds of Skeletons, the one termed Natural, and the other Artificial. By a Natural Skeleton, we understand the Human Bones kept together by their own proper *Ligaments;* but an Artificial one is when the Bones have been separated from each other for the purpose of being cleaned, and then put together by means of wire, cork, or any other artificial substance, which is not a part of the creature to which they belonged.

The Bones, besides giving shape and firmness to the Body, and attachment to the Muscles, defend important Viscera or Organs, as the Brain, which is surrounded and guarded by a bony case, and which, forming a convex surface externally, resists or wards off blows. In the same manner the Spinal Column, which is formed of the Vertebræ, gives strength and motion to the Body, and protects from common accidents the Spinal Marrow, the least injury of which would inevitably prove fatal.

Bones differ very much from each other in their size, figure, situation, and use, and from these circumstances Anatomists have named and classed them. But as too many classifications are calculated to perplex the reader, the Author has only divided them into the Broad and Flat Bones, and the Long and Cylindrical, which will very nearly include all the Bones of the Human Body, and all those particularly requisite for an Artist to be acquainted with.

The Broad and Flat Bones, when first formed, are nearly of an equal thickness throughout, but as they advance in growth, many of them become compact, thin, and dense, from the great pressure and action of the bellies of the Muscles and surrounding parts; this is apparent from the muscular impressions seen on the surfaces, and from the ridges or spines which arise, so strongly visible in the laboring classes.

The Long and Cylindrical Bones are much stronger in their middle, than at their extremities, where the Bone swells out, that their articulations may be firm and strong, and the Bones not easily put out of joint. It is indis-

pensably necessary that the Bones of the extremities should be of a cylindrical figure, and have thick strong walls in their middle, to resist external pressure and violent injuries.

The Bones of the lower extremities are much more solid and strong than those of any other part of the Skeleton, because they have to support the weight of the Body. In the Flat Bones, (like those of the Cranium) not intended for motion, their edges become mutually indented, resembling the teeth of a saw, and are termed Sutures.

Those Bones intended for motion are prevented from uniting to each other, by the Cartilages which cover their articulating surfaces; but sometimes when diseased, they grow together. The eminences or processes of Bones render the Joints stronger, and make greater room for the origin and insertion of Muscles, and increase their loco-motive power, by removing their axis from the centre of motion.

Many of the processes of the Bones in an Adult, have been Epiphyses, or distinct Bones in a child, being only part of a Bone, united by an intermediate Cartilage; such are the Trochanters of the Thigh Bones, and the

processes of the different Vertebræ. The growth of the Bones is not completed in the Human Body until about the twenty-first year.

On the external surfaces of many Bones there are articulating cavities. If these are deep with a large brim, similar to the Acetabulum of the Os Innominatum, they are called Cotyloid, but when superficial, or shallow, as in the Scapula or Temporal Bones, they are termed Glenoid. The cavities are for the reception of the heads of Bones, allowing them to move freely in various directions. The processes are named from their use, shape, or direction, as the Trochanters of the Thigh Bone, angles of the lower Jaw, and perpendicular, oblique, transverse, processes, &c. If a protuberance be round, as in the upper ends of the Thigh, or Shoulder Bones, it is termed Caput, or *Head*, and the round part immediately below it Cervex, or *Neck*, and if the Head be flattened at the sides, as in the lower extremities of those Bones, it is named Condyle.

The Human Skeleton is usually divided into three parts; viz. the Head, Trunk, and Extremities.

THE HEAD.

THE HEAD is all that spherical part which is situated above the first Bone of the Neck, and therefore includes the Bones of the Cranium or Skull, and Face; and forms as it were the dome, or cupola to the whole edifice.

The Cranium is composed of several pieces, which, being joined together, form a considerable vaulted cavity for containing and defending the senses. Its shape is in general spherical, being flattened, or a little depressed at its sides. There is no part of the Human Skeleton which requires deeper consideration from the Artist than the present---for the bony structure of the Head is a more complete fabric, and assumes on dissection, a nearer shape to the entire Body, than any other part of the Skeleton. In no two Skulls will the shape, processes, and individual character be found exactly alike, as they differ in age, sex, and marks of strength.

The Student should examine the Skull minutely, and make observations on it in writing, it being the seat of many noble organs.

The Study of the Anatomy of the Head is most important; because, by that means, we become acquainted with Physiognomy, and the National character of the Individual. To the Anatomist, it has always been a subject of difficult acquirement; but to Artists, who have only to take it as a whole, it will prove far more easy, the contour and dimensions being all he has to acquire.

The Head is divided into the Cranium or Skull, and Face; the latter of which is formed of an irregular pile of Bones, situated in the fore part of the Head.

The Adult Cranium consists of eight Bones, only six of which it is necessary for an Artist to be acquainted with, viz. one Os Frontis or Bone of the Forehead, which constitutes the fore and upper part of the Head, Face and Orbits; the Ossa Parietalia, two broad and flat Bones, which form the upper portion and sides of the Cranium, and

derive their name from their forming the walls; the Ossa Temporum, two irregular shaped Bones, placed below the Parietal, and which form a part of the sides and base of the Cranium and Cheeks; and the Os Occipitis, forming the back part of the Head, and a great portion of the base of the Skull.

On viewing the upper part of a Skull the Bones of the Cranium will be found joined together, in a dove-tail or zig-zag form, composing so many seams, which are called Sutures. There are five Sutures belonging to the Head. The first is the Coronal, which unites the Frontal Bone to the two Parietal, and commences at the side of the Head, about an inch and a half behind the external angular process of the Os Frontis, and then proceeds upwards and backwards across the Head to the other side. This Suture derives its name from its being the place where the Ancients wore their Coronæ or Garlands. The second is the Lamb-doidal, and joins the Occipital Bone to the two Parietal, and commences at about the same distance behind the Ear, as the other did before it, and takes nearly

the same direction across the Head; this is by some Anatomists called the Occipital Suture. The third is the Sagittal, it is seen at the superior part of the Head, connecting the two Parietal Bones, and extends from the middle of the Coronal Suture straight to the Lamb-doidal. The fourth and fifth are termed the Squamosœ, or Temporal Sutures, and join the Squamous, or thin portions of the Temporal Bones to the Parietal. These two Sutures form arches almost corresponding to the semi-circular ridges which are formed by the origin of the Temporal Muscles.

The Bones of the Cranium ossify from their centre, and the fibres proceed in radii towards the circumference, where their edges become mutually indented, so as to form the Sutures just described.

The Bones of the Cranium are not only joined to each other, but are also connected to the Bones of the Upper Jaw by three other Sutures, the principal one of which is named the Transverse, and is seen crossing the upper part of the Face, uniting it to the Bones of the Cranium.

The great varieties in the external form of the Skulls of different nations are particularly deserving the attention of the Student, and he should carefully observe their individual characteristics, by comparing the Heads of Europeans with those of Asiatics, Africans, and Americans:—their most obvious difference chiefly consisting in the relative proportions of the Cranium and Face, and which is generally indicated, though not always very accurately, by the inclination of an imaginary line, drawn from the Os Frontis to the Mental process of the lower Jaw, and which is generally called the facial line.

There are certain boundaries to the Head, with which the Student should make himself acquainted; namely, the Vertex or Crown, which is the superior part; the anterior part or Forehead; the posterior or Occiput; the sides or Temples; and the inferior part or Basis.

DESCRIPTION OF THE BONES OF THE CRANIUM, WHEN JOINED TOGETHER.

Os Frontis. The Frontal Bone forms the Forehead and upper parts of the Orbits. It is of a semi-circular shape, and when separated from the other Bones, is said to resemble a cockle shell.

The Student should particularly observe on its external surface the following parts: the two superciliary ridges or arches, on which the Eyebrows are placed, and that the size and length of each correspond to the Eyebrow which it supports; the space between the two, and their projections and terminations at the outer and inner parts of the Eyes, forming the four angular processes; the two external constitute the outer angles of the Orbits, and are connected to the upper portions of the Malar, or Cheek Bones:—the two internal form the inner angles of the Orbits, and are joined to the principal Bones of the Face. Between the inner angles, the Ossa Nasi, or Nasal Bones are attached: the external convex surface of the Bone is smooth and

arched, and in some Skulls we may distinguish the two Frontal eminences, or centres of Ossification. Where the Bone assists in forming the Orbits, it is very irregular, and has several processes and cavities: the sides of the Bone are flattened where the Temporal Muscles begin to arise.

Ossa Parietalia. These are two broad and flat Bones, one being situated on each side of the superior part of the Cranium, forming by far the greatest portion of the bony cavity for containing the Brain. Each Bone is considerably convex, and smooth externally, and on its outer surface, about an inch and a quarter above the serrated edge, where it is joined to the Temporal Bone, and forms the Squamous Suture, will be seen a white and semi-circular ridge, from which the Temporal Muscle has its origin. The Parietal Bones, are somewhat of a quadrangular shape, having four angles, and being surrounded by the same number of serrated edges, which serve for the purpose of uniting them together, and also to the other Bones of the Cranium. They are perfectly formed in the Fœtus, partaking of the Adult shape, and in the middle of each may be seen the centre of Ossification.

Os Occipitis. The Occipital Bone is situated in the posterior part of the Head, forming the back and under part or base, and has two articulating processes, that join the Head with the Vertebral, or Spinal Column. To this Bone many great and important Muscles are attached, which move the Head and Neck in various directions. The outer part of the Bone is, like the others, convex, but irregularly so; and the under part is stretched forwards, in order that it may be joined to the Os Sphenoides, to complete the base of the Cranium. On the external surface will be seen two transverse ridges, the superior one for the attachment of the Trapezius and Complexus, and the inferior for the Recti Muscles. In the centre of the upper ridge there is a projection or thickening of the Bone, which is named the Occipital Tubercle, and from this proceeding downwards there is another ridge, which crosses the former, and is called the Perpendicular Spine.

The Processes of the Occipital Bone are very few; namely, the two Condyles or oval projections, which stand off from the sides of the Foramen Magnum Occipitale, and connect the Head with the Atlas, or first Vertebra

of the Neck. They are of a prominent shape, rather oval, and at the fore part they approach each other, whilst their posterior extremities diverge at some distance.

Man being designed for the erect attitude, the Foramen Magnum is found in the middle of the base of the Skull; whereas in quadrupeds it is placed nearer the back part of the Occiput. The Foramen Magnum transmits the Spinal Marrow through the whole length of the Vertebral Column: this Bone, in the Fœtus, consists of four portions.

Ossa Temporalia. The Temporal Bones are two in number, situated one on each side of the Cranium, of an irregular shape, completing the sides, and forming a part of the base. Each Bone is usually divided into three portions, the Squamous, the Petrous, and the Mammillary.

The Pars Squamosa, or thin scaly portion, is smooth, flat, and forms with the Parietal Bone, (as before described,) the Squamous or Temporal Suture, and a part of the side of the Cranium. The Pars Petrosa or petrous portion, is very irregular, hard, and craggy, situated at the sides of the

basis of the Skull, and is somewhat of a triangular shape. The Pars Mammillaris, or mammillary portion, is the Occipital angle or back part of the Bone, which forms a part of the Lambdoidal Suture.

The number of processes belonging to the Temporal Bone, are five, but only the three following claim the Artist's attention: 1st. the Zygomatic process, which rises broad before the Ear, gradually becomes narrow, and is stretched forward to be joined to a process of the Malar, or Cheek Bone, and here forms the Zygoma, or arch, underneath which the Temporal Muscle passes, to be inserted into the lower Jaw, or Os Maxillare Inferius: from the lower part of the Zygoma, several Muscles of the Face take their origin, particularly the Masseter and Zygomaticus major: 2nd. the Mastoid or Mammary process, which is situated behind the Ear, derives its name from its supposed resemblance to a nipple, and has inserted into its point the Sterno Cleido Mastoideus, which is a very important Muscle, and should be observed by the Artist: 3rd. the Styloid process, which is long and pointed, varies in size, from an inch and a quarter to two inches in length, and derives its name

from its supposed resemblance to a Stiletto. This process gives origin to a great number of Muscles, which proceed to the Throat, Tongue, and Jaws, but as none of them are superficial, they will be passed over unnoticed.

In the under part of the Bone behind the root of the Zygomatic process, there is a Glenoid, or shallow cavity, which lodges the hinge of the lower Jaw, or Os Maxillare Inferius. These Bones support and defend the middle lobes of the Brain, and contain the organs of hearing.

THE BONES OF THE FACE.

The Face is formed of fourteen Bones, most of which are small, grouped together, and usually divided into the upper and lower Maxillæ or Jaws. The upper Jaw is formed of thirteen Bones, six on each side of the Face, and one in the middle of the Nose, dividing it into two Nostrils. The lower Jaw consists only of one Bone, which is said somewhat to resemble a horse-shoe.

Of the fourteen Bones forming the Face only the seven following require the Artist's attention: the Ossa Nasi, the the Ossa Massillaria Superiora, the Ossa Malarum, and the Os Maxillare Inferius.

In the examination of these Bones, the Student should particularly notice those parts which give individual character, such as the oblong and quadrangular shape of the Nasal Bones, together with their arch, and the obliquity of their situation; the irregular shape, projections, and curve of the upper Jaw Bones, and the way in which they assist in forming the Orbits, Nose, and Palate; the distance, prominence, obliquity, and quadrangular shape of the Malar or Cheek Bones, and their connections by Suture to the Frontal, Temporal and Superior Maxillary; the projection, curve, and distance between the angles of the Os Maxillare Inferius, or that part of the Jaw where the base terminates; the squareness of the Chin, or Mental process of the Face; the lower Jaw being one of the most important, as it is articulated by two processes to the Temporal Bones, and forms a kind of hinge joint, which has a limited lateral motion for grinding the food.

The Student cannot make himself too well acquainted with these Bones, as it is by a knowledge of their inflections, that we are enabled to impart to the canvass the various passions of the human mind---all other motions of the Body must be in keeping, but subservient to these. Let the Student examine the works of Raphael, or Poussin, to see how beautifully this truth is illustrated, and then

"Accuse not Nature, she hath done her part;
Do thou but thine; and be not diffident in Wisdom."

THE TRUNK.

The Trunk of the Skeleton is usually divided into the Spine or Back-bone, Thorax or Chest, and Pelvis or Basin: the latter of which forms the base or lower part of the Trunk of the Skeleton.

THE SPINE.

The Spine derives its name from a number of pieces of Bone firmly tied together, which project at the Back, and

form a kind of continued ridge. It is formed of twenty-four distinct Bones, named Vertebræ, which are intimately connected, and lie one on the other in a similar manner to the tiles of a house. These constitute an elegantly bent, hollow column, for containing and defending the Spinal Marrow from injury, and for giving strength and motion to the Body, and attachment to the surrounding Muscles.

The Vertebræ are arranged from their situation, into seven Cervicle of the Neck, twelve Dorsal of the Back, and five Lumbar of the Loins, and each of these classes has its particular character. They are connected together by an elastic, yielding kind of ligament, named the intervertebral substance, which is interposed between every two adjoining Vertebræ. In any violent exercise, its elasticity prevents the Spine receiving any shock.

The Spine is best viewed in a lateral position, as its true curvature will then be perceived. In the Neck it will be seen projecting forwards to support the Head, but where the Thorax commences, it bends in a curved direction backwards, to enlarge the cavity, and to allow room for con-

taining the Heart and Lungs. In the Loins it again projects forwards, as in the Neck, in a direction with the centre of gravity.

The motions of each individual class of Vertebræ are limited. The Cervicle admit of peculiar and extensive motions; the moving of the Head backwards and forwards, as in nodding, is performed by means of the joint formed by the Condyles of the Occipital Bone, with the Atlas or first Vertebra of the Neck; the Head rotates, or turns from side to side, by the Atlas moving on the second Vertebra or Dentatus, which has a tooth-like process for that purpose. The remaining lower Vertebræ of the Neck are totally free, allowing many graceful movements to the Head and Neck, and assist the motions just described. The Dorsal Vertebræ admit of very little motion; and the Lumbar allow a considerable bending forwards, so that there is a general twisting and bending of the whole Spine, forming many graceful attitudes.

In each Vertebra there is a variety of parts to be described, such as the body, processes, cavities, surfaces,

margins, &c.; but it will be sufficient for the Artist's purpose, to notice the general form, body or fore-part, transverse or side processes which stand out from both sides of the Bone, and give attachment to the Muscles that move the Spine; and the Spinous or sharp process, which with the others, gives the whole an appearance of a ridge, from which, as before stated, it derives its name.

The first two Vertebræ have distinct names, and are particularly to be distinguished from the rest, by the following circumstances. The Atlas, which is so named because it supports the globe of the Head, is the only Vertebra which has no body or Spinous process, but forms a kind of bony arch or ring. The Dentatus or second Vertebra, is so termed on account of the tooth-like or dentiform process which arises from the upper part of the body of the Bone, and is surrounded by the ring of the Atlas.

The Vertebræ as they descend, increase in size, vary in figure, and become stronger from their having to support the weight of the Head, Arms, and Trunk.

THE THORAX.

The Thorax or Chest forms the superior part of the Trunk, and resembles an arched bony cavity, being narrow above and broad below, flat anteriorly, concave posteriorly, and convex laterally. The Bones constituting the Thorax, are the Sternum or Breast Bone, the twenty-four Costæ or Ribs, and the twelve Dorsal Vertebræ already described.

THE RIBS.

The Ribs are of a semi-circular shape, twelve on each side of the Dorsal Vertebræ of the Back, their extremities are broad and flat as they approach the Sternum, but where they are joined to the Vertebræ, they are round and thick. They give form to the Chest, by extending obliquely from the Back, round towards the Sternum or Breast Bone, to which they are joined by strong Cartilages. By their conjunction with the Vertebræ they form hinges, which allow of their being elevated or depressed, as in breathing.

The Ribs are generally distinguished on each side, into the seven true, and five false; the seven true are those which by their Cartilages are attached to the Sternum, and the five false are those whose extremities are not connected thereto, but are joined together with the exception of the last two, which are loose before, and in consequence have obtained the appellation of the Floating Ribs. They increase in length from the first of the true to the seventh, and then gradually diminish to the last, or twelfth of the false.

Each Rib may be divided into the following parts. The Body and two extremities; the Head which articulates with the Bodies of two of the Dorsal Vertebræ; the Tubercle which is joined to the transverse process; and the Angle which appears as though it were formed by a considerable twisting or turning forward of the Rib.

They assist in forming the fore-part and sides of the Chest, serve for the attachment of Muscles, and defend the respiratory Organs.

THE STERNUM.

The Sternum or Breast Bone, is of a long flattened shape, and is situated in the fore-part of the Chest between the true Ribs, completing that cavity. In the Adult it is formed of three pieces of Bone, namely, the superior or broad triangular portion, the middle or long square portion, and the inferior or sharp-pointed ensiform Cartilage.

On its external surface will be seen a number of transverse ridges or inequalities, showing the original separation of the Bone into a number of small pieces. This Bone has sixteen cavities, seven on each side for the true Ribs, and two at the upper end for the heads of the Clavicles or Collar Bones, which form a fulcrum or point for the Clavicles to roll in.

THE PELVIS.

The Pelvis, which forms the basis of the Trunk, is so named from its resemblance to a basin. It gives a steady

and firm support to the upper part of the Trunk, and being interposed, connects the Bones with those of the lower extremities. It consists, in the Adult, of four Bones, the two Ossa Innominata or Haunch Bones; the Os Sacrum, or the Bone which is said to have been offered in sacrifice by the Ancients; and the Os Coccygis, so named from its similitude to the beak of a cuckow. These Bones form together a large cavity, for containing and protecting the organs of generation, and part of the small intestines; and should not only be studied separately by an Artist, but as a whole, for then the differences between the male and female Pelvis will be observed. In the female, the capaciousness considerably exceeds that of the male: the upper portions of the Ossa Innominata are much more expanded: the Os Sacrum is broader and more concave: the upper opening of the Pelvis, which is delineated by an acute line named Linea Innominata, is of an oval shape, being wider from side to side, than from the fore-part to the hinder, whereas in the male it is rounder, and altogether of less diameter.

The Author is of opinion that he cannot give the

Reader a better idea of the differences of a male and female Skeleton, than by copying the following description from a well-known writer. "The marks of a female Skeleton have been sought for in the Skull, as in the continuation of the Sagittal Suture; but the truest marks are those which relate to that great function, by which chiefly the sexes are distinguished; for while the male Pelvis is large and strong with a small cavity, narrow openings, and Bones of greater strength, the female Pelvis is very shallow and wide, with a large cavity and slender Bones, and with every peculiarity which may conduce to the easy passage of the child. And this occasions that peculiar form of the Body which the Painter is at great pains to mark, and which is indeed very easily perceived: for the characteristic of the manly form is firmness and strength, the shoulders broad, the haunches small, the thighs in a direct line with the body, which gives a firm and graceful step. The female form, again, is delicate, soft, and bending; the shoulders are narrow, the haunches broad, the thighs round and large, the knees of course approach each other, and the step is unsure. The woman, even of the most beautiful form, walks with a delicacy and feebleness, which we come to acknowledge as a beauty in the weaker sex."

OSSA INNOMINATA.

THE Ossa Innominata are two broad and irregular shaped Bones, constituting the sides and fore-part of the Pelvis. Each Bone, from its being divided in the Fœtus into three separate pieces, retains in the Adult its original name of Os Ilium or Haunch Bone Os Ischium or Hip Bone, and Os Pubis or Share Bone.

The Os Ilium is the uppermost and largest portion, and is named from its forming what is vulgarly termed the Flank. The eminences are the Crista or Spine, which forms an arch, and from which two of the principle Muscles that constitute the walls of the Abdomen take their origin; this terminates in front in two sharp-pointed Spinous processes; the superior one gives attachment on the outside to the Tensor Vaginæ Femoris Muscle, and before to the Sartorius; the inferior Spinous, which is situated about an inch below the former, gives adhesion to the Rectus Femoris, or strait Muscle of the Thigh.

The external Iliac surface or Dorsum of the Bone is covered by the great Glutei Muscles, which rotate and move the Thigh in various directions. At the posterior part of the Crista or Spine, there is a rough, unequal, broad surface, by which it is joined to the Os Sacrum.

On the Os Ischium or Ischiatic portion, which is situated perpendicular to the Ilium, there are only two parts to be attended to, namely, the Great Tuberosity, on which we sit, and which gives attachment to the Muscles on the back part of the Thigh, forming the two Ham-strings; and the Spinous process, which is stretched outwards and backwards.

On the Os Pubis or Pubic portion, which is the smallest division of the Os Innominatum, the Artist has only to observe the Body, which is near the great cavity for receiving the Thigh Bone; the Angle; the part which, with its fellow, forms the Symphysis Pubis, and the Tubercle into which Pouparts or Fallopius's ligament is inserted. This Bone completes the brim of the Pelvis, and the Acetabulum or deep socket in which the Thigh Bone is lodged.

What has been stated respecting the Ossa Innominata, is sufficient for the study of any branch of the Fine Arts; but the Reader must be apprised, that there are a number of parts belonging to these Bones, not yet described, which are only necessary to be known by those studying Surgical Anatomy.

OS SACRUM AND OS COCCYGIS.

The Bones of which the Os Sacrum and Os Coccygis are formed, are termed false Vertebræ, from their having been originally separated into distinct pieces, as the Vertebræ of the Neck, Back, and Loins.

The five Vertebræ of which this Bone is composed in the Fœtus, become united, or ossified together, as we advance to manhood, and constitute a firm and triangular shaped Bone; their original separation into the number of pieces before mentioned, is distinctly observable by the transverse lines on the surface.

The Sacrum has a number of knotty appearances,

resembling the spinous, transverse, and oblique processes. At the upper part of the Bone there are two superior articuculating processes, which join it with the last Lumbar Vertebra. The Bone is situated at the lower part of the Spine, and is sometimes described as forming a part of it, completing the posterior and inferior part of the Pelvis. It gives support to the Spine, and is connected laterally by two broad, rough, and indented surfaces to the Ossa Innominata, and inferiorly, by the Apex, to the Os Coccygis, which is merely an appendage of three or four small irregular shaped Bones, to the point of the Sacrum.

THE SUPERIOR EXTREMITIES.

THE SUPERIOR EXTREMITIES hang from the upper and back part of the sides of the Thorax. Each extremity consists of the Bones of the Shoulder, Upper-Arm, Fore-Arm, and Hand, and it is worthy of remark, that the Superior Extremity is not connected with the Trunk, in the same way as the Inferior, but is left depending by the intermediate Clavicle or Collar Bone.

THE SHOULDER.

THE Shoulder is composed of two Bones, the Scapula, or Shoulder Blade, and the Clavicle, or Collar Bone. These Bones are joined together directly over the superior part of the Head of the Humeris, or Bone of the Upper-Arm, and serve as a protection for defending the Shoulder joint from external violence.

THE SCAPULA.

THE Scapula, or Blade Bone, is one which merits particular attention from the Artist, as there are a number of external processes and angles, which are uncovered by Muscles. It is of a triangular shape, and is placed in the superior and lateral part of the Back. The external surface is a little convex, and is divided by a considerable ridge of firm and strong Bone, into two unequal and irregular cavities.

There are three processes: 1st. the Spine, which runs on the outer surface from that edge of the Bone named the

Base, which is parallel to the Vertebræ of the Back; it rises broad and flat, and proceeds upwards obliquely, becoming gradually broader as it approaches the top of the Shoulder, where it terminates in the Acromion process: 2nd. the Acromion, which is broad and flat, and at the fore-part has a small flattened surface, for receiving the Scapular extremity of the Collar Bone: 3rd. the Coracoid, which is a considerable and strong process opposite the Acromion, and derives its name from its similitude to the beak of a crow.

There are three Angles, distinguished from each other by their situation, into the superior, inferior and anterior. The one above the Spine of the Scapula, near the Dorsal Vertebræ, is the superior; that below it, the inferior, over which the great Muscle of the Loins and Back proceeds to be inserted into the Upper-Arm; the anterior is under the Acromion. The upper side between the superior and anterior angles, is called the Superior Costa; the side between the anterior and inferior angles, the Inferior Costa; and the extremity between the upper and lower angles, the Base.

There is an articulating cavity (which is placed on a narrow point of the Scapula, called the Neck,) for receiving the Bone of the Arm, and from its being shallow, is named Glenoid. On the back of the Shoulder Blade, above and below the Spine, there are two triangular cavities, denominated Supra Spinal, and Infra Spinal, and which are filled up by two Muscles bearing the same name.

To the upper edge of the Spine is inserted the Trapezius Muscle, and directly opposite, from the lower edge, arises the Deltoides, or great Muscle, which forms the contour of the Shoulder. The Coracoid process has three Muscles attached to it; namely, the Pectoralis Minor, the Coraco Brachialis, and the short head of the Biceps Flexor Cubiti.

The Scapula slides easily upon the Trunk, from there being several layers of Muscles between it and the Ribs, and yields to any shock or violence that it may receive, and by that means prevents luxation of the Shoulder, which must otherwise, in a variety of cases, eventually have happened. The Shoulder is very loose, moveable, and free in all its motions.

THE CLAVICLE.

The Clavicle or Collar Bone is situated almost horizontally between the Sternum and Scapula, in the fore, upper, and lateral parts of the Thorax. It is rather long and cylindrical in its shape, and was named by the Ancients from its supposed resemblance to an old fashioned key. The Clavicle serves as an axis for the whole upper extremity to roll on, and regulates the motion of the Scapula, by preventing its being moved forwards or backwards too much.

The Clavicle being somewhat of the shape of a cylindrical Bone, is distinguished into a Body or middle part, and two extremities, the latter of which are distinguished from each other by the terms Scapular and Sternal. The Scapular extremity is a little flattened, and of a triangular figure, but the Sternal is of a round and button-like shape, and is received into a cavity of the Sternum, where it is continually moving. This is the only Bone which connects the Superior Extremity to the Chest.

The Joint formed by the Clavicle and the Acromion process of the Scapula, admits of very little motion. To this Bone are attached the following important superficial Muscles: the Trapezius, Deltoides, Platysma Myoides, Sterno Cleido Mastoideus, and Pectoralis Major.

THE UPPER-ARM.

The Os Humeri, or Bone of the Upper-Arm, is long and cylindrical, thickest at its extremities. It is very round and regular towards the upper end, but at the lower, it appears as though it had been taken between the hands, and made flat by twisting.

The parts to be described are as follow: the Caput or Head, which is very large and round on the superior part, and is received (as before mentioned) into the Glenoid cavity of the Scapula; the Cervix or Neck, which is a rough line immediately below the head of the Bone, and has inserted into it the Capsular ligament; the two Tubercles, which are of unequal size, are separated from each other by the Bicipi-

tal groove, which lodges the tendon of the long head of the Biceps Flexor Cubiti; the greater one, which is on the outside of the Arm, near the Neck, has implanted into it three superficial Muscles, which are situated on the back of the Scapula; namely, the Supraspinatus, Infraspinatus, and Teres Minor; the lesser Tubercle has only one Muscle connected to it, the Subscapularis; the edges of the Bicipital groove are continuations of the Tubercles, and on the inside of this groove are fixed two important Muscles, namely, the Latissimus Dorsi, and Teres Major; but, on the outside, only one is connected, the Pectoralis Major. On the external part of the Bone, about its middle, there is a rough elevation, formed by the insertion of the Deltoides, and origin of the Brachialis Internus; and towards the lower extremity of the Bone, at its sides, are two ridges or Spines, which terminate in two flattened projections, called Condyles, of which the internal is the larger, on account of its giving origin to the Pronator and Flexor Muscles of the Hand, which are used in grasping, bending, or pulling, greater strength being required to perform these actions: from the external arise the Supnator and Extensor Muscles: these processes articulate the Upper-Arm to the Ulna

and Radius, the Bones which constitute the Fore-Arm. Between the Condyles there are two deep, hollow cavities, which receive two processes, belonging to the Bones just mentioned, hereafter to be described.

The Os Humeri and the Bones of the Fore-Arm, compose the Elbow joint, which admits only of flexion and extension, the first motion being performed by the Flexor Muscles, situated on the fore-part of the Os Humeri, and the second by the Extensors on the back.

THE FORE-ARM.

THE Fore-Arm is composed of two Bones, the Ulna and the Radius, of which the latter belongs more properly to the Wrist, being articulated to the first two Bones of the Carpus, and moving with the Hand in all its rotatory motions. The Ulna belongs more particularly to the Elbow joint, as the bending and extending motions are performed by this, and the Bone of the Upper-Arm.

THE ULNA.

This Bone constitutes the principal support of the Fore-Arm, and lies on its inner side. It is longer than the Radius by the length of the Olecranon process, and partakes somewhat of the shape of that Bone, with this exception, that it is thicker above than below. The eminence upon which we rest the Elbow, is the Olecranon process, which is large and situated posteriorly; and serves as a lever for the Muscles to act on, and is strongly articulated with the Humeris, in order to prevent any lateral motion taking place, and also secures the joint from any violence that might be opposed to it, which would cause a dislocation: on the back of this process will be found a small Tuberosity, for the insertion of the tendon of the Triceps Extensor Cubiti Muscle. Immediately opposite to the Olecranon, placed anteriorly, is the Coronoid process, which completes the hinge joint, and gives insertion to the Brachialis Internus Muscle. There is a small excavation or semilunar cavity, on the outside of this process, for the button-like Head of the Radius to roll in. Between the Olecranon and Coronoid process, is a large

semi-circular cavity, which receives the largest or internal Condyle of the Bone of the Arm. The Body of the Bone is divided into smooth and flattened surfaces, by sharp Spines, which give attachment to Muscles, and to the ligament which connects the two Bones of the Fore-Arm together. The Ulna, as it approaches the Wrist, gradually decreases in size, and terminates in a small head and Styloid process, the head being received into a small cavity on the side of the Radius.

THE RADIUS.

THE Radius is situated on the outer side of the Fore-Arm, on a line with the Thumb, forming the external and anterior part. It is shorter than the Ulna, and assumes somewhat of the triangular form of that Bone, being connected at its smallest or superior extremity, to the Bone of the Upper-Arm.

The Radius at its upper part has two processes: 1st. the button-like head, which is small and round, has a cavity

to receive the external Condyle of the Humeris, and rolls in a small semilunar cavity, at the outer side of the Coronoid process of the Ulna: 2nd. a considerable Tubercle about an inch below the head, for the insertion of the tendon of the Biceps Flexor Cubiti. Round the Head is the Neck, into which the coronary, or rotatory ligament, is implanted; and along the body of the Bone, turned towards the Ulna, is the Spine, for the attachment of the Interosseous ligament, which connects this Bone strongly to the Ulna. Its greater or inferior extremity belongs, correctly speaking, to the Wrist, having two articulating cavities for receiving the first two Bones of the Carpus, namely, the Os Scaphoides or Naviculare, and Os Lunare. On the side of the Radius, near the Thumb, is a small eminence, called the Styloid process, which serves for the security of the Wrist joint. The Radius has a small cavity at its lower extremity, to allow it to roll with the Hand, over the Ulna, as in Pronation or Supination.

THE HAND.

The Hand consists of the Bones of the Carpus, Metacarpus, and Phalanges.

THE CARPUS.

THE Carpus or Wrist, is a very complicated part of the bony system, and is formed of eight small and irregular shaped Bones, which are disposed in two unequal rows, between the Bones of the Fore-Arm, and those of the Metacarpus. They are situated close together, in a very narrow space, being firmly tied to each other by numerous small ligaments. It would be impossible for the Student to understand these Bones separately, from a merely written description, and he must therefore be referred to the Plates of those parts, which will better impress upon his memory their individual shapes, and relative position to each other.

THE METACARPUS.

THE Metacarpus consists of five long rounded Bones, which are placed between the Carpus and Fingers. They are joined at their upper extremities to the Carpal Bones, and at their lower to those of the Fingers. The only thing of importance to be known concerning these Bones, is, that the one belonging to the Thumb is moveable, and rolls

widely, and freely, in every direction. The upper extremity of each is named its base, and the lower smooth extremity, the head. As the Bones approach the Phalanges, they diverge from each other, and the spaces between them serve for the lodgment of the Interossei Muscles. They are slightly arched inwardly, in the same way as the Bones of the Carpus, to form the middle part or palm of the Hand, and serve to support the Fingers.

THE FINGERS.

The Bones completing the Fingers and Thumb, are fourteen in number, and are named Phalanges. They lie in three rows, with the exception of the Thumb, which has only two, owing to the other Bone, which has been described as one of the five Metacarpal. They are convex and round on the back of the Hand; but are grooved before, for the passage of the Flexor Tendons. The first Phalanx of each Finger is the longest, and the second or middle, is the next in length. The Phalanges gradually decrease in length, from the first to the last, and form

complete hinge-joints, admitting only of flexion and extension, with the exception of the first row of Phalanges, which are articulated by ball and socket-joints, to the end of the Metacarpus, and have a little lateral motion. The Fingers being composed of so many Bones, forming joints, enable us to grasp bodies, and perform the various and multiplied operations of the Arts, Manufactures, &c. which we could not do, if they were formed of one Bone.

THE BONES
OF
THE INFERIOR EXTREMITIES.

The Inferior Extremities depend from the lower part of the Trunk, and are formed of the Bones of the Thigh, Leg, and Foot.

THE OS FEMORIS, OR BONE OF THE THIGH.

The Os Femoris is by far the largest Bone in the Human Skeleton, having to support the whole weight of

the Head, Trunk, and upper limbs. It is a complete and regular cylindrical Bone, being long, and thickest at its extremities; its upper extremity comprehends a Caput, or Head, Cervix, or Neck, Trochanter Major, Trochanter Minor, and Trochanteric Fossa. The Head, which is smooth, is the most perfect in the human body, and is received into the Acetabulum, or articulating cavity of the Os Innominatum. The Head forms a regular circle, and is so constructed as to admit of an extended sphere of motion. The Neck of the Thigh Bone, upon which the Head stands, is thick, strong, and rough, and has implanted into it the general Capsular ligament. The Trochanter Major, or great Trochanter, is a process which requires the Student's strictest attention, as it gives attachment to most important Muscles of the Thigh, and is uncovered by them. It is a large and unequal Tuberosity, situated in the upper and outer part of the Thigh, and is the great eminence felt so plainly on putting the Hand there. It gives insertion to the Gluteus Medius and Minimus Muscles, which move and roll the Thigh outwards, and also origin to the Vastus Externus.

The Trochanter Minor, or smaller Trochanter, is situated inwardly, opposite to the great one, but rather lower down, and affords insertion to the Psoas Magnus, and Iliacus Internus Muscles, and also origin to the Vastus Internus. The Trochanteric Fossa is situated posteriorly near the smaller Trochanter. The body of the Bone is very smooth and convex before, but posteriorly there is a rough ridge, called the Linea Aspera. At the lower extremity of the Bone are two considerable processes, named Condyles, (the internal is the larger) which serve for the purpose of being articulated to the Tibia or inner Bone of the Leg. They form, with the Knee-pan, a complete hinge-joint, which admits merely of flexion and extension, similar to the Elbow-joint.

THE PATELLA.

The Patella, or Knee-pan, is situated between the Condyles of the Thigh Bone, and the upper part of the

Tibia. It is of a triangular shape, and forms the fore-part of the Knee-joint. To the Apex, or lower part, is attached the strong ligament of the Patella, which connects this Bone firmly to the Tuberosity of the Tibia, and from which circumstance, being considered as an appendage to that Bone, and following it in all its motions, it is usually described with the Bones of the Leg.

THE LEG.

The two Bones forming the Leg are the Tibia and Fibula, which are situated between the Thigh and Foot.

THE TIBIA

The Tibia, or inner Bone of the Leg, is so named from its resemblance to a musical pipe used by the Ancients.

The upper extremity, which is the largest, is thick and spongy, and is formed into two superficial articular cavities, to receive the Condyles of the Os Femoris. On

its outer side is a smooth flattened surface, for the reception of the head of the Fibula. On the fore-part of the Bone, a little below the Knee-joint, is a Tuberosity for the attachment of the strong ligament of the Patella; and from this, extending downwards, is the Shin or anterior Spine of the Tibia. The body of the Bone is smooth and of a triangular shape.

The lower extremity terminates in a considerable process, which forms the inner Ancle, and is called the Malleolus Internus. On the external side, just opposite to this process, is a deep long furrow, for receiving the inferior end of the Fibula, and at the very extremity of the Bone is another deep articular cavity, by which it is connected to the Astragalus, or uppermost Bone of the Foot. The Tibia supports the Leg, and serves for the bending and extending motions of the Knee-joint.

THE FIBULA.

The Fibula is a long slender Bone, situated on the outer side of the Leg, and is immoveably connected to the

Tibia. Its superior extremity, which is rough and protuberant, does not extend so high as the upper part of the Tibia, but its inferior, which terminates in a considerable process, called the Malleolus Externus, or outer Ancle, descends much lower. The upper head of the Bone gives insertion to the tendon of the Biceps Flexor Cruris, but the lower part is superficial, being uncovered by Muscles, and has a short spine, behind which the tendons of the Peroneus Longus and Brevis are lodged. The Fibula is connected both above and below to the Tibia, as was noticed in the description of that Bone.

THE FOOT.

THE FOOT is divided like the Hand, into the Bones of the Tarsus, Metatarsus, and the Phalanges of the Toes.

THE TARSUS.

THE Tarsus or instep, consists of seven irregular shaped Bones, which are firmly tied together in three rows, by a number of small and strong ligaments.

The seven Bones are the Astragalus, the Os Calcis, the Os Naviculare, the Os Cuboides, and the three Ossa Cuneiformæ. The Astragalus is the uppermost Bone, and has a large, convex, and smooth head, which is articulated to the Tibia. It is joined before by a round head, to the Os Naviculare, and below, has two surfaces for its connection with the Os Calcis. The Os Calcis, or Bone of the Heel, is the largest of the Tarsus. It is of a very irregular shape, and has a projection at its upper and back part, for the insertion of the Tendo Achillis. In front, it has a surface of articulation with the Os Cuboides, and on its outer side, a groove for the passage of the tendon of the Peroneus Longus. The Os Naviculare or Scaphoides, is so named from its supposed resemblance to a boat, and is wedged in on the inside of the Foot, between the Astragalus, and the three Cuneiformæ Bones. The Os Cuboides is situated on the outer side of the Foot, between the Os Calcis and the Metatarsal Bones of the two outer Toes. The Ossa Cuneiformæ are three in number, and are distinguished from each other from their situation, into Internum, Medium, and Externum. They are situated between the Os Naviculare and the Metatarsal Bones of the three inner Toes. The Os Cuneiforma Internum is the largest.

THE METATARSUS.

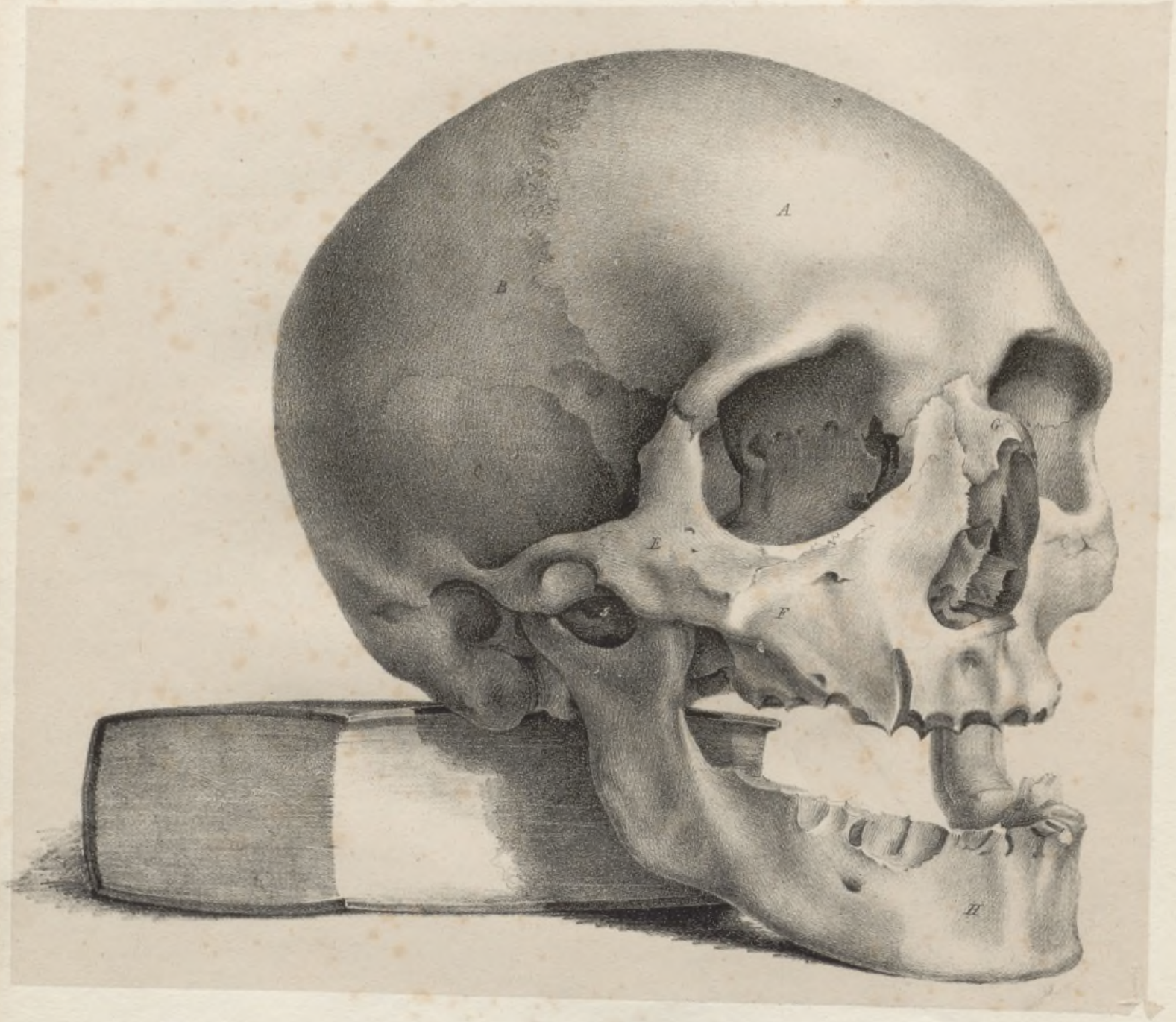
THE Metatarsus is composed of five long, rounded Bones, which are situated between the Tarsus and the Toes. They agree in their general character, and assume somewhat of the appearance of the Metacarpus. The Bone supporting the great Toe is much larger than the rest, and the one belonging to the least, has a considerable projection for the insertion of the tendon of the Peroneus Brevis. They are articulated at one extremity, to the three Cuneiforme Bones and the Os Cuboides, and at the other, to the Phalanges of the Toes.

THE PHALANGES OF THE TOES.

THE Toes consist, like the Fingers, of three rows of Bones, called Phalanges, with the exception of the great Toe, which has but two. They gradually decrease in length, from the first to the third, and form complete hinge-joints, which admit only of flexion and extension. The motion of

the joints of the Toes is much more confined than that of the Fingers, and the description given of the Phalanges of of the Fingers, will apply to those of the Toes. There may occasionally be seen at the first joint of the great Toe, two small Bones of the size of a pea, called Ossa Sesamoidea.

Plate 1.



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DESCRIPTION OF THE PLATES.

PLATE I.

FRONT VIEW OF THE BONES OF THE HEAD.

A. Os Frontis, or Bone of the Forehead.

B. Os Parietale, or Parietal Bone.

C. Os Temporale, or Temporal Bone.

D. Os Sphenoidale, or Wedge-like Bone.

E. Os Malæ, or Bone of the Cheek.

F. Os Maxillæ Superioris, or Bone of the Upper Jaw.

G. Os Nasale, or Bone of the Nose.

H. Os Maxillæ Inferioris, or Bone of the Lower Jaw.

PLATE II.

SIDE VIEW OF THE BONES OF THE HEAD, WITH THE LOWER JAW DETACHED, AND A DESCRIPTION OF THEIR PROCESSES, &c.

FIGURE 1.

A. Os Frontis.
1. 1. The two Frontal Tuberosities.
2. One of the Frontal eminences.
3. The Superciliary Ridge.
5. The External Angular Process.
B. Os Parietale.
C. Os Temporale, divided into:
1. Pars Squamosa.
2. Pars Petrosa.
3. Pars Mamillaris.
4. The Zygomatic Process.
5. The Mastoid Process.
6. The Styloid Process.
7. The Glenoid cavity.
D. Os Malæ.
1. The Frontal Process.
2. The Zygomatic Process.
3. The Maxillary Process.
4. The Orbitar Process.
E. Os Maxillæ Superioris.
1. The Nasal Process.
2. The Orbitar Process.
3. The Malar Process.
4. The Alaveolar Process.
5. A Spine, formed by the union of the Superior Maxillary Bones.
F. Os Nasale.
1. A rough surface, by which it is connected to the Os Frontis.
2. The Pons Nasi, or bridge of the Nose.

FIGURE 2.

G. Os Maxillæ Inferioris.
1. The Condyloid Process.
2. The Coronoid Process.
3. The Semilunar Notch.
4. The Angle of the Jaw.
5. The Alveolar Process.
6. The Mental Process.

Fig 1.

Fig. 2.

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Plate III.

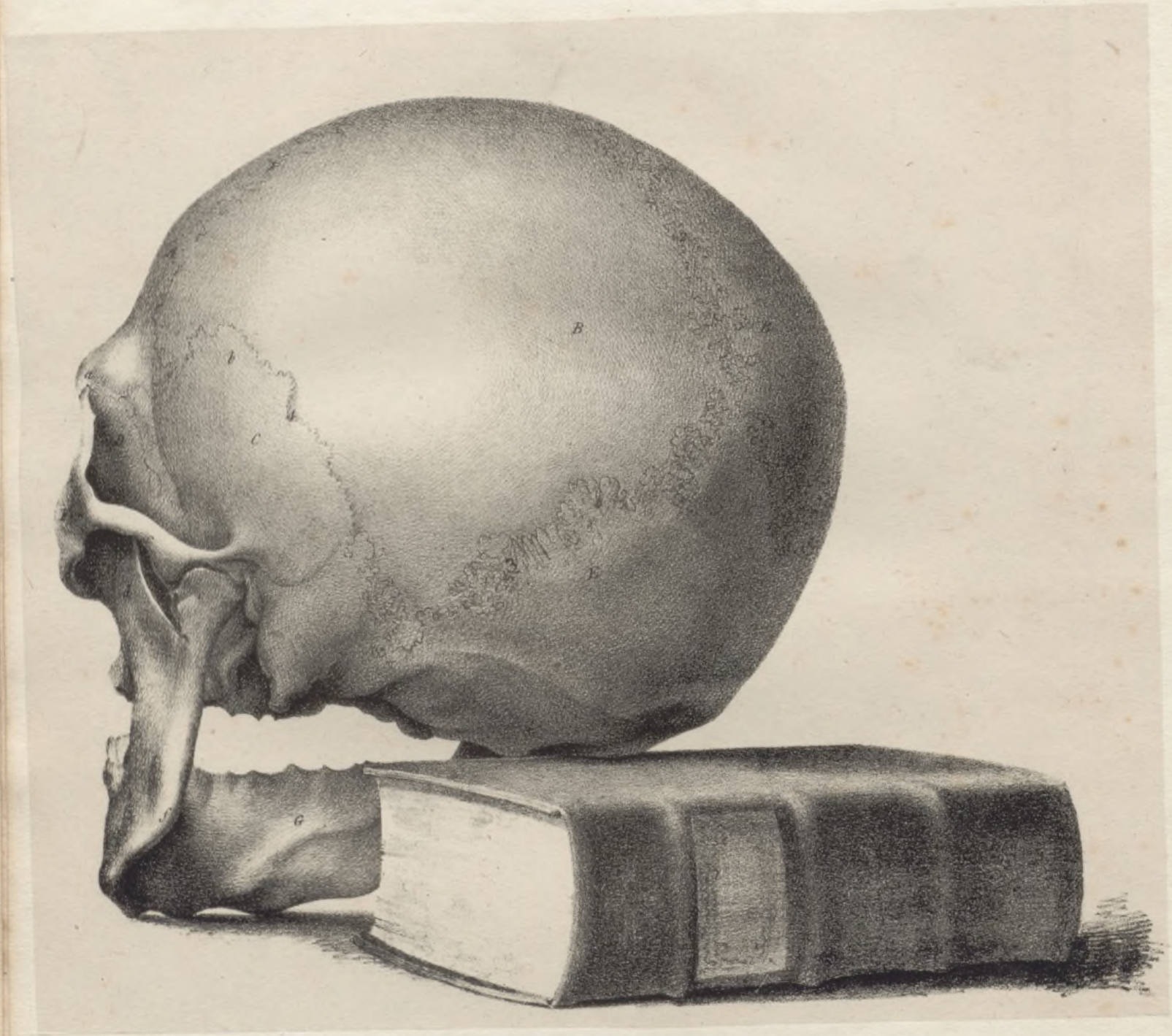

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PLATE III.

BACK VIEW OF THE BONES OF THE HEAD, WITH ITS SUTURES.

A. Os Frontale.
B. B. Ossa Parietalia.
C. Os Temporale.
D. Os Sphenoidale.
E. Os Occipitale.
F. Os Malæ.
G. Os Maxillæ Inferioris.
a. The External Angular Process.
b. The Pars Squamosa.
c. The Zygoma, or Arch.
d. The Coronoid Process.
e. The Condyloid Process.
f. The Angle of the Lower Jaw.

SUTURES OF THE CRANIUM.

1. Sutura Coronalis.
2. Sutura Sagittalis.
3. Sutura Lambdoidalis.
4. Sutura Squamosa.

PLATE IV.

FRONT VIEW OF THE STERNUM AND CLAVICLE, AND BACK VIEW OF THE SACRUM.

FIGURE 1.

A. Sternum, or Breast Bone.
1. The Superior Portion.
2. The Middle Portion.
3. The Inferior, or Ensiform Cartilage.
a. The Junction of the Clavicle and Sternum.
b. The Seven True Ribs attached to theSternum.
B. Clavicle, or Collar Bone.
c. The Sternal Extremity.
d. The Scapular Extremity.

FIGURE 2.

C. Os Sacrum.
D. Os Coccygis.
e e. The two Superior Oblique Processes.
f. f. Two Broad surfaces by which the Sacrum is connected to the Ossa Innominata.
g. The false Spinous Processes.

Plate IV.

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Plate V.

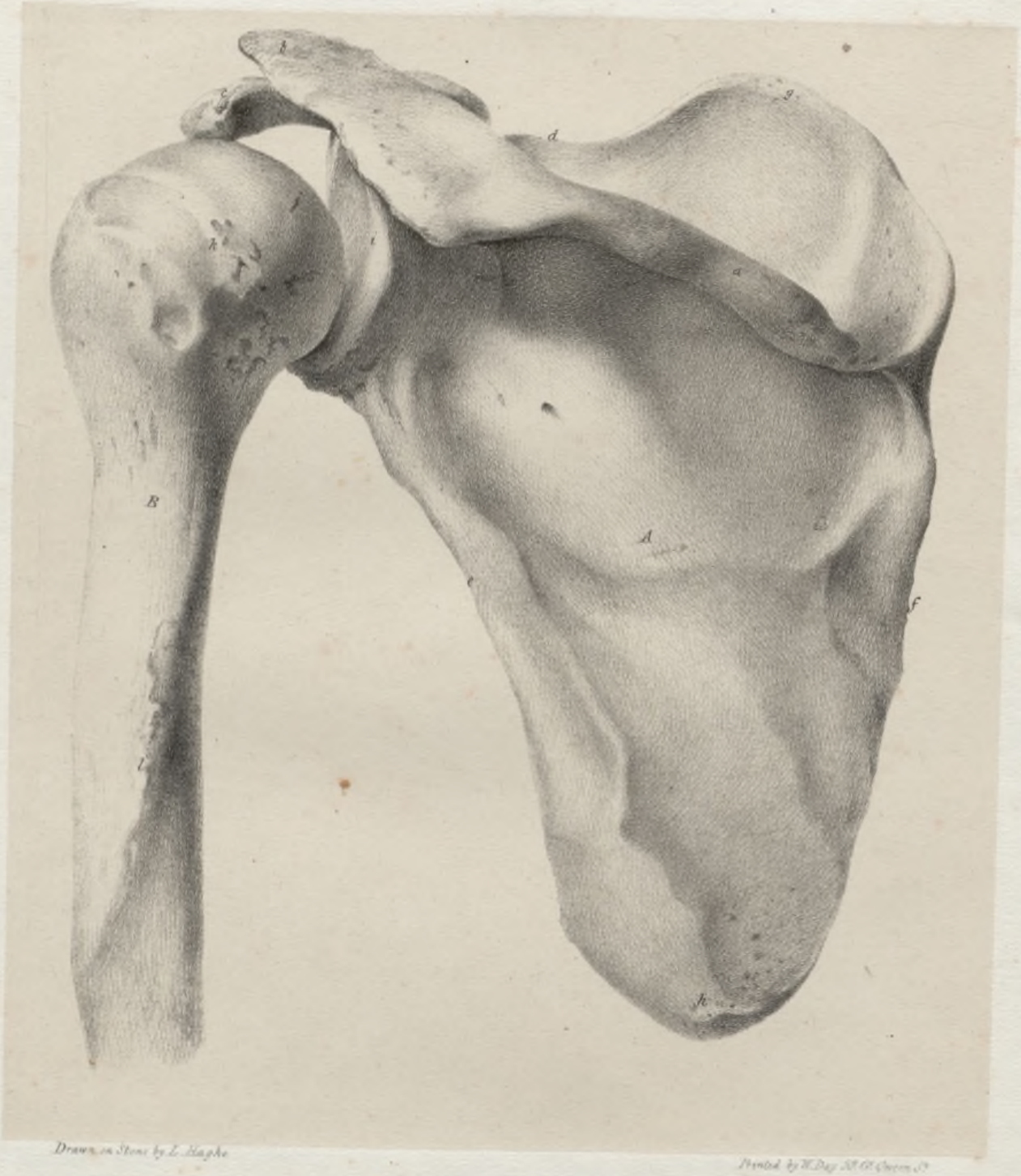

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PLATE V.

BACK VIEW OF THE SHOULDER BLADE, AND BONE OF THE UPPER-ARM.

A. Scapula, or Shoulder Blade.

a. The Spine.

b. The Acromion Process.

c. The Coracoid Process.

d. The Superior Costa.

e. The Inferior Costa.

f. The Base of the Bone.

g. The Superior Angle.

h. The Inferior Angle.

i. The Glenoid Cavity.

B. Os Humeri, or Bone of the Upper-Arm.

j. The Caput, or Head.

k. The Cervix, or Neck.

l. A Ridge for the Deltoid Muscle.

PLATE VI.

FRONT VIEW OF THE HAND, WITH THE BONES OF THE FORE-ARM ATTACHED; AND AN INNER VIEW OF THE ELBOW JOINT.

FIGURE 1.

A. Ulna.
B. Radius.
C. Carpus—8 in number.
D. Metacarpus—5 in number.
E. Phalanges—14 in number.
a. The Small Head of the Ulna.
b. The Styloid Process.
c. The large extremity of the Radius.
d. Os Scaphoides.
e. Os Lunare.
f. Os Cuneiforme.
g. Os Pisiforme.
h. Os Trapezium.
i. Os Trapezoides.
j. Os Magnum.
k. Os Unciforme.
} Carpus.
l. Metacarpal Bone of the Thumb.
m. The junction of the Carpus and Metacarpus.
n. The joining of the Metacarpus and first row of Phalanges.
o. The joints of the first and second rows of Phalanges.
p. The junction of the second and third rows of Phalanges.

FIGURE 2.

A. Os Humeri.
B. Ulna.
C. Radius.
1. The External Condyle.
2. The Internal, or larger Condyle.
3. The Olecranon Process.
4. The Coronoid Process.
5. The Button-like Head of the Radius.
6. The Tuberosity.

Plate VI.

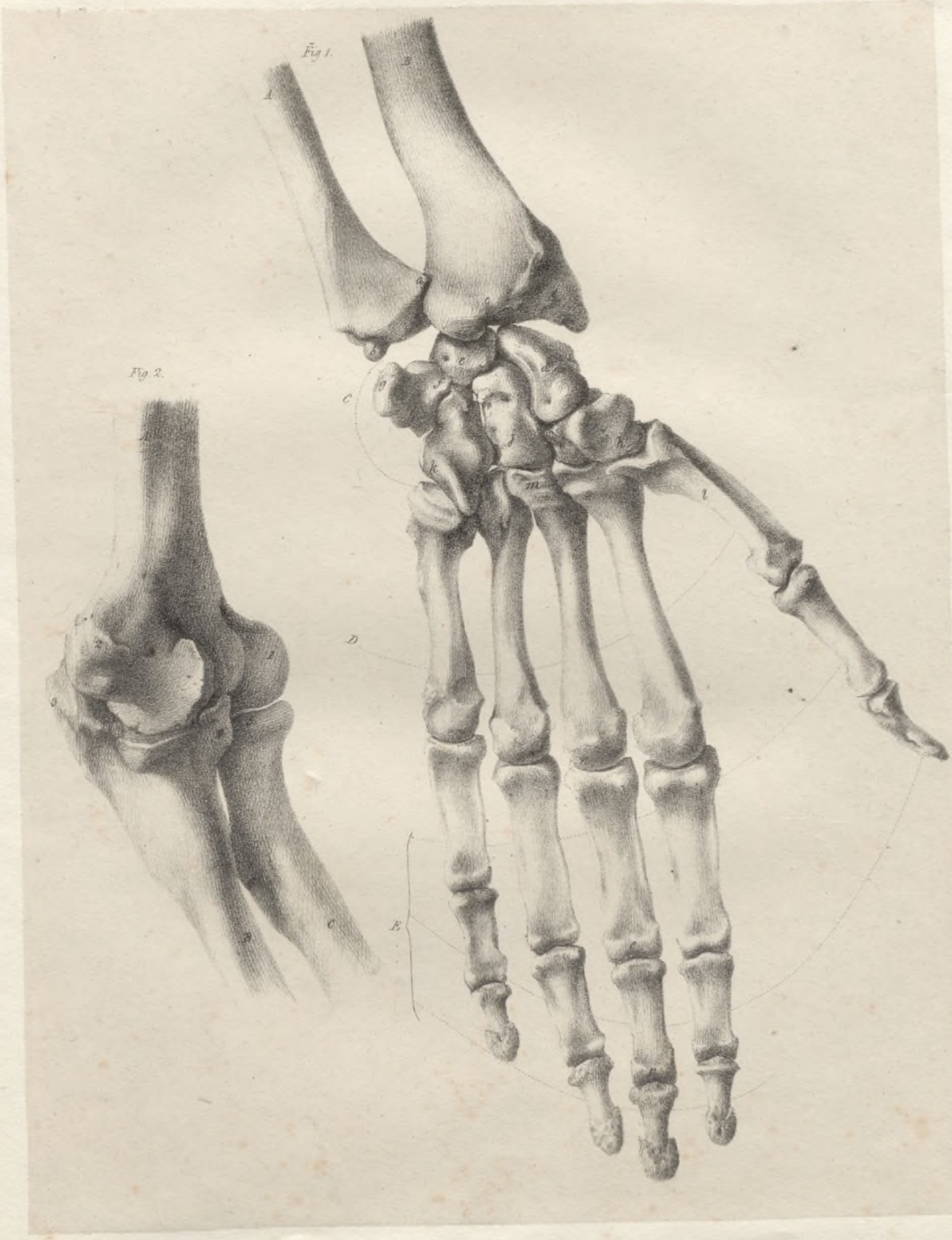

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Plate VII.

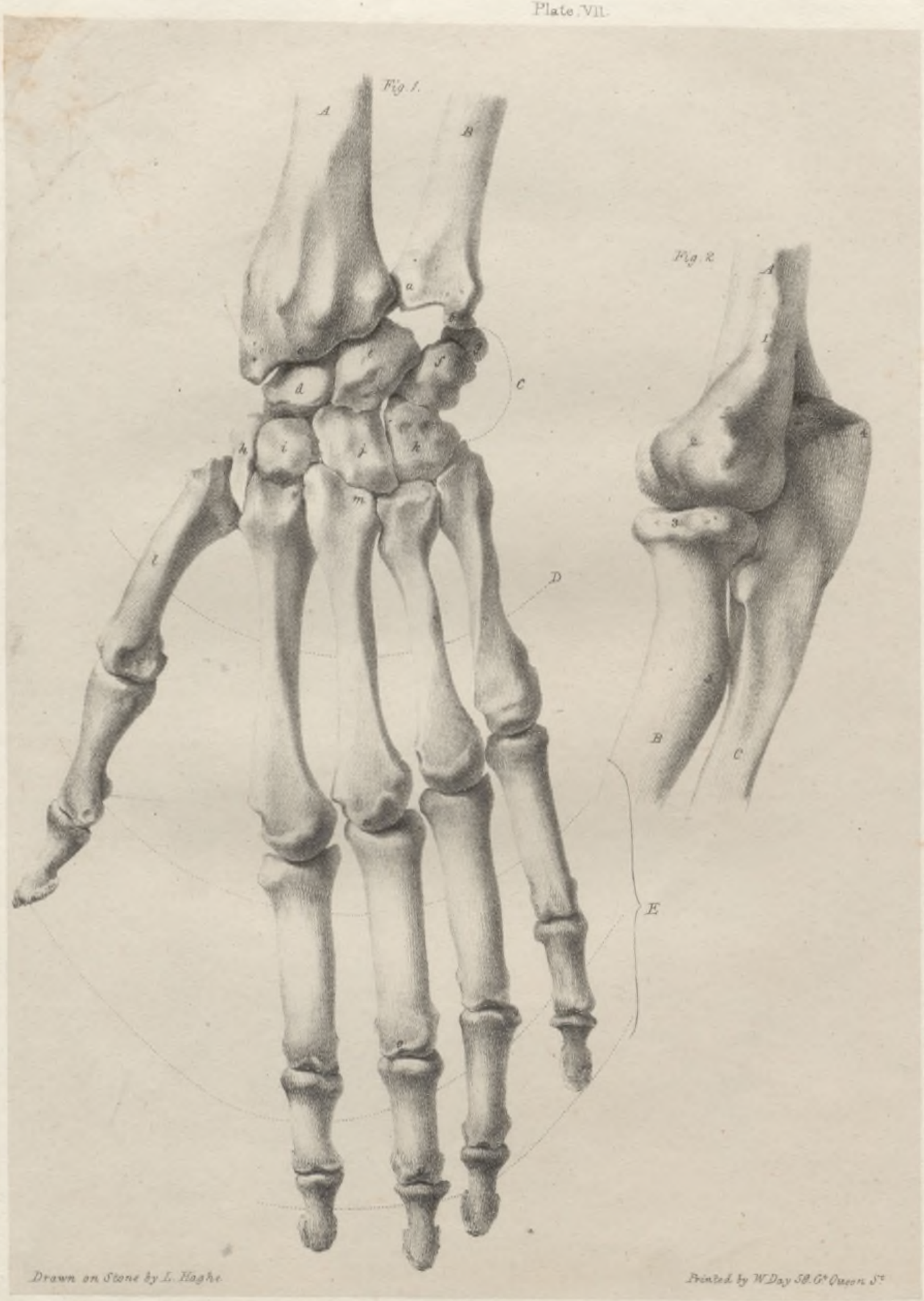

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PLATE VII.

BACK VIEW OF THE HAND AND ELBOW, WITH THE BONES OF THE FORE-ARM ATTACHED.

FIGURE 1.

A. The Radius.
B. The Ulna.
C. The Carpus.
D. The Metacarpus.
E. The Phalanges.
a. The Inferior small head.
b. The Styloid Process.
c. The Inferior large extremity.
d. Os Scaphoides.
e. Os Lunare.
f. Os Cuneiforme.
g. Os Pisiforme.
h. Os Trapezium.
i. Os Trapezoides.
j. Os Magnum.
k. Os Unciforme.
l. Metacarpal Bone of the Thumb.
m. The junction of the Carpus and Metacarpus.
n. The joining of the Metacarpal Bones to the first row of Phalanges.
o. The joints of the first and second rows of Phalanges.

FIGURE 2.

A. Os Humeri.
B. The Radius.
C. The Ulna.
1. The External Ridge.
2. The External Condyle.
3. The Button-like Head.
4. The Olecranon Process.
5. The Tuberosity.

PLATE VIII.

FRONT VIEW OF THE OS INNOMINATUM AND UPPER EXTREMITY OF THE OS FEMORIS.

A. Os Innominatum, divided into:

1. Os Ilium.
2. Os Ischium.
3. Os Pubis.

a. The Crista.

b. The Anterior Superior Spinous Process.

c. The Anterior Inferior Spinous Process.

d. A rough surface to receive the Os Sacrum.

e. The Tuberosity of the Ischium.

f. The part that forms the Symphisis Pubis.

g. The Tuberosity of the Pubis.

B. Os Femoris, or Bone of the Thigh.

h. The Caput, or Head.

i. The Cervix, or Neck.

j. The Trochanter Major.

k. The Trochanter Minor.

Plate VIII.

Drawn on Stone by J. Haghe.

Printed by C. Day & W. St. Gower St.

Drawn on Stone by T. Hagbe

Printed by W. Day 59 G.t Queen St.

Plate IX.

PLATE IX.

BACK VIEW OF THE OS INNOMINATUM AND UPPER PART OF THE OS FEMORIS.

A. Os Innominatum.

1. Os Ilium.

2. Os Ischium.

3. Os Pubis.

a. The Anterior Superior Spinous Process.

b. The Anterior Inferior Spinous Process.

c. The Semilunar Notch, between the two Processes.

d. A rough surface for the Os Sacrum.

e. The Tuberosity.

f. The Spine.

g. The part that forms the Symphisis Pubis.

h. The Caput, or Head.

i. The Cervix, or Neck.

j. The Trochanter Major.

k. The Trochanter Minor.

PLATE X.

FRONT VIEW OF THE KNEE JOINT.

A. Os Femoris, or Bone of the Thigh.

B. Patella, or Knee Pan.

C. Tibia, or Shin Bone.

D. Fibula, or outer Bone of the Leg.

a. The External Condyle.

b. The Internal or larger Condyle.

c. The Base of the Patella.

d. The Apex.

e. The Upper Head of the Tibia, formed into two Cavities to receive the Condyles.

f. The Tubercle, to which the Ligamenta Patella is fixed.

g. A flat surface for the reception of the Fibula.

h. The Head of the Fibula.

Plate X.

Drawn on Stone by T. Hughs.

Printed by W. Day. 59 Gt Queen St.

Plate XI.

Drawn on Stone by L. Haghe

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PLATE XI.

AN EXTERIOR VIEW OF THE KNEE-JOINT.

A. Os Femoris.

B. Patella.

C. Tibia.

D. Fibula.

a. The External Condyle.

b. The Internal, or larger Condyle.

c. The Base of the Patella.

d. The Apex.

e. The Upper-Head of the Tibia.

f. The Tubercle for the insertion of the Ligamenta Patella.

g. A flat surface for the articulation of the Fibula.

h. The Head of the Fibula, to which the Biceps Flexor Cruris is fixed.

PLATE XII.

AN EXTERIOR VIEW OF THE FOOT, WITH THE BONES OF THE LEG ATTACHED.

A. Tibia.
B. Fibula.
C. Tarsus—seven in number.
D. Metatarsus—five in number.
E. Phalanges—fourteen in number.
a. The Anterior Spine, or Shin.
b. The Interosseal Spine.
c. The lower extremity of the Tibia, resting on the Astragalus.
e. The Malleolus Externus, or outer Ancle.
f. A Spine, behind which, the tendons of the Peroneus Longus and Brevis Muscles proceed.
g. Astragalus.
h. Os Calcis.
i. Os Naviculare.
j. Os Cuneiforme Internum.
k. Os Cuneiforme Medium.
l. Os Cuneiforme Externum.
m. Os Cuboides.
n. Metatarsal Bone of the Great-Toe.
o. The junction of the Tarsus and Metatarsus.
p. The joining of the Metatarsus and first row of Phalanges.
q. The joints of the first and second rows of Phalanges.
r. The junction of the second and third rows of Phalanges.

Plate XII.

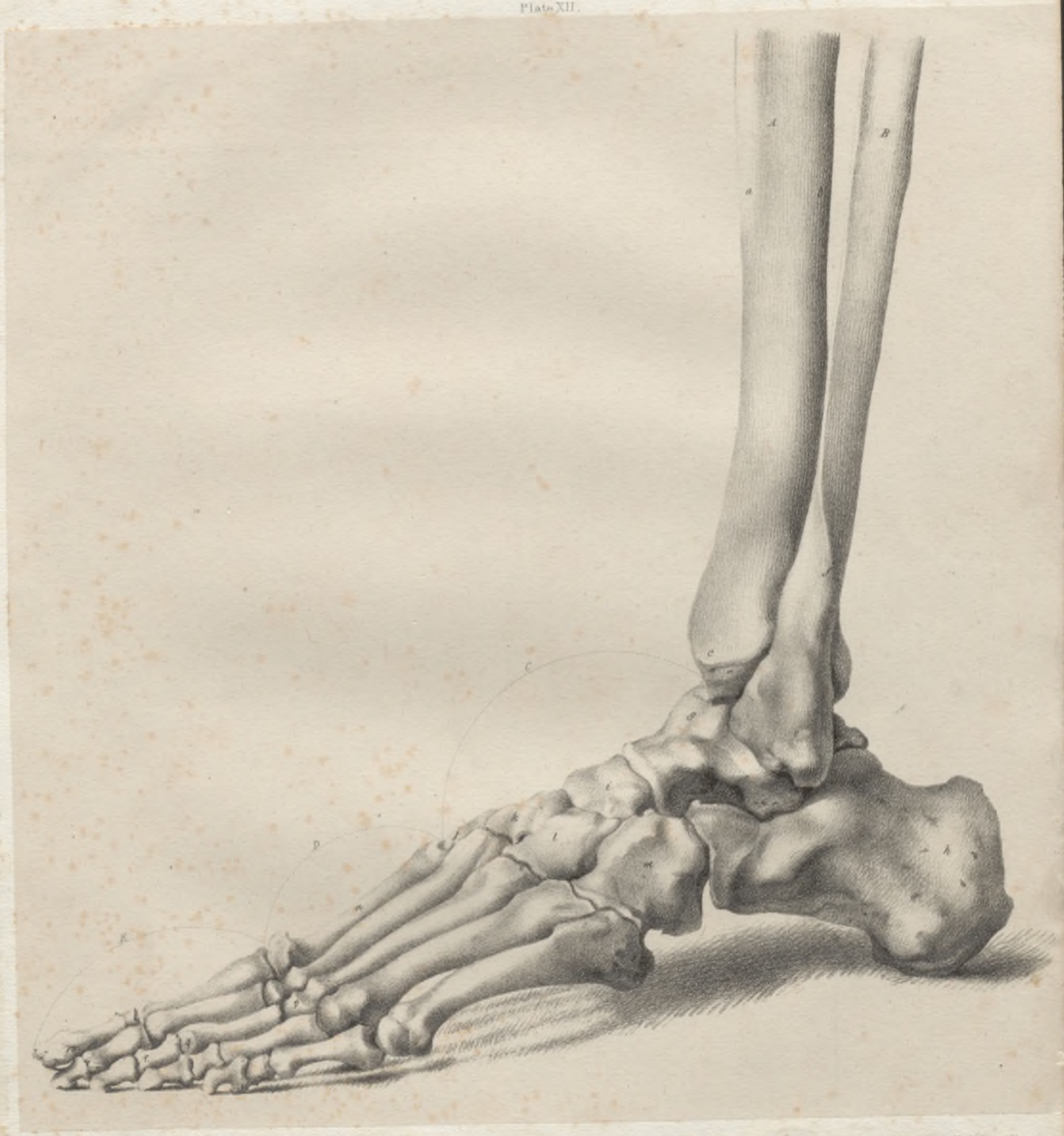

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Plate XIII.

Drawn on Stone by I. Hughe.

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PLATE XIII.

AN INNER VIEW OF THE FOOT, WITH THE BONES OF THE LEG ATTACHED.

A. Tibia.

B. Fibula.

C. Tarsus.

D. Metatarsus.

E. Phalanges.

a. The Anterior Spine or Shin.

b. The lower extremity of the Tibia, forming the Malleolus Internus.

c. Astragalus.

d. Os Calcis.

e. Os Naviculare.

f. Os Cuneiforme Externum.

g. Os Cuneiforme Internum.

h. Metatarsal Bone of the Great-Toe.

i. The first Phalanx.

j. The second Phalanx.

k. The junction of the Metatarsal Bone of the Great-Toe to the Internal Cuneiforme Bone.

INTRODUCTION TO THE MUSCLES.

The Author's object in giving this Introduction to his Second Part, is merely to point out to the Student in the Fine Arts, the necessity of acquiring the names, origins, and insertions of the various Muscles, together with the nature of their action, and the uses to which they are particularly appropriated. In doing this, he has endeavoured to lay down the easiest mode by which the Student may become acquainted with the subject.

That the ancient Sculptors possessed Anatomical knowledge, no one can doubt, and that in an eminent degree. The various inflections of the human form, both in figure and countenance, which distinguish those matchless specimens of their Art, (of which we are now reaping the benefit) shew how intimately they were acquainted with the Skeleton and with the Muscles.

Whether the Figure be colossal or reduced, the same admirable proportions exist, in all the varieties of form and position. The powers of imitation, however great, could not have accomplished this. The Apollo Belvidere and Farnese Hercules, were not copies—they were the offsprings of mighty minds, in which were combined inimitable taste, geometrical accuracy, and Anatomical knowledge. To prove that the earliest and greatest masters of what is termed the "Modern School," conceived the study of Anatomy as indispensable in acquiring a just knowledge of their Art, we need only read the Lives of Michael Angelo, Raphael, Leonardo da Vinci, and others. The first of these great men declared that it was impossible for any one to become an Architect, without a complete and thorough knowledge of the Bones of the Human Skeleton; as, for instance, the Bones of the Tarsus or Instep, are so arranged and constructed, as to form two firm and elastic arches, which support, and give a free elasticity to the Foot, and prevent any ill consequences arising from falling or jumping, which must have inevitably ensued, and more frequently have displaced the Bones, had the Foot been constructed in any other way.

In fact, Anatomy and Geometry were the initiatory parts of the education of the ancients,—to use a familiar expression, "they began at the right end,"—and he who does not act in this manner, will have up-hill work all his life: he may produce pretty pictures, but will never attain to great ones; because, "He clings to Error and not to Truth."

In our own time, we see the advantage of these acquirements, in the works of that great and much to be lamented Artist, West, who so ably filled the office of President to the Royal Academy. His figures were always correctly drawn, the folds of his draperies uniformly graceful, and when we add to these the beauty of his designs, and the effects produced by his pictures, we may apply to him what Dr. Johnson said of the writings of Goldsmith, "Nihil quod tetigit non ornavit."

The following quotation from Mr. Shee's admirable work on the "Elements of Art," may not be inappropriately introduced in this place, as pointing out the great superiority of that Anatomical knowledge, which is communicated by a

Painter, or by one acquainted with the necessities of an Artist, and the proper application of Anatomical Science to the practice of the pencil; over that which is furnished by the Professional Anatomist; he says,

"——— In the application of Anatomical Science to the purposes of the pencil, the Anatomist may appear more learned, minute, and philosophical; but the Painter would be more clear, appropriate, and impressive: where the one finds himself most out of his course, the other would find himself most at home; and would connect with his illustration of the origin, insertion, and office of the Muscles, a variety of useful information, as to the beauty and grace of their action, which will never occur but to those who spend their lives in observing them.

"But whatever excuse may be made for the Painter, in not teaching Anatomy, there certainly can be none offered for his not learning it. Though he may be allowed to decline a duty which concerns the interests of others, he cannot be pardoned for neglecting a study so essential to his own. If

he omit to furnish himself with that knowledge of the essential elements of his profession, which is within the reach of zeal and industry to acquire, he must not be surprized, if they who observe his deficiencies, undervalue his merits, and visit on his genius, the sins of his indolence."

The Muscles are the organs of motion, allowing of contraction and relaxation. They consist of distinct fibres, which are both irritable and sensible, and being united together by a cellular membrane, into a fasciculus, or bundle, form what is termed a Muscle. Every one must have noticed these fasciculi, or bundles of fibres, of various degrees, in a piece of beef, and which appear like little threads of different lengths, size, and directions. In the generality of Muscles may be distinguished two sets of fibres, the one soft and red, called fleshy fibres, by means of which all the motions in an animal body are performed; the other white and glistening, of a silver hue, and without the power of contracting, which are named tendinous fibres.

A Muscle is generally distinguished into three parts,

viz. its belly or middle part, which is fleshy, and its two extremities or Tendons. The Tendons are commonly thick, strong, and round, and adhere firmly to the Bones; the one which is attached to the most fixed part, is called the origin of the Muscle, and that which is joined to the more moveable part, the insertion. It is necessary that the Student should recollect, that the terms, origin, and insertion, are words convertible, for, according to the position of the Body, these extremities become altered, and a part which was once fixed and immoveable, may become moveable.

In various parts of the Body the Tendons may be seen expanding themselves into a broad flat membrane, and forming what is termed an Aponeurosis, or Fascia. The use of these Fasciæ is to cover the Muscles, and give attachment to many of their Fibres; they also dip down between the Muscles, and forming partitions, adhere to the ridges of the Bones, and thus prevent the Muscles from starting or swelling too much, when in violent action.

Those Muscles which are dependant on the will, or

rather are governed by it, when in action, are called Voluntary Muscles; but besides these, there is another class that is continually in a state of contraction and relaxation, and over which the will has no influence; as the Heart, Stomach, Bowels, &c.; these are denominated Involuntary Muscles.

Muscles are named either from their origin and insertion, as the Sterno Cleido Mastoideus, and Occipito Frontalis, or from their figure, as the Deltoides, from its similitude to the Greek letter Delta, or from their situation, as the Tibialis Anticus and Posticus, before and behind the Tibia, or from their use, as the Flexors, Extensors, Pronators, Supinators, &c. We may likewise here mention the difference of their fibres; thus, when the fibres are disposed in the same direction, obliquely, with regard to their tendon, like the plume of a pen, they are styled a simple Muscle; and if they proceed from each side of the stem, as they do in a feather, they are said to be a double or compound penniform Muscle, while others are called radiated when their fibres go in rays. When a Muscle surrounds any

aperture, and its office is that of closing or opening, it is then denominated a sphincter, as is the case with the Orbicularis Oris.

All Muscles which concur in producing the same motion are called Congeneres, and those that act contrary, or in opposition to each other, are called Antagonistæ; as, for instance, in the Fore-Arm, every Flexor or bending Muscle of the Wrist, has an antagonist or extending Muscle, and it is a constant rule, that the shortening of the acting Muscle must, of necessity, produce an extension of its antagonist, which does not act. The Muscles adhere firmly to the Bones which form levers, and thus they are enabled to act upon the various Joints, and perform the different and multiplied operations of the Arts, Manufactures, &c.

When a Muscle contracts, it becomes shortened and swelled, and the moveable part is necessarily drawn towards the fixed, but in what manner this is performed, we are unable to determine.

The Author wishes it to be understood, that he by no means lays claim to originality, but hopes that he has so far simplified this study, and made the importance of it apparent, as to induce the Student to devote a greater portion of his time thereto, and that by making it form a part of his education, it may not be as it hitherto has been, to some a pleasure, and to others merely a matter of curiosity.

PART THE SECOND.

MYOLOGY;

OR,

THE ANATOMY OF THE HUMAN MUSCLES.

MUSCLES SITUATED ON THE OUTSIDE OF THE CRANIUM.

BENEATH the skin of the Head are found the Occipito Frontalis Muscle, covering the whole fore, upper, and back part of the Head, like a cap, and the Temporalis placed at the sides or Temples.

The Occipito Frontalis is a thin, broad, digastric Muscle, tendinous in its middle. It arises fleshy behind, from the upper transverse ridge of the Os Occipitis, covers the back of the Occipital Bone, and terminates in a thin, flat Aponeurosis, which is spread over the crown of the Head forwards, until it reaches the Os Frontis, where its fleshy fibres again begin to appear, and descend for insertion on each side, partly into the skin of the Eye-brow, and partly

into the Orbicularis Palpebrarum, and Corrugator Supercilii Muscles. The action of this Muscle is, to elevate the Eye-brows, to draw the hairy scalp backwards, and in doing this, it corrugates or wrinkles the skin of the Fore-head.

The Temporalis Muscle is covered by a thick and strong Fascia, which is attached above to the semi-circular ridge, formed by the Frontal, Parietal, and Temporal Bones, and below to the upper margin of the Zygoma, and to the Cheek Bone, where it completes the side of the orbit. This Fascia strengthens the action of the Temporal Muscle, by bracing it down when in violent action.

The Temporal Muscle originates by fleshy fibres, from the side of the Parietal Bone, from the Pars Squamosa of the Temporal Bone, and from the Temporal Fossa, formed by the Frontal, Sphenoidal, and Malar Bones. The fibres of the outer surface adhere firmly to the Fascia covering them, and they descend from the origins just mentioned, towards a strong middle tendon, forming a semi-circular shaped Muscle, the tendon of which is continued downwards behind the Zygoma, and is inserted into the Coronoid process

of the lower Jaw. The insertion of this Muscle is hidden by the Masseter, the great Muscle extending from the Cheek to the angle of the lower Jaw. The use of the Temporal Muscle is, to assist in pulling the lower Jaw upwards: there are other Muscles situated on the side of the Head, and which are connected with the Cartilage forming the external Ear, but as they are extremely small, and not seen when covered by the skin, any further description is unnecessary.

MUSCLES OF THE FACE.

THE Muscles of the Face are delicate, pale, and indistinct, and require great care in dissecting them. They are covered by a considerable portion of fat, so that their form and character, are seldom seen externally, unless in thin and aged persons.

The first Muscle that is brought to view in dissecting the Face, is the Orbicularis Palpebrarum, which surrounds the bony ridges of the Orbit. It arises on the inner side of the Eye, from the internal angular process of the Os Frontis,

immediately above its connection with the Ossa Nasi. The fibres pass a little upwards and outwards, and spread themselves upon the cartilage of the upper Eye-lid. At the outer side of the Eye they cover a considerable portion of the Cheek Bone, and descend a little to expand upon the lower Eye-lid, and then converge together at the inner angle of the Orbit, in order to form a strong tendon, which is inserted into the upper Nasal process of the Superior Maxillary Bone, where it joins the Os Frontis. It is connected above with the Occipito Frontalis and Corrugator Supercilii Muscles. The use of the Orbicularis Palpebrarum is, to close the Eye by bringing the Eye-lids together.

On each side of the cartilage of the Nose, proper to it, may be observed a very small Muscle, called the Compressor Naris. Its origin is from the outer surface of the Ala Nasi, or moveable part of the Nose, near its attachment with the Os Maxillare Superior; the fibres go across, and are inserted into the Dorsum Nasi. This Muscle compresses the Ala Nasi.

On the outside of this Muscle may be seen one con-

nected to the Nose and upper Lip, named the Levator Labii Superioris Alæque Nasi. It arises by two distinct fleshy slips; first, from the outer portion of the Os Maxillare Superior, which forms the lower part of the Orbit, and secondly, from the superior Nasal process of that Bone. These portions are separated by a cellular tissue, but soon unite, and the Muscle is inserted partly into the upper Lip, and partly into the Ala Nasi. Its action is, to elevate the upper Lip, and to draw the Ala Nasi outwards.

This Muscle hides the Levator Anguli Oris, which arises immediately underneath it, and goes to be inserted into the angle of the Mouth.

The Zygomatici are two slender and delicate Muscles, which take an oblique direction across the Face from the Cheek Bone to the corner of the Mouth. The great one, which is termed the Major, and is the most external, arises fleshy from the Os Malæ, near its junction with the Zygomatic process of the Temporal Bone, and is inserted into the angle of the Mouth. The Minor comes from nearly the same place as the preceding Muscle, only on its inner

side, and is inserted into the angle of the Mouth, between the Zygomaticus Major and the Levator Labii Superioris Alæque Nasi Muscles. The Zygomatici draw the angle of the Mouth obliquely outwards, as in laughing.

Immediately opposite to the insertion of the Zygomaticus Major, at the corner of the Mouth, will be seen the Depressor Arguli Oris. The origin of this Muscle is, from the lower and outer margin of the Os Maxillare Inferior, at the side of the Chin. It arises broad, and as it ascends to the angle of the Lips, diminishes in breadth where it is inserted. The fibres of the Muscle intermix with those of the Levator Anguli Oris, and Zygomatici Muscles. Its use is, as its name implies, to depress the corner of the Mouth.

The Depressor Labii Inferioris, is partly covered by the Muscles just described. It arises fleshy from the side and fore-part of the Inferior Maxillary Bone, above its base, and takes an oblique direction upwards, in order to be inserted into the under Lip. The action of this Muscle is, to draw the lower Lip obliquely downwards.

The next Muscle to be examined is the Masseter. This is a most important one for an Artist to be acquainted with: it is situated at the side of the Face, and extends from the Cheek Bone before the Ear, to the angle of the Jaw.

The Masseter arises by muscular and tendinous fibres, from the Superior Maxillary Bone, close to its connection with the Malar Bone, and from the lower edges of the Os Malæ and Zygomatic Process of the Temporal Bone. Its fibres descend obliquely, and are inserted into the external side of the angle of the Os Maxillare Inferior. This Muscle assists the action of the Temporal, in moving the lower Jaw upwards.

There is a Muscle on each side of the Face, common to the Cheeks and Lips, named the Buccinator. It arises by two distinct attachments, from the upper and lower Jaws, and proceeds forward with strait fibres, which adhere in their course to the mucous membrane lining the Mouth, into the angle of which the Muscle is inserted. Its action is to contract the cavity of the Mouth, and to draw its corner outwards.

The last of the superficial Muscles, is the Orbicularis Oris. This completely surrounds the Mouth, and is formed by the insertion of all the Muscles proceeding to the Lips, most of which have been described. Its use is to draw or contract both Lips together, so as to close the Mouth.

MUSCLES ON THE FORE-PART AND SIDE OF THE NECK.

Immediately beneath the skin of the Neck is found a broad and thin muscular expansion, named Platysma Myoides. The fibres of this Muscle are extremely pale and delicate, and originate from the cellular membrane, covering the upper part of the great Pectoral and Deltoid Muscles. They then ascend obliquely over the side and front of the Neck to the lower Jaw, where they are inserted into the side of the Chin, and also into the cellular membranes covering the Muscles placed near its basis. This Muscle draws the skin of the Face downwards, and when the lower Jaw is fixed, in contact with the upper, it wrinkles and draws the skin of the Neck upwards.

When the Platysma Myoides, is reflected from its insertion, we bring into view one of the most important superficial Muscles in the Human Body, the Sterno-Cleido-Mastoideus. This Muscle arises by two separate attachments; the one by a thick Tendon from the upper extremity of the Sternum or Breast Bone, and the other, by fleshy fibres from the sternal end of the Clavicle or Collar Bone. These origins are at first separated by a triangular space, but they soon unite, and form a thick, broad Muscle, that is continued obliquely from the upper and fore-part of the Chest across the Neck, to behind the angle of the Jaw, where it ascends to the Head behind the Ear, to be inserted into the Mastoid Process of the Temporal Bone. The action of this Muscle is to turn the Head to one side, and when both are in action they bend the Head forward.

It may be here observed, having described the Platysma Myoides and Sterno-Cleido-Mastoideus Muscles, that there is a Vein frequently seen externally, which runs between these two Muscles. It is the external Jugular Vein, and is formed by the union of a number of smaller ones, at the upper and fore-part of the Mastoid Muscle; it then descends

in an oblique direction to the outer and lower edge of that Muscle, where it becomes lost, owing to its dipping down behind the Collar Bone, to empty itself into a deep seated Vein.

Between the Sterno-Cleido-Mastoidei, may be observed two long and slender Muscles, passing up the front of the Neck, named the Sterno-Hyoidei.

The Sterno-Hyoideus arises below, by thin and fleshy fibres, from the cartilage of the first Rib, and from the upper and inner part of the Sternum, and a small portion of the Clavicle. It proceeds upwards on the Trachea or Wind-pipe, and is inserted above, into the middle of the base of the Os Hyoides or Bone of the Tongue. This Muscle pulls the Os Hyoides downwards.

On the outside of the preceding Muscle, going under the Sterno-Cleido-Mastoideus is the Omo-Hyoideus. This Muscle arises from the superior costa of the Scapula or Shoulder-Blade, near its semi-lunar nitch; it then crosses the Neck obliquely, and ascends beneath the Sterno-Cleido-Mastoideus,

and is inserted into the Os Hyoides, on the outer edge of the last described Muscle. Its action is to draw the Os Hyoides obliquely downwards.

The Student is next to examine the Trachea or Wind-pipe; a cartilaginous and membranous tube, descending along the anterior part of the Neck into the Chest. He should not only attentively consider its situation and shape, but should also picture in his mind the number and figure of the pieces of Cartilage which form it. The use of this tube is to admit the ingress and egress of the air to and from the Lungs, and to afford convenient attachment to several important Muscles, some of which assist in the motions of the Tongue, while others dilate and contract the cavity of the Trachea.

In the Throat there is occasionally seen swelling through the skin, an eminence or convexity, named the Pomum Adami, and which is generally larger in the Male than in the Female subject.

MUSCLES ON THE FRONT AND SIDE OF THE THORAX AND ABDOMEN.

The Muscles about to be described are of great importance to the Student in the Fine Arts, as the many graceful positions and movements of the Body, such as bowing, leaning backwards, or turning to either sides, are motions performed by the action of the Muscles at this part.

The principal Muscles situated on the side and front of the Thorax are, the Pectoralis Major, and the Serratus Major Anticus. The former of these forms the anterior fold of the Axilla or Arm-pit, and constitutes (as is seen in the living model,) that rounded appearance at the fore-part of the Axilla.

The Pectoralis Major arises above, by fleshy fibres, from the Sternal half of the Clavicle or Collar Bone, and below, from the whole outer surface of the Sternum or Breast Bone, and also from the cartilaginous ends of the fifth, sixth, and sometimes of the seventh Ribs. The fibres from the upper origin rather descend, and meet those which run

directly transverse, opposite to the third Rib. Those which originate from the lower third of the Sternum and Cartilages of the Ribs, ascend obliquely across the Chest, and uniting together form a broad triangular Muscle, which is inserted by a flat and pleted tendon into the Os Humeri, immediately along the outer margin of the groove for lodging the tendon of the long head of the Biceps Muscle. Where this Muscle arises from the Ribs, its fibres intermix with those of the External Oblique of the Abdomen, and where its tendon is inserted it is covered by the anterior margin of the Deltoides. Its use is, to draw the Arm obliquely upwards, and forwards towards the Sternum.

The Serratus Major Anticus is the broad and saw-like Muscle, expanded over the side and back-part of the Chest. It arises by eight or nine distinct fleshy slips, from an equal number of the upper Ribs; these slips or digitations proceed upwards and backwards, under the Latissimus Dorsi, and the Muscle is inserted fleshy into the whole base of the Scapula. Its action is, to move the Scapula forwards, and when the Scapula is raised and fixed, it elevates the upper Ribs.

The Abdomen is bounded before, and on each side, by three layers of Muscle, which are named the Abdominal; behind, by the Muscles of the Loins and the Spinal column; above, by a fleshy and membranous septum called the Diaphragm; and below, by the Bones of the Pelvis. The Abdominal Muscles are five on each side, three of which only claim the Artist's attention, and those are situated externally.

The Obliquus Descendens Externus, is a broad and thin Muscle situated between the Thorax and Pelvis, and extending from the Back, to the front and middle-part of the Abdomen. It arises by eight triangular fleshy slips from the lower margins and outer surfaces of the eight inferior Ribs, at a little distance from their Cartilages. The five upper slips are received between corresponding portions of the Serratus Major Anticus; and the three lower slips are connected with the Latissimus Dorsi Muscle, where it is attached to the Ribs. From these origins the fibres proceed obliquely downwards and forwards, and terminate in a broad thin Aponeurosis, which is stretched over the front of the Abdomen, and the Muscle is inserted partly

into the Linea Alba and Os Pubis, and partly into the two anterior thirds of the Spine of the Ilium. The action of this Muscle is, to assist in respiration by depressing the Ribs, and to bend the Trunk forwards, or to one side: it also supports and compresses the Abdominal Viscera.

The inferior part of the tendon of the External Oblique forms Pouparts or Fallopius's ligament, which extends from the fore-part of the Spine of the Ilium, obliquely downwards and inwards to the upper part of the Os Pubis, where it is thickest, in order to strengthen the lower part of the Abdomen.

The Student is next to notice two white and tendinous lines on the front of the Abdomen. The first is the Linea Alba, and is seen extending from the Cartilago Ensiformis down the middle of the Abdomen to the Os Pubis. This line is broadest at its upper part, and is formed by the interlacement of the tendinous fibres of the two Oblique and Transverse Muscles of one side, with those of the opposite side. The second is the Linea Semi-lunaris, situated on the exterior of the former, and extends along the side of the Abdomen at the outer edge of the Rectus Muscle.

The Rectus Abdominis is situated in front of the Abdomen, between the Linea Semi-lunaris and Linea Alba. It arises below, by a narrow beginning from the upper edge of the Os Pubis near the Symphysis; it then proceeds upwards being inclosed in a sheath, and in its ascent becomes broader; and is inserted above, into the edge of the Ensiform Cartilage, and also into the Cartilages of the three contiguous Ribs. The use of this Muscle is, to bend the Trunk forwards, and to assist the action of the other Abdominal Muscles. It may be here noticed that the lines, which are usually described as the Linea Transverse, are the three tendinous intersections and a half of the Rectus Muscle.

Between the Recti at the lower part of the Abdomen, is occasionally seen a small pair of Muscles named the Pyramidales. They arise broad from the fore and upper part of the Pubis, thence ascending gradually diminish in breadth, and are lost in the Linea Alba, about mid-way between the Umbilicus or Navel, and the Pubis. Their use is, to assist the lower portions of the Recti.

MUSCLES SITUATED ON THE BACK PART OF THE NECK, AND OF THE TRUNK.

When the integuments covering the back part of the Neck and of the Trunk are removed, the attention of the Student in the Fine Arts, will be immediately drawn to the two following important superficial Muscles, which cover nearly the whole outer surface of the back of the Neck and of the Trunk.

1st. The Trapezius extending from the Occiput downwards and outwards to the Shoulder; and 2nd. the Latissimus Dorsi, situated upon the lower part of the Back, and upon the Loins.

The Trapezius arises by a thick strong Tendon on either side of the Occipital Tubercle in the middle of the Os Occipitis, and by thin membranous fibres from the upper transverse ridge that extend outwards to the Mastoid Process. The Muscle then proceeds downwards along the nape of the Neck, and in its course adheres to the Spinous Processes of the two inferior Cervicle Vertebræ, and

also to all the Spinous Processes of the Dorsal Vertebræ: the fibres are then continued outwards to the Shoulder, and the Muscle is inserted part fleshy, into the upper edge of the Spine of the Scapula, part tendinous into the Acromion Process, and again part fleshy into the outer third of the Clavicle. The Reader will observe, the insertion of this Muscle is immediately opposite to the origin of the Deltoides. Its use is, to move the Shoulder according to the direction of its fibres, either upwards, backwards, or downwards.

Beneath the Trapezius is found many Muscles, situated between the Vertebræ and Ribs, and attached to the Head. They are united together, forming on each side of the Spine a fleshy mass, and which in the living Subject appears like a column. Their use, in a general sense is, to contribute to the elevation of the Head backwards, to assist in keeping it erect when raised, and to take a part in performing the rotatory motions.

The Latissimus Dorsi commences its origin by a broad and strong Aponeurosis from the back part of the Os Ilium,

from the Os Sacrum, from the Spinous Processes of the Vertebræ of the Loins, and from the seven lower Vertebræ of the Back: it also has another origin by four fleshy digitations, from the same number of the lower Ribs. The inferior fibres of the Muscle ascend obliquely, and meet the upper fibres, which run transversely over the inferior angle of the Scapula, and then converging, the Muscle proceeds with the Teres-Major, along the Axilla or Arm-pit, to be inserted by a strong flat Tendon, into the inner edge of the groove of the Os Humeri, which receives the Tendon of the long head of the Biceps Flexor Cubiti Muscle. Its action is, to draw the Arm downwards and backwards, and to rotate it upon its axis.

In the Back there is a space not yet mentioned, bounded by the Trapezius, Latissimus Dorsi Muscles, and the lower angle of the Scapula, in which is occasionally observed a small portion of the Rhomboideus Major, one of the Muscles which assist in moving the Scapula obliquely upwards and backwards.

MUSCLES
OF
THE SUPERIOR EXTREMITIES.

THE Author, in demonstrating these Muscles, has thought fit to divide them into the Muscles situated upon the Shoulder, Upper-Arm, Fore-Arm, and Hand, the same as he did with the Bones forming the Upper-Extremities.

MUSCLES OF THE SHOULDER.

When the Muscles which have been described are known, the Student should attentively consider the relative situation of the Muscles of the Shoulder, and which are called Muscles of the Os Humeri. One of the first that will present itself to his notice, will be the Deltoides; a broad thick Muscle, formed of strong coarse fibres, and extending from the Shoulder downwards, to the middle and outer side of the Upper-Arm.

The Deltoides, arises by tendinous fibres from the whole length of the Spine of the Scapula, from the whole length of the front edge of the Acromion Process, and from the outer third of the Clavicle. The fibres soon become fleshy, and proceed from their origin downwards, forming many fasciculi, when they all converge into a strong tendon, which is inserted into a rough surface on the external side of the Os Humeri, immediately below the Pectoralis Major. Its use is to move the Arm upwards, and backwards, or a little forwards, according to the several directions of its fibres. A thorough and complete knowledge of this Muscle is of great importance to an Artist; as it forms the contour and great bulk of the Shoulder. The Muscle is entirely superficial, and over-laps a considerable portion of the following Muscle.

The Infra-Spinatus, arises by fleshy fibres from the outer surface of the Scapula, immediately below the Spine of that Bone. The fibres rather ascend towards the neck of the Scapula, where they converge into a strong tendon, which is concealed by the Deltoid, and is inserted with the next

two Muscles into the great tuberosity on the outside of the head of the Os Humeri. Below the Infra-Spinatus is

The Teres Minor, which arises fleshy from the Inferior Costa of the Scapula, near the lower angle; it then takes the same direction as the preceding Muscle, to be inserted with it into the same tuberosity. It frequently happens that the fibres of the Teres Minor and this Muscle, are so closely united, that it is with difficulty the natural line of division between them can be seen. Their use is, to rotate the Arm outwards, to assist in raising it, and in supporting it in that position.

The fourth and last Muscle to be described at the back of the Scapula, is the Teres Major. It arises by muscular fibres, from a rough surface at the lower and back part of the Shoulder-blade, close to its inferior angle; it proceeds upwards and forwards along the Inferior Costa, by the margin of the Teres Minor, and is inserted by a strong tendon into the ridge at the inner side of the groove, for lodging the tendon of the long head of the Biceps Flexor Cubiti Muscle, immediately behind the insertion of

the Latissimus Dorsi. Its use is, to draw the Arm downwards and backwards, and to assist in the rotatory motion of it inwards.

MUSCLES SITUATED ON THE UPPER-ARM.

The Muscles situated upon the Upper-Arm are of considerable importance to the Student in the Fine Arts, as they are all visible externally, when covered by the Integuments. They consist of four in number, and with the exception of the Coraco-Brachialis, are named Muscles of the Cubit, or Fore-Arm, from their being inserted into the Bones at that part.

The Biceps Flexor Cubiti, a very thick and strong Muscle, situated on the fore-part of the Upper-Arm, arises by two distinct heads; the first, and long head, arises by a strong tendon from the upper-margin of the Glenoid cavity of the Scapula, then passes over the head of the Os Humeri, between the tuberosities within the Shoulder-Joint, and is continued into the Bicipital Groove: the second, and short head, arises tendinous from the point of

the Coracoid Process of the Scapula, in common with a Muscle not yet described, the Coraco-Brachialis; and proceeds along the Arm on the inner side of the first origin. The two heads soon become fleshy, and form two separate bellies, which unite near the middle of the Upper-Arm into one firm mass, which terminates about two inches above the Elbow-Joint in a thick round tendon, that is continued downwards to be implanted into the tubercle of the Radius. An Aponeurosis is given off from the tendon of this Muscle, just above the front of the Joint, which adheres with the Aponeurosis sent off from the tendon of the Triceps Extensor Cubiti, and forms the Fascia of the Fore-Arm. This Muscle bends the Fore-Arm with considerable strength, assists in turning the palm of the Hand upwards, and in raising of the Arm.

The Coraco-Brachialis, so named from its origin and insertion, arises from the point of the Coracoid Process along with the short head of the Biceps, to which it adheres for some distance; it then descends along the inside of the Arm, to about the middle of the Os Humeri, where it is inserted immediately below the Latissimus Dorsi and

Teres Major Muscles. Its action is to raise the Arm obliquely forwards and upwards.

The Brachialis Internus arises by two fleshy slips, one on each side of the insertion of the Deltoid Muscle; it proceeds under the Biceps, and continues its attachment to the Bone, to within a short distance of the Elbow-Joint; when it proceeds over it, to be inserted into a rough surface at the root of the Corocoid Process, on the fore-part of the Ulna. It assists in bending the Fore-Arm.

The Triceps Extensor Cubiti, is divided above into three distinct heads, which are situated along the back and inside of the Arm. The first, or long head, arises by a strong tendon from the upper part of the Inferior Costa of the Scapula near its neck, and thence proceeds to the Arm, betwixt the Teres Major and Minor. The second, or short head, arises by an acute fleshy beginning from the upper and outer end of the Os Humeri, a little below the insertion of the Teres Minor. The third head, called Brachialis Externus, commences in a pointed form from the inside of the Os Humeri, near the insertions of the Latissimus

Dorsi and Teres Major Muscles. The three heads which are fleshy as they proceed along the Arm, unite about two inches above the Elbow-Joint, and the Muscle is inserted below, by a thick tendon into the Olecranon Process of the Ulna, and is further continued into the Condyles of the Os Humeri. Its action is to extend the Fore-Arm.

MUSCLES SITUATED ON THE FRONT OF THE CUBIT, OR FORE-ARM.

The Student before examining the Muscles on the front of the Fore-Arm, must attend to the strong fascia, which binds them down, and prevents them from starting when in violent action. This fascia, which is formed by the tendons of the Biceps and Triceps, is continued down the Fore-Arm, being firmly connected to the fleshy portions of the Muscles at the upper part near the Elbow-joint. The fascia is much thicker and stronger where it covers the Muscles on the back of the Cubit, than on the fore part. In its course downwards, it sends processes inwards between the Muscles, forming inter-muscular ligaments, and

is fixed on each side to the Condyles of the Os Humeri, to the Olecranon Process, and to the Ulna. Further down the Arm it is attached to the Annular Ligament, and forms behind a ligamentous band, called the posterior Annular Ligament, which extends from the Radius to the Ulna. There are several cutaneous Veins on the Arm, which ramify upon the Fascia; the principal of them are, the Vena Basilica, the Vena Cephalica, and the Vena Mediana Longor.

The Vena Basilica commences at the back of the Hand, from a Vein near the Little Finger, named the Vena Salvatella, and proceeds along the inner side of the Fore-Arm, receiving in its course a number of small Veins, and becomes deep seated, a little above the Elbow-Joint. The Vena Cephalica commences at the back of the Hand, from a Vein between the Thumb and Fore-Finger, named the Vena Pollicis, and passes up the Radial side of the Arm, on the outer edge of the Biceps Muscle. From the upper part of the Arm, the Cephalic Vein continues its course upwards, between the Deltoid and Pectoralis Major Muscles, and then dips inwards to empty itself into a Vein beneath the Collar Bone. The Mediana Longor is a Vein

running along the front of the Fore-Arm, between the Integuments and Fascia, and receives in its course numerous superficial branches: it divides near the Elbow-Joint into two branches, named the Median Cephalic, and Median Basilic, which proceed obliquely to terminate in the Veins so named.

The Pronator Radii Teres is a small conical shaped Muscle, arising tendinous from the anterior surface of the Internal Condyle, and from the Coronoid Process of the Ulna. It is chiefly fleshy, and takes an oblique direction outwards across the Arm, to be inserted into the middle of the back part of the Radius. Its action is to roll the Radius over the Ulna, and in doing of this, it turns the palm of the Hand downwards.

The Flexor Carpi Radialis is a long thin Muscle arising from the lower and fore part of the Internal Condyle, between the Pronator Radii Teres and Palmaris Longus. It proceeds fleshy along the middle of the Fore-Arm, and terminates in a flat tendon, which passes beneath the anterior Annular Ligament of the Wrist, then through

a groove in the Os Trapezium, and is inserted into the upper part of the Metacarpal Bone that sustains the Fore-Finger. This Muscle bends the Hand, and assists in its pronation.

The Palmaris Longus, which is frequently wanting, is a long slender Muscle arising from the inner Condyle, and proceeding downwards forms a short fleshy belly, which ends in a long thin tendon, that is inserted into the anterior Annular Ligament near the Thumb. Its action is to bend the Hand, and to render tense the palmar Fascia.

The Flexor Carpi Ulnaris, arises by muscular and tendinous fibres from the lower part of the Internal Condyle, and from the lateral part of the Olecranon. From these origins, a thick mass of Muscle proceeds down the Ulnar-side of the Fore-Arm, and gives off a strong tendon, which is inserted into the Os Pisiforme. Its use is to assist in bending of the Hand, and in performing the lateral motion of it inwards.

The Flexor Sublimus Perforatus, arises from the inner Condyle, from the tubercle of the Radius, and from the Co-

ronoid Process of the Ulna. Its thick fleshy belly lies deeper than the preceding Muscles, and sends off four round tendons, which proceed under the anterior Annular Ligament into the palm of the Hand, and then diverge from each other to be inserted into the second phalanx of the Fingers. The use of this strong Muscle is to bend the second joint of the Fingers. The tendons are perforated at the first phalanx of each Finger, to admit the tendons of the Flexor Profundus Perforans.

MUSCLES SITUATED ON THE OUTER AND BACK PART OF THE FORE-ARM.

The Student having made himself acquainted with the Muscles which bend the Hand and Fingers, must, in the next place, examine those Muscles which act as opponents in extending those parts. The mass of Muscles on the outside and back of the Fore-Arm, consists of the Supinator Radii Longus, Extensor Carpi Radialis Longior and Brevior, Extensor Digitorum Communis, Extensor Carpi Ulnaris, and Anconeus.

The Supinator Radii Longus is the thick fleshy mass placed along the outside of the Elbow-Joint. It arises just below the insertion of the Deltoid, by an acute fleshy beginning from the ridge in the Os Humeri, leading to the External Condyle, and continues to adhere to the Bone to within about two inches above that protuberance. The Muscle descends to about the middle of the Fore-Arm, where it terminates in a flat tendon, which is inserted into a rough surface at the lower end of the Radius. It assists in rolling the Radius outwards, and in turning the palm of the Hand upwards.

The Extensor Carpi Radialis Longior, arises fleshy from the ridge above the External Condyle, immediately below the Supinator Radii Longus; it forms a fleshy belly as it passes the side of the Elbow-Joint, and a little above the middle of the Radius it ends in a flat tendon, which proceeds downwards beneath the Extensors of the Thumb, and the posterior Annular Ligament, through a groove in the Radius, to be inserted into the carpal extremity of the Metacarpal Bone of the Fore-Finger. Its action is to extend the Hand, and move it backwards.

The Extensor Carpi Radialis Brevior, takes its origin by a common tendon with the other Muscles, from the outer Condyle of the Os Humeri; it descends along the outside of the Fore-Arm, in almost the same direction as the preceding Muscle, and is inserted by a strong tendon into the upper and back part of the Metacarpal Bone of the Middle Finger. Its action is the same as the last Muscle.

The Extensor Digitorum Communis, is situated in the middle of the back part of the Fore-Arm, closely united at its origin to the Extensor Carpi Radialis Brevior. It arises in common with the other Muscles from the outer Condyle, and as it descends becomes very fleshy and thick; about the middle of the Fore-Arm it divides into four tendons, which pass together under the posterior Annular Ligament, and then separating, are continued forward over the Metacarpal Bones and first Phalanx of the Fingers, where they split, and are connected with the tendons of the Interossei and Lumbricales, and form tendinous expansions, which are inserted into the back part of all the Bones of the four Fingers. This Muscle extends all the Joints of the Fingers. As the tendons proceed forward over the

Metacarpal Bones, they are joined by transverse tendinous bands, which are extended between them.

The Muscle which is usually described as the Auricularis, or as the Extensor of the Little Finger, is in fact nothing more than the outer portion of the last described Muscle, and should be considered by the Student as such. The tendon of the Muscle proceeds forwards beneath the posterior Annular Ligament, in a channel peculiar to itself.

The Extensor Carpi Ulnaris is the innermost of the Muscles on the back of the Fore-Arm. It arises tendinous from the External Condyle, and is firmly connected with the Aponeurotic expansion, separating it from the Extensor Digitorum Communis. It proceeds downwards towards the Ulna, and is attached by fleshy fibres to the back of that Bone. In the lower part of the Fore-Arm it ends in a tendon, which passes under the posterior Annular Ligament, through a groove in the Ulna, and is inserted into the upper part of the Metacarpal Bone of the Little Finger. Its use is to assist in extending the Wrist, and in moving

the Hand backwards: it also moves the Hand sideways towards the Ulna.

There is a small triangular Muscle not yet described, named the Anconeus, which is placed on the back of the Elbow, between the upper part of the Extensor Carpi Ulnaris and Olecranon Process. It arises tendinous from the back part of the External Condyle, soon becomes fleshy, and takes an oblique direction downwards, and is inserted into the concave surface of the Ulna, just below the Olecranon, and into a ridge at the back part of that Bone. The Muscle is enveloped in a tendinous membrane, and assists in extending the Fore-Arm.

Besides the Muscles described, there are three tendons going to the Thumb, which are seen at the back part of the lower third of the Fore-Arm, crossing the tendon of the Supinator Radii Longus. These are the Extensors, and the order in which they are arranged is as follows: the Extensor Ossis Metacarpi Pollicis, the Extensor Primi Internodii Pollicis, and the Extensor Secundi Internodii Pollicis.

The Extensor Ossis Metacarpi Pollicis is situated upon the back part of the Radius, and passes through a groove in the lower extremity of that Bone, to be inserted into the upper and back part of the Metacarpal Bone of the Thumb. Its use is to extend the Thumb.

The Extensor Primi Internodii Pollicis, lies close to the preceding Muscle; it descends along the outer edge of the Radius, and accompanying the tendon of the former Muscle, proceeds over the Metacarpal Bone of the Thumb to be attached to the first Phalanx, which it extends obliquely outwards.

The Extensor Secundi Internodii Pollicis, is the thick fleshy Muscle which is inserted into the last Bone of the Thumb. Its tendon goes under the posterior Annular Ligament, and in consequence of its being separated at some distance from the tendon of the last described Muscle, forms that triangular fossa, so visible at the back of the Wrist near the Thumb. Its action is to extend the last joint.

THE HAND.

The Anatomy of the Hand is extremely difficult for an Artist, owing to the many Muscles, as well as Bones, which form it. It would be useless for the Author to take up the Reader's time in describing the origin and insertion of the Muscles, which it is well known are not only small, but powerful, for the purpose of enabling us to perform the various and multiplied operations of the Arts, Manufactures, &c. It will therefore be sufficient for the Student to know the relative situation and character of each Muscle, which can be acquired by studying the Plates affixed to the Work. On the back of the Hand it is requisite to attend particularly to the tendons of the Extensors of the Wrist and Fingers. Small slips of tendon will occasionally be seen at the first joints of the Fingers, connecting the tendons to each other. The Hands are the instruments of defence and labour, and being composed of so many joints enables us to grasp and perform the several motions, which could not be accomplished were it but one joint.

MUSCLES SITUATED ON THE FRONT OF THE THIGH.

Upon the reflection of the Integuments front the front of the Thigh, the attention of the Student must first be directed to the Fascia binding down the Muscles, which should be well exposed, in order to learn its extent and connections. The Fascia, which is named the Fascia Lata Femoris, extends round the whole Thigh, but is not of equal thickness throughout. It is much thicker where it covers the Muscles on the outer part of the Thigh, than in any other situation. It is attached in front, above, to the Pubis and Poupart's Ligament, and behind, to the spine of the Ilium, and the tendon of the Gluteus Maximus. In its course downwards, just below the Trochanter Major, it receives the tendon of the Tensor Vaginæ Femoris, and sends processes inwards between the Muscles. At the lower part of the Thigh it is firmly joined to the tendon of the Rectus Muscle, and is continued over the Knee-Joint to form the Fascia of the Leg.

Between the Integuments and Fascia is a Vein, called the Vena Saphena Major: it is formed at the lower part of the Inferior Extremity on the upper surface of the Foot, by a number of small Veins, and ascends along the inside of the Leg and Thigh, a little behind the inner Condyle of the Os Femoris.

In reflecting the Fascia from the front of the Thigh, the first object of the Artist must be to remark well the situation of the Muscles.

The Tensor Vaginæ Femoris and Sartorius Muscles, will be seen attached above to the anterior Spine of the Ilium; along the front of the Thigh may also be observed the Rectus Femoris. On the outer side of the Thigh is the Vastus Externus, and on the inner side, is the Vastus Internus by the edge of the Rectus. Immediately on the inner side of the Sartorius, above, is the Psoas Magnus and Iliacus Internus, descending together in one mass, beneath Poupart's Ligament, into the hollow of the Thigh: next to these is the Pectinalis, running obliquely downwards, from the Pubis to the upper part of the Thigh. The inside is

occupied by a large mass of Muscle, consisting of the Triceps Adductor Femoris, and a long slender Muscle, the Gracilis.

The Student having well remarked the situation of these Muscles as they lie in their natural position, must, in the next place, learn their origins and insertions.

The Tensor Vaginæ Femoris, arises by a short tendon from the external part of the Anterior Superior Spinous Process of the Ilium, between the origin of the Sartorius, and the anterior fibres of the Gluteus Medius; and descending along the outer side of the Thigh to a short distance below the Trochanter Major, is inserted between the duplicature of the Fascia Lata Femoris. This Muscle renders tense the Fascia, assists in the abduction of the Thigh, and in its rotation inwards.

The Sartorius arises by short tendinous fibres from the same Process as the former Muscle, only on its inner side. It then crosses the Thigh obliquely, forming a Muscle of about two inches in breadth, whence it is continued to the

Knee, behind the inner Condyle, and terminates in a flattened tendon, which is affixed to the inside of the Tibia, just below its tuberosity. This Muscle bends the Leg obliquely inwards, and from its use in crossing the Legs, an action common to Tailors, is termed the Tailor's Muscle.

The Rectus Femoris arises by two strong tendons, one from the Anterior Inferior Spinous Process of the Ilium, and the other from the Dorsum of that Bone, just above the Acetabulum. The tendons soon unite and form a thin, flat Muscle, which becomes gradually broader to the middle of the Thigh, when it is continued in a straight direction to the Patella, to be inserted by a strong tendon into the upper and fore part of that Bone, and by a Ligament from the Patella, into the Tibia. The action of this Muscle is to extend the Leg in a powerful manner, and to bend the Thigh on the Pelvis.

The Vastus Externus arises by a broad, tendinous, and fleshy origin, from the fore and lower part of the Trochanter Major, from the outer side of the Linea Aspera, and from a great portion of the external surface of the

Thigh Bone. Its fibres proceed obliquely downwards and forwards, and form the large fleshy mass on the outer side of the Thigh, and are inserted partly into the tendon of the Rectus, and partly into the side of the Patella, where an Aponeurosis is sent off over that Bone, to be attached to the Tibia. Its use is to extend the Leg.

The Vastus Internus, which forms the fleshy mass on the inside of the Thigh, arises tendinous and fleshy from the anterior and lower part of the Trochanter Minor, and from the inner edge of the Linea Aspera. In its passage along the Thigh, its fleshy fibres proceed obliquely downwards and forwards, being continued much further down than those of the Vastus Externus, and the Muscle is inserted partly into the inner edge of the tendon of the Rectus, and partly into the internal side of the Patella. An Aponeurosis is stretched from the tendon of this Muscle over the front of the Patella, to the Ligamentum Patellæ and to the Tibia. It assists in extending the Leg.

The Psoas Magnus, and Iliacus Internus Muscles form the thick fleshy mass, which descends from beneath Pou-

part's Ligament, by the side of the Sartorius, into the hollow of the Thigh, and becoming tendinous, is inserted into the Trochanter Minor. They bend the Thigh forwards, and when the Inferior Extremity is fixed, they assist in bending the Trunk.

The Pectinalis is a broad flat Muscle, arising fleshy from the upper and fore part of the Os Pubis, and descending between the Psoas Magnus and Adductor Longus, is inserted by a short flat tendon into the upper part of the Linea Aspera of the Thigh Bone, just below the Trochanter Minor. Its use is to raise the Thigh upwards and inwards. The Triceps Adductor Femoris consists of three distinct portions, which are usually described as three Muscles, Adductor Longus, Adductor Brevis, and Adductor Magnus, from their having so little connection with each other. They lie in different layers, and proceed from the inside of the Pubis to the Thigh, forming a broad triangular fleshy mass. The use of these Muscles is to move the Thigh inwards, and to assist in bending it forwards.

The Gracilis arises by a thin tendon from the Pubis, near its Symphysis, and forms a thin flat Muscle, which

passes straight down the inside of the Thigh to the Knee, and is inserted by a strong tendon, into the inner side of the Tibia, between the Sartorius, and the Semi-tendinosus Muscles. It assists in bending the Leg.

MUSCLES SITUATED UPON THE BACK PART OF THE PELVIS AND THIGH.

Beneath the Integuments on the back part of the Pelvis, two superficial Muscles are situated, the Gluteus Maximus, covering the lower and back part of the Os Innominatum, and the Gluteus Medius, situated anterior to the other Muscle. The former of these, which gives so much beauty and elegance to the Hip-joint, forms the great bulk behind the Trochanter Major, and consequently is of great importance to the Student in the Fine Arts.

The Gluteus Maximus is a thick, broad, coarse Muscle, divided into a number of strong Fasciculi. It arises fleshy, from nearly the posterior half of the Spine of the Ilium, and from the lateral surface of the Os Sacrum, and Os Coccygis.

Its fibres, which are very large, proceed obliquely downwards and outwards, forming a loose and folded mass, upon which we sit, and terminate in a strong flat tendon, which proceeds over the Trochanter Major, and is inserted into a rough surface at the upper and outer part of the Linea Aspera, just below the Trochanter Major. This Muscle extends the Thigh, by pulling it directly backward.

The Gluteus Medius, which is partly concealed by the former Muscle, arises from the anterior half of the Spine of Ilium, and from the Dorsum of the Bone, between the Spine and the semi-circular ridge. Its fleshy fibres as they decend, form a part of the contour of the Hip-joint, and converge into a broad tendon near the Trochanter Major, into which protuberance the Muscle is inserted, at the upper and outer part. It assists the Gluteus Maximus, in extending the Thigh, and in performing the rotatory motion of it outwards.

The Muscles situated on the back part of the Thigh, are three in number; the Biceps Flexor Cruris, the Semitendinosus, and the Semi-membranosus. The attention of

the Student must first be directed to the tendons of these Muscles which form the Ham-strings, at the lower and back part of the Thigh, and at the back of the Knee-joint. The outer Ham-string is formed but of one Muscle, the Biceps Flexor Cruris; the inner Ham-string is formed of two, the Semi-tendinosus, and the Semi-membranosus.

The Biceps Flexor Cruris, is situated along the outer side of the Thigh, and is divided as its name implies, above, into two distinct heads. The first, or long head, arises from the tuberosity of the Ischium, by a tendon which is connected with the Semi-tendinosus, and descending along the Arm, soon becomes fleshy. The second, or short head, arises from the Linea Aspera, near the insertion of the Gluteus Maximus, and from the ridge proceeding to the outer Condyle. The two heads are continued separately some way downwards, when they unite a little above the Knee-Joint, and terminate in a strong tendon, which passes at the outer side of the Knee, and is inserted into the head of the Fibula. Its action is to bend the Leg.

The Semi-tendinosus is connected, for about two or three inches, at its upper part to the Biceps; it arises ten-

dinous and fleshy from the tuberosity of the Ischium, and descends on the inside of the Thigh to form a thick belly, which gives off a long round tendon, that proceeds behind the inner Condyle, and is attached to the upper part of the Tibia, immediately below its tuberosity. This Muscle is inserted below the tendons of the Sartorius and Gracilis. Its action is to bend the Leg backwards, and a little inwards.

The Semi-membranosus arises by a flat tendon from the same place as the preceding Muscle, only in front of it, and proceeds obliquely down the Thigh, beneath the Semi-tendinosus, to be inserted by a tendon into the back part of the Tibia. It bends the Leg, and brings it directly backwards.

MUSCLES SITUATED ON THE FRONT AND OUTSIDE OF THE LEG.

The Muscles on the front of the Leg are of great importance to those studying in the Fine Arts, as the whole of them are entirely superficial. They are covered by a Fascia, which is much thicker on the front of the Leg than

in any other situation, and is continuous from the Fascia Lata Femoris. The number of Muscles situated on the fore part of the Leg, between the Tibia and Fibula, is three; the Tibialis Anticus, the Extensor Longus Digitorum Pedis, and the Extensor Proprius Pollicis Pedis.

The Tibialis Anticus lies close to the Tibia; it arises from the fore part and outside of that Bone, just below its head, and descends to about the commencement of the lower third of the Leg, when it forms a thick flat tendon, which passes forwards beneath the Annular Ligament, near the inner Ancle, and is inserted into the inner side of the Os Cuneiforme Internum, and base of the Metatarsal Bone of the Great Toe. This Muscle bends the Foot, by drawing it upwards.

The Extensor Longus Digitorum Pedis is situated at its upper part, on the outer side of the Tibialis Anticus, next to the Peroneus Longus. It arises from the outer side of the head of the Tibia, just below the Knee, and also from the adjacent part of the Fibula, and continues its attachment to that Bone, for nearly its whole length: it

then proceeds downwards, and soon becomes a thick fleshy mass, which is firmly connected with the Fascia separating it on one side from the Tibialis Anticus, and on the other from the Peronei Muscles. At the lower part of the Leg it divides into four tendons, which go under the Annular Ligament, and then diverge to be attached by tendinous expansions, to the upper surfaces of the four small Toes. Its use is to extend all the Joints of the Toes, and to assist in bending the Foot.

There is a small Muscle named the Peroneus Tertius, which may be considered as the outer portion of the last described Muscle, from its being almost constantly united to it. The Peroneus Tertius is closely attached to the Fibula, and proceeds down the Leg, under the Annular Ligament, in a channel peculiar to itself, and is inserted by a distinct tendon into the Metatarsal Bone, belonging to the little Toe. It assists in bending the Foot.

The Extensor Proprius Pollicis Pedis is situated at the lower third of the Leg, between the Tibialis Anticus, and the Extensor Longus Digitorum. It arises fleshy from

the Fibula, and extends obliquely downwards, to form a strong tendon, which becomes superficial between the Muscles just named. Its tendon is then continued forwards beneath the Annular Ligament, and along the upper surface of the Metatarsal Bone of the great Toe, to be inserted into the last Phalanx. Its use is to extend the great Toe.

The Muscles on the outer side of the Leg are two, the Peroneus Longus attached to the upper extremity of the Fibula, and the Peroneus Brevis, placed immediately under the lower part of the Peroneus Longus.

The Peroneus Longus arises from the fore and outer part of the head of the Fibula, and also from the upper and outer half of that Bone. The fibres proceed downwards, between the Extensor Longus Digitorum and the Soleus Muscles, and about the middle of the outside of the Leg send off a tendon, which descends behind the outer Ancle, through a groove in the Fibula, to the under part of the Foot.

The Peroneus Brevis is partly concealed by the tendon of the Peroneus Longus, which lies upon it. Its ten-

don is reflected forwards from behind the outer Ancle in a straight line, to be inserted into the Metatarsal Bone of the little Toe. The Peroneus Longus, and Brevis, move the Foot outwards.

Beneath the tendons of the Extensor Longus Digitorum Pedis, on the upper surface of the Foot, one Muscle is placed, the Extensor Brevis Digitorum Pedis. It arises fleshy on the outer side of the Foot, from the upper surface of the Os Calcis, and forming a flat square Muscle, divides into four distinct tendons, which are inserted into the Phalanges of the four inner Toes. It assists in extending the Toes. For a more complete knowledge of the tendons of the Foot, the Reader must be referred to the Plates affixed to the Work.

MUSCLES SITUATED ON THE BACK OF THE LEG.

Before we proceed to the Muscles forming the Calf, we must first notice a small Vein, called the Vena Saphena Minor, which is situated between the Fascia and Muscles. It is formed at the lower part of the Leg, by the union of

many small veins, and ascends on the outside of the Tendo-Achillis, to open into the Popliteal Vein in the Ham.

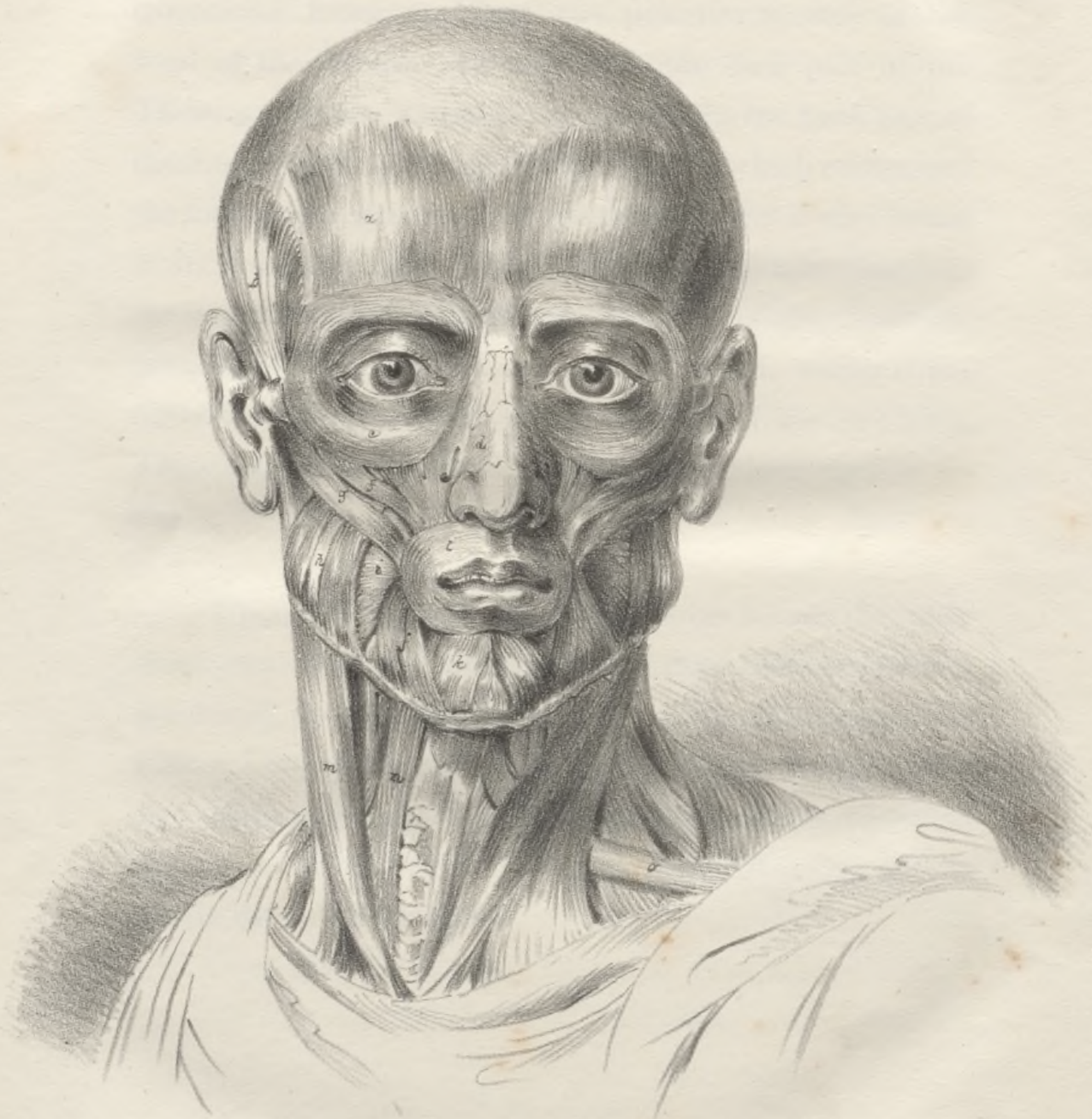
The principal Muscles forming the great mass on the back of the Leg, are two; the Gastrocnemius Externus, or Gemellus, and the Gastrocnemius Internus, or Soleus. Of all the Muscles in the Human Body which claim the Artist's attention, perhaps there are none to equal these, from their giving so much beauty and elegance to the Calf. They descend from behind the Knee to about the middle of the Leg, in a fine and gentle waving manner, and then terminate in one of the thickest tendons in the Body.

The Gastrocnemius Externus, arises by two distinct tendinous heads, of which the internal is the larger, from the upper and back part of the Condyles of the Thigh Bone. Each of the heads form a fleshy belly, and as they proceed downwards, unite a little below the Knee into one mass, by a middle tendinous line. The Muscle in its descent is continued to about the middle of the Leg, where it terminates in a broad and flat tendon, which is connected a little above the Ancle, with the tendon of the next Muscle.

The Soleus arises immediately beneath the Gastrocnemius Externus, from the posterior surface of the head of the Fibula, and also from the back part of the Tibia, just below its head. It goes down the back part of the Leg, and forms a large fleshy Muscle, which constitutes the lower Calf, and ends in a flat tendon, that is very broad at its commencement, and which is inseparably joined to the tendon of the preceding Muscle. From this union the great tendon called Tendo-Achillis is formed, which is inserted into the posterior and superior part of the Os Calcis. Their action is to extend the Foot, by elevating the Os Calcis.

Upon the removal of the Fascia from behind the inner Ancle, we meet with the tendons of three Muscles, which are deeply situated, lying close to the Tibia in grooves; the Flexor Longus Digitorum Pedis, the Flexor Longus Pollicis Pedis, and the Tibialis Posticus, the latter of which is situated between the two preceding Muscles, and is partly concealed by them.

Plate I.



Day & Haghe Lith.rs to the King.

On Stone by Chas. Sumpson.

DESCRIPTION OF THE PLATES.

PLATE I.

FRONT VIEW OF THE MUSCLES OF THE HEAD, FACE, AND NECK.

a. Occipito-Frontalis.

b. Temporalis.

c. Orbicularis Palpebrarum.

d. Compressor Naris.

e. Levator Labii Superioris Alæque Nasi.

f. Zygomaticus Minor.

g. Zygomaticus Major.

h. Masseter.

i. Buccinator.

j. Depressor Anguli Oris.

k. Depressor Labii Inferioris.

l. Orbicularis Oris.

m. Sterno-Cleido-Mastoideus.

n. Sterno-Hyoideus.

o. Omo-Hyoideus.

p. Trapezius.

PLATE II.

SIDE VIEW OF THE MUSCLES OF THE HEAD, FACE, AND NECK.

a. Occipito-Frontalis.

b. Temporalis.

c. Orbicularis Palpebrarum.

d. Compressor Naris.

e. Levator Labii Superioris Alæque Nasi.

f. Zygomaticus Minor.

g. Zygomaticus Major.

h. Masseter.

i. Buccinator.

j. Depressor Anguli Oris.

k. Depressor Labii Inferioris.

l. Orbicularis Oris.

m. Digastricus.

n. Stylo-Hyoideus.

o. Digastricus.

p. Sterno-Cleido-Mastoideus.

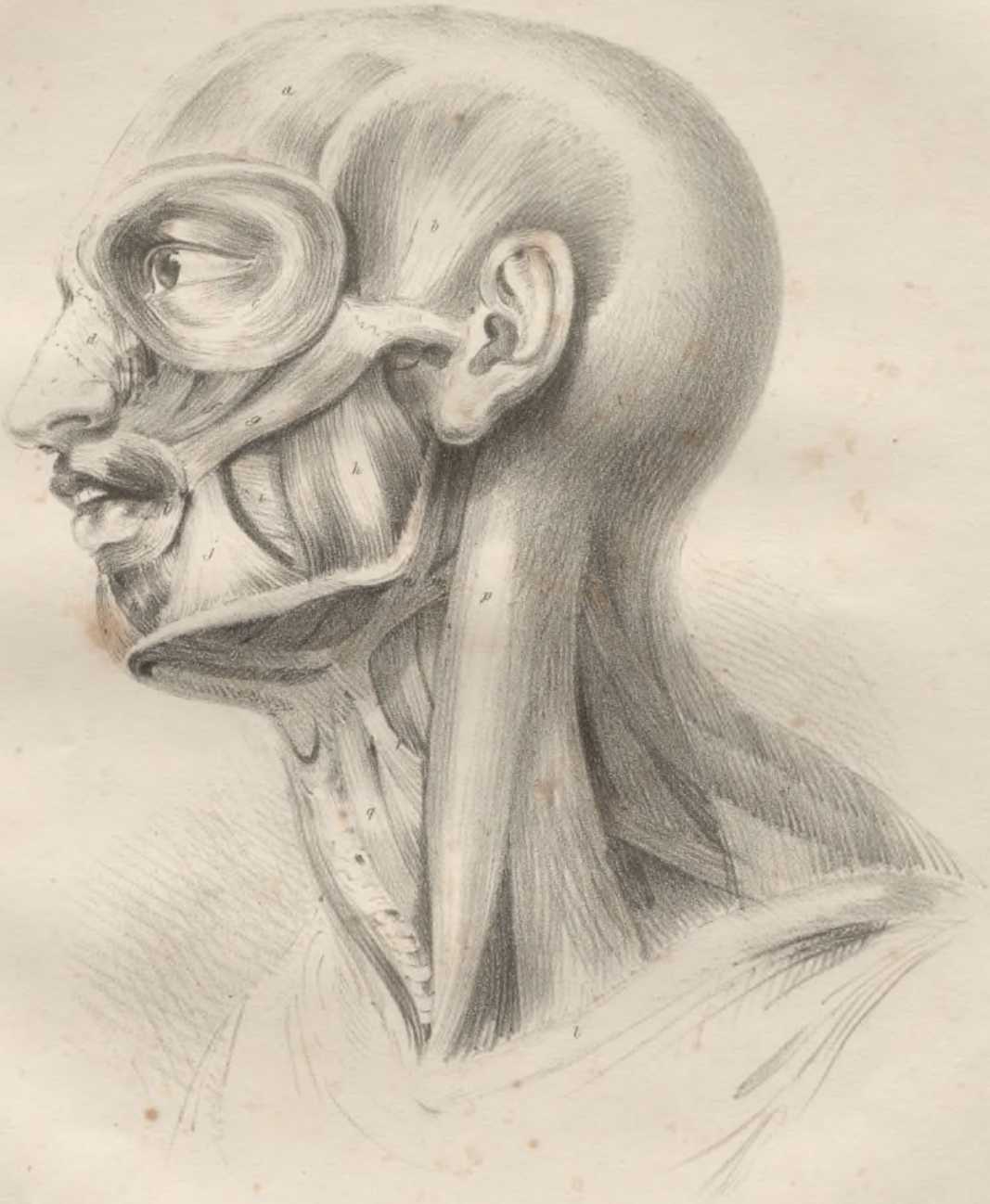
q. Sterno-Hyoideus.

r. Omo-Hyoideus.

s. Trapezius, vel Cucullaris.

t. Clavicle.

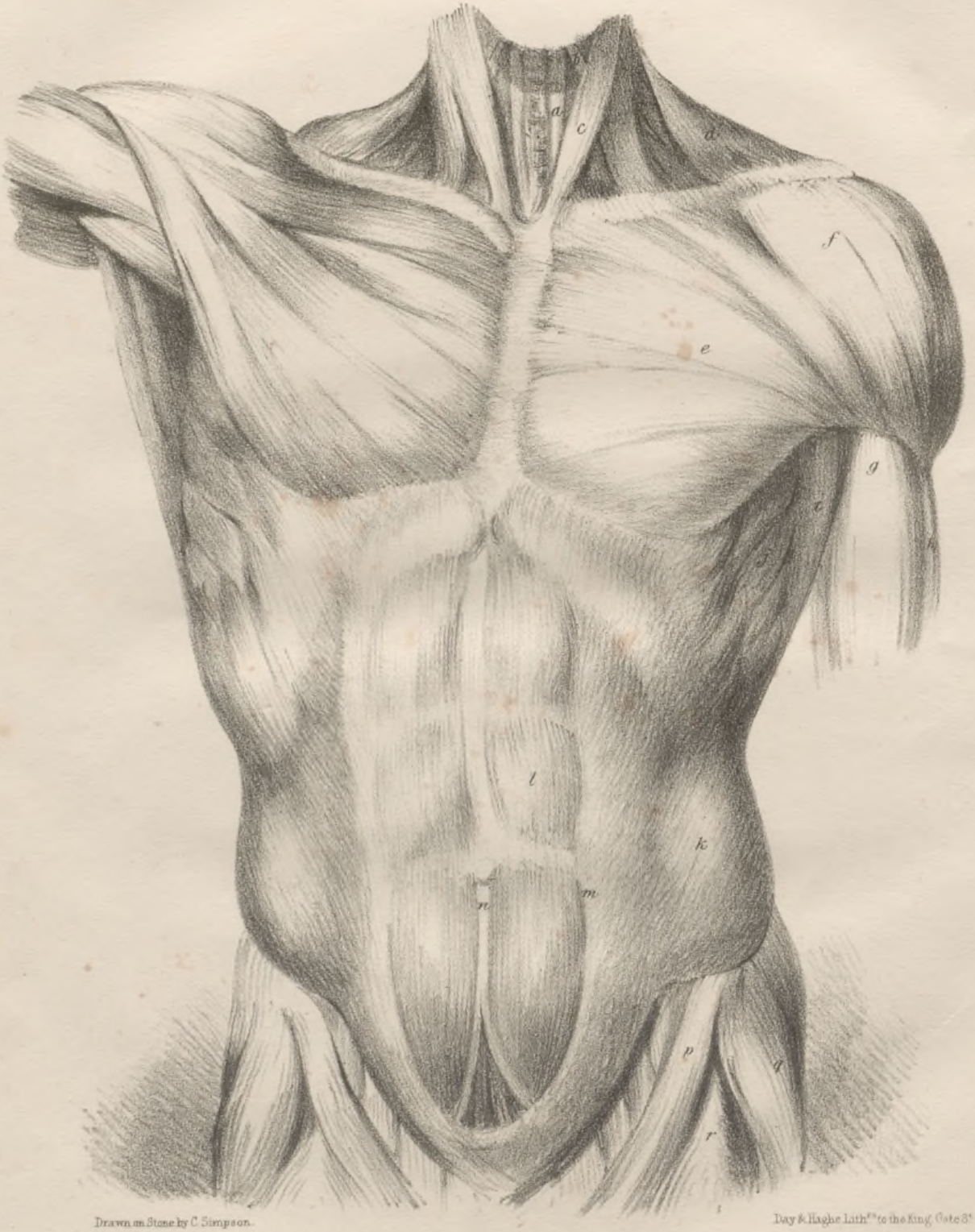
Plate II.



Drawn on Stone by Simpson.

Day & Haghe Lith.rs to the King, Gate St.

Plate III.



Drawn on Stone by C. Simpson.

Day & Haghe Lith^rs to the King. Gate St.

PLATE III.

FRONT VIEW OF THE MUSCLES OF THE TRUNK.

a. Sterno-Hyoideus.

b. Omo-Hyoideus.

c. Sterno-Cleido-Mastoideus.

d. Trapezius, or Cucullaris.

e. Pectoralis Major.

f. Deltoides.

g. Biceps Flexor Cubiti.

h. Brachialis Internus.

i. Latissimus Dorsi.

j. Serratus Major Anticus.

k. Obliquus Abdominis Externus Descendens.

l. Rectus Adominis.

m. Linea Semi-lunaris.

n. Linea Alba.

o. Pyramidalis.

p. Sartorius.

q. Tensor Vaginæ Femoris.

r. Rectus Femoris.

PLATE IV.

SIDE VIEW OF THE MUSCLES OF THE TRUNK.

a. Sterno-Cleido-Mastoideus.

b. Trapezius.

c. Deltoides.

d. Triceps Extensor Cubiti.

e. Infra-spinatus.

f. Teres Minor.

g. Teres Major.

h. Pectoralis Major.

i. Serratus Major Anticus.

j. Obliquus Abdominis Externus Descendens.

k. Rectus Abdominis.

l. Rhomboideus Major.

m. Latissimus Dorsi.

n. Spinous Processes of the Vertebræ.

o. Gluteus Maximus.

p. Gluteus Medius.

Plate IV.

On Stone by C. Sumpson.

Day & Haghe Lith^rs to the King, Gate St.

Plate V.

Day & Haghe Lith^rs to the King Gate St^t Lincolns Inn F^ds

On Stone by C. Simpson.

PLATE V.

BACK VIEW OF THE MUSCLES OF THE TRUNK.

a. Trapezius.

b. Sterno-Cleido-Mastoideus.

c. Deltoides.

d. Infra-spinatus.

e. Teres Minor.

f. Teres Major.

g. Triceps Extensor Cubiti.

h. Latissimus Dorsi.

i. Obliquus Abdominis Externus Descendens.

j. Gluteus Maximus.

k. Gluteus Medius.

PLATE VI.

FRONT AND OUTER VIEW OF THE MUSCLES OF THE ARM.

FIGURE 1.

a. Pectoralis Major.
b. Deltoides.
c. Biceps Flexor Cubiti.
d. Brachialis Internus.
e. Coraco-Brachialis.
f. Pronator Radii Teres.
g. Flexor Carpi Radialis.
h. Palmaris Longus:
i. Flexor Carpi Ulnaris.
j. Supinator Radii Longus.
k. Anterior Annular Ligament.

FIGURE 2.

a. Deltoides.
b. Biceps Flexor Cubiti.
c. Brachialis Internus.
d. Triceps Extensor Cubiti,
e. Olecranon Process.
f. Supinator Radii Longus.
g. Extensor Carpi Radialis Longior.
h. Extensor Carpi Radialis Brevior.
i. Extensor Digitorum Communis.
j. Extensor Ossis Metacarpi Pollicis Manus.
k. Extensor Primi Internodii Pollicis Manus.
l. Posterior Annular Ligament.

Plate VI.

Fig. 1.

Fig. 2.

Day & Haghe Lith^rs to the King Gate S^t

On Stone by C. Simpson.

Plate VII.

Fig 1.

Fig 2.

Day & Haghe Lith.rs to the King, Gate St. Linc. Inn Fds

On Stone by Chas Simps.

PLATE VII.

BACK AND INNER VIEW OF THE MUSCLES OF THE SUPERIOR EXTREMITIES.

FIG. 1.

a. Pectoralis Major.

b. Deltoides.

c. Biceps Flexor Cubiti.

d. Coraco-Brachialis.

e. Triceps Extensor Cubiti.

f. Pronator Radii Teres.

g. Flexor Carpi Radialis.

h. Palmaris Longus.

i. j. Supinator Radii Longus.

k. Extensor Ossis Metacarpi Pollicis Manus.

l. Extensor Primi Inter-nodii Pollicis Manus.

m. Posterior Annular Ligament.

FIG. 2.

a. Infra-Spinatus.

b. Deltoides.

c. Triceps Extensor Cubiti.

d. Olecranon Process.

e. Supinator Radii Longus.

f. Extensor Carpi Radialis Longior.

g. Extensor Digitorum Communis.

h. Auricularis.

i. Anconeus.

j. Extensor Carpi Ulnaris.

k. Extensor Ossis Metacarpi Pollicis Manus.

l. Extensor Primi Inter-nodii Pollicis Manus.

m. Posterior Annular Ligament.

PLATE VIII.

FRONT VIEW OF THE MUSCLES OF THE HAND.

a. Flexor Carpi Ulnaris.

b. Palmaris Longus.

c. Flexor Carpi Radialis.

d. Annular Ligament.

e. Flexor Sublimus Perforatus, with

f. f. f. f. The Four Tendons diverging to each of the Fingers.

g. Abductor Pollicis Manus.

h. Flexor Brevis Pollicis Manus.

i. Adductor Pollicis Manus.

j. j. j. j. The Four Lumbricales Manus.

k. k. k. k. The Four Tendons of the Flexor Profundus Perforans.

l. Palmaris Brevis.

m. Adductor Metacarpi Minimi Digiti Manus.

Plate VIII.

Day & Haghe Lith.rs to the King, Gate St.

On Stone by C. Simpson.

Plate IX.

Day & Haghe lith.rs to the King Gate St.r Lane Inn.r Fields

On Stone by C. Simpson

PLATE IX.

BACK VIEW OF THE MUSCLES OF THE HAND.

a. The Annular Ligament, binding down the Tendons.

b. Extensor Primi Inter-nodii Pollicis Manus.

c. Extensor Secundi Inter-nodii Pollicis Manus.

d. Extensor Carpi Radialis Longior.

e. Extensor Carpi Radialis Brevior.

f. f. f. f. The Four Tendons of the Extensor Digitorum Communis.

g. Auricularis.

h. Adductor Minimi Digiti Manus.

i. Adductor Indicis.

PLATE X.

FRONT AND BACK VIEW OF THE MUSCLES OF THE LOWER EXTREMITIES.

FIGURE 1.

a. Tensor Vaginæ Femoris.
b. Sartorius.
c. Rectus Femoris.
d. Vastus Externus.
e. Vastus Internus.
f. Iliacus Internus, and Psoas Magnus.
g. Pectinalis.
h. Adductor Longus.
i. Gracilis.
j. Ligamenta Patella.
k. Tibia, or Inner Bone of the Leg.
l. Tibialis Anticus.
m. Extensor Longus Digitorum Pedis.
n. Extensor Proprius Pollicis Pedis.
o. Peroneus Longus.
p. Gastrocnemius Externus, or Gemellus.
q. Gastrocnemius Internus, or Soleus.
r. Flexor Longus Digitorum Pedis.

FIGURE 2.

a. Gluteus Maximus.
b. Gluteus Medius.
c. Vastus Externus.
d. Biceps Flexor Cruris.
e. Semi-tendinosus.
f. Semi-membranosus.
g. Gracilis.
h. h. Bellies of the Gastrocnemius Externus.
i. Tendo Achillis.

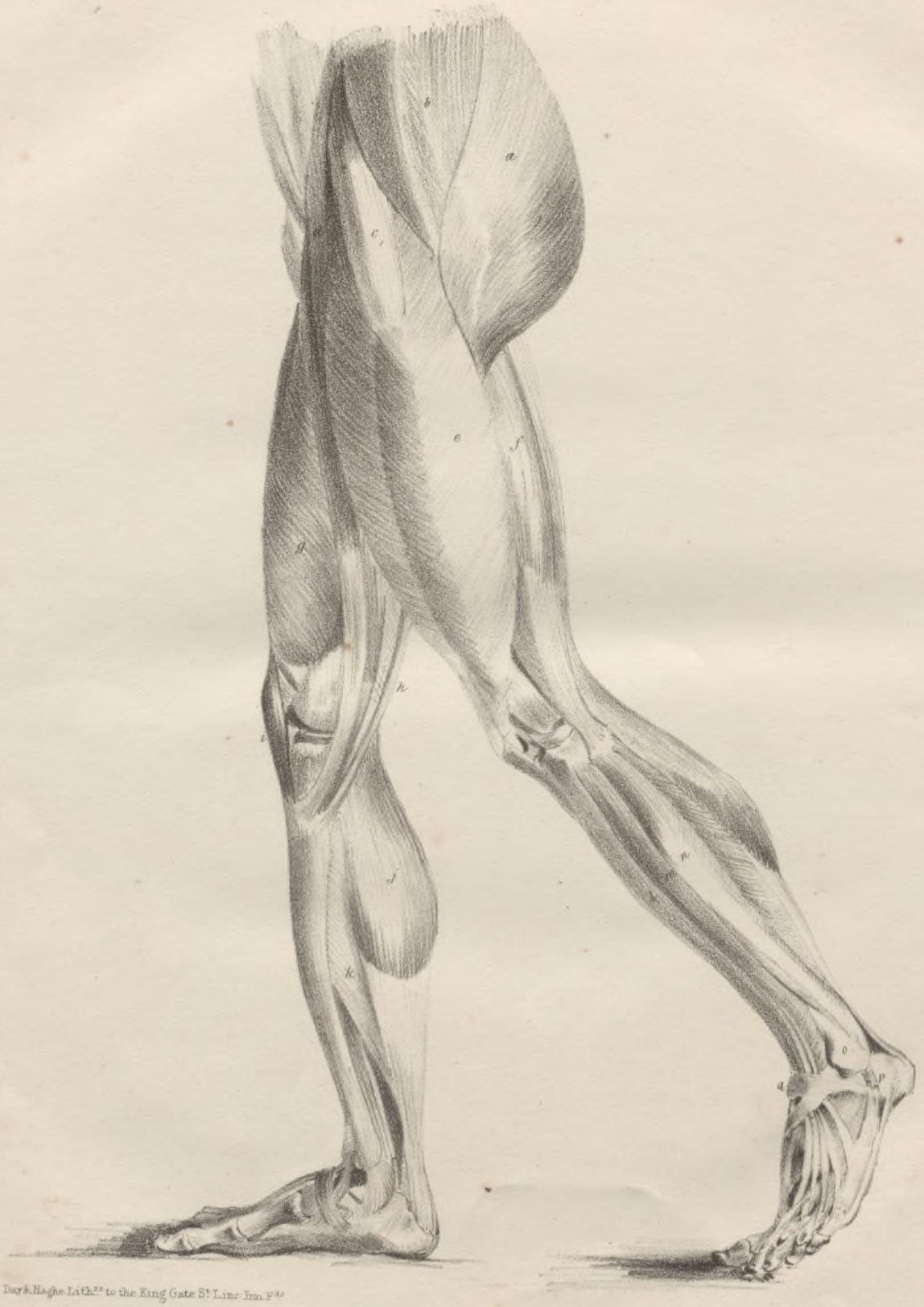
Plate X.

Fig. I.

Fig. II.

Printed by Day & Haghe, lith.rs to the King 17 Gate St. L. I. Fields

Plate XI.



Dan.l Haghe Lith.er to the King Gate St. Linc. Inn. Fields

PLATE XI.

AN OUTER AND INNER VIEW OF THE MUSCLES OF THE INFERIOR EXTREMITIES.

a. Gluteus Maximus.

b. Gluteus Medius.

c. Tensor Vaginæ Femoris.

d. Sartorius.

e. Fascia Lata Femoris.

f. Biceps Flexor Cruris.

g. Vastus Internus.

h. The Sartorius, Gracilis, and Semi-tendinosus Muscles, proceeding by the side of the Inner Condyle.

i. Ligamenta Patella.

j. Gastrocnemius Externus, vel Gemellus.

k. Gastrocnemius Internus, vel Soleus.

l. Tibialis Anticus.

m. Extensor Longus Digitorum Pedis.

n. Peroneus Longus.

o. Malleolus Externus, or Outer Ancle.

p. The Tendons of the Peroneus Longus, and Brevis.

q. Ligamentum Tarsi Annulare.

PLATE XII.

AN OUTER VIEW OF THE MUSCLES OF THE FOOT.

a. Tendo Achillis.

b. Peroneus Longus.

c. Peroneus Brevis.

d. The insertion of its Tendon.

e. Peroneus Tertius.

f. f. f. f. The Four Tendons of the Extensor Longus Digitorum Pedis.

g. g. g. g. The Four Tendons of the Extensor Brevis Digitorum Pedis.

h. Extensor Proprius Pollicis Pedis.

i. Annular Ligament.

Plate XII.

Day & Haghe Lith.rs to the King, Gate St. Lincs Inn Fields

On Stone by C. Simpson.

Plate XIII.

Day & Haghe Lith.rs to the King Gate St. Lincs Inn Fields

On Stone by C. Simpson

PLATE XIII.

AN INNER VIEW OF THE MUSCLES OF THE FOOT.

a. Gastrocnemius Externus.

b. Flexor Longus Digitorum Pedis Perforans.

c. Tibialis Posticus.

d. Malleolus Internus.

e. Ligamentum Deltoides.

f. The insertion of the Tibialis Posticus.

g. The Tendon of the Tibialis Anticus.

h. Extensor Proprius Pollicis Pedis.

i. Abductor Pollicis Pedis.

Plate XIV.

Day & Haghe Lith.rs to the King.

On Stone by C. Simpson.

Day & Haghe Lith^rs to the King

On Stone by Ch^s Simpson

Day & Haghe Lith.rs to the King.

On Stone by Chas Simpson.